

CAPITAL IMPROVEMENT PLAN

Summary of Wastewater Capital Improvement Projects

City of Hartford

Project Number	Project Name	Estimated Cost
0	Engineering, application, and legal fees for 2022 bond	\$102,000
1	S. Haver Street south of Lincoln Street	\$38,000
2	Clark Street between Spaulding Street and Olds Avenue	\$409,000
3	Pleasant Street between W. Shepard Street and W. South Street	\$50,000
4	CR-372 Interceptor Sewer Lining, west half	\$690,000
5	E. Linden Street east of Spaulding Street	\$355,000
6	Siphon under river to CR-687 Lift Station inlet	\$395,000
7	Spaulding Street between E. Linden Street and Oak Street	\$103,000
8	Oak Street west of Spaulding Street	\$54,000
9	Line CR-687 Interceptor Sewer	\$198,000
10	CR-687 Forcemain Replacement	\$368,000
11	Forcemain Replacement from CR-372 Lift Station to WWTP	\$846,000
12	CR 372 Lift Station Wet Well and Pump	\$149,000
12	Miscellaneous WWTP equipment	\$49,000
12	Secondary Clarifier Launder Covers	\$40,000
12	WWTP Ferric Chloride System Improvements	\$25,000
12	WWTP Lift Station Wet Well	\$97,000
12	WWTP Polymer Transfer Pump	\$12,000
12	WWTP potable water system	\$9,000
12	WWTP site pavement	\$194,000

Total Estimated Project Cost for SRFApplication \$4,183,000

CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	<u>0</u>
Total Project Cost:	<u>\$102,000</u>

Project Title: Engineering, application, and legal fees for 2022 bond

System: Wastewater

Project Description

Complete the required engineering report and obtain the required legal assistance to apply for a bond to finance the 2022-24 capital improvements.

Project Justification/Benefit

Assuming the City pursues EGLE SRF to finance the anticipated 2022-24 capital improvements, some preparation work will need to be done ahead of time to apply for the financing. This project will encompass the required engineering report, preparing the application, fees associated with the application, and retaining bond counsel, a financial advisor, and a local attorney to assist with the process.

Project Funding Source

SAW Grant		
Bonds/Grants/Other Financing Source	\$	102,000
Assessments		
Wastewater Fund		
TOTAL	\$	102,000



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City of Hartford

Project Title: Engineering, application, and legal fees for 2022 bond

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1	LS	Engineering report, application, and application fees	\$ 50,000	\$ 50,000
1	LS	Bond counsel	\$ 20,000	\$ 20,000
1	LS	Financial advisor	\$ 15,000	\$ 15,000
1	LS	Local attorney	\$ 7,000	\$ 7,000

Project Costs				
Construction Costs (Subtotal)			\$	92,000
Engineering	0 %		\$	-
Construction Observation	0 %		\$	-
Contingency	10 %		\$	9,200
TOTAL			\$	102,000

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CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	<u>1</u>
Total Project Cost:	<u>\$38,000</u>

Project Title: S. Haver Street south of Lincoln Street

System: Wastewater

Project Description

Replace the existing 8-inch sanitary sewer on S. Haver Street from Lincoln Street south to the manhole at the end of the sewer and replace the manhole at the south end of the sewer (ssMH-1198). Sewer in northbound lane/shoulder, full road section replacement of 9 ft. width.

Project Justification/Benefit

This segment of sewer was not fully televised as it was in such poor condition. It is a severely worn concrete sewer of unknown age. Within the first few feet of the pipe that was televised, there are multiple locations where the top of the pipe is missing and voids can be seen forming. If left unrepaired, these voids will continue to get larger as more and more soil falls into the sewer through the holes and is washed away and will place the road above in danger of collapsing. Replacing this segment of sanitary sewer will eliminate the risk of the sewer and road above collapsing, reduce the risk of downstream sewer clogs due to the soil being washed into the sewer, eliminate a segment of concrete sewer of unknown age, and repair multiple Grade 4 and 5 defects.

In addition, the manhole at the end of the sewer (ssMH-1198) is a brick manhole of unknown age, considered to be among the oldest in the system (likely nearing the end of its useful life). Replacing this manhole will eliminate a manhole in danger of collapsing.

Project Funding Source

SAW Grant			
Bonds/Grants/Other Financing Source	\$		38,000
Assessments			
Wastewater Fund			
TOTAL	\$		38,000



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Project Title: S. Haver Street south of Lincoln Street

Quantity	Unit of Measure	Item	Unit Price	Subtotal
182	LF	Sanitary Sewer, PVC, 8-inch	\$ 60	\$ 10,920
1	EA	Sanitary Structure, 48-inch	\$ 5,000	\$ 5,000
182	LF	Sanitary Sewer, Rem, Less than 24-inch	\$ 15	\$ 2,730
1	EA	Sanitary Structure, Rem	\$ 500	\$ 500
182	SYD	Aggregate Base, 8-inch	\$ 10	\$ 1,820
35	TON	HMA, 3 1/2-inch	\$ 75	\$ 2,628
182	SYD	HMA, Rem	\$ 5	\$ 910
1	LS	Mobilization	\$ 1,300	\$ 1,300
1	LS	Traffic Control	\$ 1,300	\$ 1,300

Project Costs			
Construction Costs (Subtotal)		\$	27,200
Engineering	8 %	\$	2,200
Construction Observation	8 %	\$	2,200
Contingency	20 %	\$	6,400
TOTAL		\$	38,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	<u>2</u>
Total Project Cost:	<u>\$409,000</u>

Project Title: Clark Street between Spaulding Street and Olds Avenue

System: Wastewater

Project Description

Replace the existing 8-inch sanitary sewer on Clark Street from Spaulding Street east to Olds Avenue along with all four manholes on this segment (ssMH-1105, ssMH-1187, ssMH-1185, and ssMH-1091). Sewer through center of roadway, full road section replacement of 18 ft. width.

Project Justification/Benefit

This segment of sewer was not televised as it was identified by City personnel as being in poor condition. It is a concrete sewer of unknown age and is reported to be "paper thin". Concrete sewer that worn is in danger of collapsing or developing holes that would allow surrounding soil to wash into the sewer which could place the roadway above in danger of collapsing. Replacing this segment of sanitary sewer will eliminate the risk of the sewer and road above collapsing, eliminate a segment of concrete sewer of unknown age, and remove an area of concern for City personnel.

In addition, the four manholes along this segment of sanitary sewer (ssMH-1105, ssMH-1187, ssMH-1185, and ssMH-1091) are all brick manholes of unknown age, considered to be among the oldest in the system and likely nearing the end of their useful lives. Replacing these manholes will eliminate three manholes in danger of collapsing.

Project Funding Source

SAW Grant		
Bonds/Grants/Other Financing Source	\$	409,000
Assessments		
Wastewater Fund		
TOTAL	\$	409,000



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Project Title: Clark Street between Spaulding Street and Olds Avenue

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1,350	LF	Sanitary Sewer, PVC, 8-inch	\$ 60	\$ 81,000
4	EA	Sanitary Structure, 48-inch	\$ 5,000	\$ 20,000
11	EA	Sanitary Wye, 8-inch x 6-inch	\$ 500	\$ 5,500
1,350	LF	Sanitary Sewer, Rem, Less than 24-inch	\$ 15	\$ 20,250
4	EA	Sanitary Structure, Rem	\$ 500	\$ 2,000
2,700	SYD	Aggregate Base, 8-inch	\$ 10	\$ 27,000
520	TON	HMA, 3 1/2-inch	\$ 75	\$ 38,981
1	LS	Dewatering	\$ 35,000	\$ 35,000
2,700	SYD	HMA, Rem	\$ 5	\$ 13,500
825	LFT	Sewer Lateral, 6-inch	\$ 30	\$ 24,750
300	SFT	Sidewalk, 4-inch Remove and Replace	\$ 6	\$ 1,800
1	LS	Mobilization	\$ 11,800	\$ 11,800
1	LS	Traffic Control	\$ 11,800	\$ 11,800

Project Costs			
Construction Costs (Subtotal)		\$	293,400
Engineering	8 %	\$	23,500
Construction Observation	8 %	\$	23,500
Contingency	20 %	\$	68,100
TOTAL		\$	409,000

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CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number: _____	3
Total Project Cost: _____	\$50,000

Project Title: Pleasant Street between W. Shepard Street and W. South Street

System: Wastewater

Project Description

Line the existing 8-inch sanitary sewer on Pleasant Street from W. Shepard Street south to W. South Street and line the manhole at the intersection of Pleasant Street and W. South Street (ssMH-1171).

Project Justification/Benefit

This segment of sewer is a severely worn concrete sewer of unknown age. Televising shows aggregate visible, aggregate projecting, and aggregate missing along the entire length of this sewer segment. If left unrepaired, this degradation will continue allowing holes to develop and soil to begin to wash into the sewer placing the sewer and the road above in danger of collapsing. Lining this segment of sanitary sewer with a structural liner will prevent further degradation of the concrete and will eliminate the danger of the sewer collapsing and will eliminate a segment of concrete sewer of unknown age.

In addition, the manhole at the south end of this segment (ssMH-1171) is a brick manhole of unknown age, considered to be among the oldest in the system and likely nearing the end of its useful life. Lining this manhole with a cementitious, structural liner will eliminate the danger of this manhole collapsing.

Project Funding Source

SAW Grant		
Bonds/Grants/Other Financing Source	\$	50,000
Assessments		
Wastewater Fund		
TOTAL	\$	50,000



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Project Title: Pleasant Street between W. Shepard Street and W. South Street

Quantity	Unit of Measure	Item	Unit Price	Subtotal
322	LF	Sewer Lining, 8-inch	\$ 70	\$ 22,540
1	EA	Manhole Lining, Cementitious, 48-inch (</=8' depth)	\$ 4,000	\$ 4,000
1	LS	Mobilization	\$ 4,000	\$ 4,000
1	LS	Traffic Control	\$ 5,000	\$ 5,000

Project Costs			
Construction Costs (Subtotal)		\$	35,600
Engineering	7 %	\$	2,500
Construction Observation	8 %	\$	2,900
Contingency	20 %	\$	8,200
TOTAL		\$	50,000



CAPITAL IMPROVEMENT PLAN

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Project Number: _____	4
Total Project Cost: _____	\$690,000

Project Title: CR-372 Interceptor Sewer Lining, west half

System: Wastewater

Project Description

Line the west half of the existing 18-inch interceptor sewer on County Road 372 (ssGM-856, ssGM-859, ssGM-853, ssGM-854, ssGM-855, ssGM-857 ssGM-858, ssGM-860, and ssGM-1163, between ssMH-948 and the CR-3/2 Lift Station). Replace the castings on manholes ssMH-950 and ssMH-952.

Project Justification/Benefit

The west half of the interceptor sewer along County Road 372 was noted to be suffering from surface damage with aggregate visible, which is the first step in the degradation of concrete pipe. It was also noted as having multiple "Infiltration" defects of varying significance. Infiltration occurs when sanitary sewer pipes are below the ground water table and clean ground water enters the sewer through defects in the pipe and/or joints. It results in clean water being added to the flow to the WWTP, resulting in additional treatment costs at the plant. Depending on the constituents of the ground water, it can also cause treatment issues at the WWTP. Lining this half of sewer will prevent them from incurring further concrete damage, eliminate the danger of sewer collapse, and eliminate major sources of infiltration along the interceptor sewer lowering flows to the WWTP and reducing treatment costs and may help to alleviate treatment issues being experienced at the WWTP with their UV disinfection system. The manhole castings to be replaced are showing signs of severe corrosion, placing their structural integrity in question.

Project Funding Source

SAW Grant		
Bonds/Grants/Other Financing Source	\$	690,000
Assessments		
Wastewater Fund		
TOTAL	\$	690,000



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Project Title: CR-372 Interceptor Sewer Lining, west half

Quantity	Unit of Measure	Item	Unit Price	Subtotal
2,800	LF	Sewer Lining, 18-inch	\$ 175	\$ 490,000
2	EA	Manhole casting replacement	\$ 1,000	\$ 2,000
1	LS	Mobilization	\$ 2,500	\$ 2,500
1	LS	Traffic Control	\$ 5,000	\$ 5,000

Project Costs			
Construction Costs (Subtotal)		\$	499,500
Engineering	7 %	\$	35,000
Construction Observation	8 %	\$	40,000
Contingency	20 %	\$	114,900
TOTAL		\$	690,000



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Project Number: _____	5
Total Project Cost: _____	\$355,000

Project Title: E. Linden Street east of Spaulding Street

System: Wastewater

Project Description

Replace the existing 8-inch sanitary sewer on E. Linden Street from Spaulding Street to Wendell Avenue and from Wendell Avenue east to the end of the sewer just west of 63rd Street and replace all six of the manholes along this stretch of sewer (ssMH-1066, ssMH-1057, ssMH-1078, ssMH-1056, ssMH-1184, and ssMH-1092). Sewer through center of roadway, full road section replacement of 18 ft. width.

Project Justification/Benefit

None of these pipe segments was televised in its entirety. All of the CCTV setups were abandoned for debris in the pipe the camera could not get around and the pipes could not be cleaned because City staff were worried that the cleaning operations would damage the pipe since it's in such poor condition. What portions of the pipes were televised showed concrete pipe with aggregate projecting and multiple fractures and cracks that put the structural integrity of the pipe at risk. If left unrepaired, the pipe walls will continue to degrade and the structural issues could lead to breaks or collapses that would put the road above in danger of collapsing as well. Replacing these two blocks of sanitary sewer will eliminate the risk of the sewer and road above collapsing and eliminate a segment of concrete sewer of unknown age.

In addition, all of the manholes along these two blocks are brick manholes of unknown age, considered to be among the oldest in the system and likely nearing the end of their useful lives. Replacing these manholes will eliminate six manholes in danger of collapsing.

Project Funding Source

SAW Grant	
Bonds/Grants/Other Financing Source	\$ 355,000
Assessments	
Wastewater Fund	
TOTAL	\$ 355,000



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Project Title: E. Linden Street east of Spaulding Street

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1,300	LF	Sanitary Sewer, PVC, 8-inch	\$ 60	\$ 78,000
6	EA	Sanitary Structure, 48-inch	\$ 5,000	\$ 30,000
8	EA	Sanitary Wye, 8-inch x 6-inch	\$ 500	\$ 4,000
1,300	LF	Sanitary Sewer, Rem, Less than 24-inch	\$ 15	\$ 19,500
6	EA	Sanitary Structure, Rem	\$ 500	\$ 3,000
2,600	SYD	Aggregate Base, 8-inch	\$ 10	\$ 26,000
501	TON	HMA, 3 1/2-inch	\$ 75	\$ 37,538
2,600	SYD	HMA, Rem	\$ 5	\$ 13,000
600	LFT	Sewer Lateral, 6-inch	\$ 30	\$ 18,000
375	SFT	Sidewalk, 4-inch Remove and Replace	\$ 6	\$ 2,250
1	LS	Mobilization	\$ 11,600	\$ 11,600
1	LS	Traffic Control	\$ 11,600	\$ 11,600

Project Costs			
Construction Costs (Subtotal)		\$	254,500
Engineering	8 %	\$	20,400
Construction Observation	8 %	\$	20,400
Contingency	20 %	\$	59,100
TOTAL		\$	355,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	<u>6</u>
Total Project Cost:	<u>\$395,000</u>

Project Title: Siphon under river to CR-687 Lift Station inlet

System: Wastewater

Project Description

Replace the parallel 8-inch and 10-inch siphons that cross under the Paw Paw River beside CR-687 near 54th Avenue and line the 15-inch sanitary sewer from the end of the siphon to the CR-687 Lift Station. Replace the casting for manhole ssMH-937 to the northeast of the CR-687 Lift Station.

Project Justification/Benefit

The existing cast iron siphon pipes under the Paw Paw River are over 40 years old and are believed to be in poor condition. They were not able to be dewatered to be televised. They are also believed to be a potential source of infiltration to the sanitary sewer system. Replacing them will eliminate the possibility of their failure and possibly eliminate a source of infiltration to the sewer system, lowering flows to the WWTP, reducing treatment costs, and possibly alleviate treatment issues being experienced with the WWTP's UV disinfection.

In addition, the gravity sewer between the siphon and the CR-687 Lift Station is a concrete sewer of unknown age and it was not televised due to fears that it could not withstand being cleaned without causing possible structural failure. Lining this pipe with a structural liner will prevent further degradation of the concrete, eliminate the danger of the sewer collapsing, and eliminate a segment of concrete sewer of unknown age.

Project Funding Source

SAW Grant			
Bonds/Grants/Other Financing Source	\$		395,000
Assessments			
Wastewater Fund			
TOTAL	\$		395,000



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Project Title: Siphon under river to CR-687 Lift Station inlet

Quantity	Unit of Measure	Item	Unit Price	Subtotal
993	LFT	Sanitary Siphon Sewer, 10-inch, Directionally Drilled	\$ 130	\$ 129,090
1,000	LFT	Sanitary Siphon Sewer, 10-inch, Directionally Drilled	\$ 130	\$ 130,000
131	LFT	Sewer Lining, 15-inch	\$ 90	\$ 11,790
1	EA	Manhole casting replacement	\$ 1,000	\$ 1,000
200	LFT	Soil Erosion Control, Silt Fence	\$ 4	\$ 800
1	LS	Mobilizaion	\$ 3,000	\$ 3,000
1	LS	Traffic Control	\$ 3,000	\$ 3,000

Project Costs			
Construction Costs (Subtotal)		\$	278,700
Engineering	9 %	\$	25,100
Construction Observation	9 %	\$	25,100
Contingency	20 %	\$	65,800
TOTAL		\$	395,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number: _____	7
Total Project Cost: _____	\$103,000

Project Title: Spaulding Street between E. Linden Street and Oak Street

System: Wastewater

Project Description

Replace the existing 10-inch sanitary sewer on Spaulding Street from E. Linden Street south to Oak Street and replace the manhole at the intersection of Spaulding Street and Oak Street (ssMH-1067). Sewer through center of roadway, full road section replacement of 18 ft. width.

Project Justification/Benefit

This segment of pipe is a worn concrete sewer of unknown age. Televising showed that there is aggregate visible and/or projecting throughout its length. It also found multiple Grade 5 holes with soil visible beyond them and one Grade 5 hole with a void beginning to form along with multiple Grade 3 and Grade 4 structural fractures and cracks. Left unrepaired, the fractures and cracks place the sewer in danger of structural failure. The existing holes with soil visible will begin to develop voids placing both the sewer and the road above in danger of collapsing. Replacing this segment of sanitary sewer will eliminate the risk of the sewer and road above collapsing, reduce the risk of downstream sewer clogs due to soil being washed into the sewer, eliminate a segment of concrete sewer of unknown age, and repair multiple Grade 4 and 5 defects.

In addition, the manhole at the intersection of Spaulding Street and Oak Street (ssMH-1067) is a brick manhole of unknown age, considered to be among the oldest in the system and likely nearing the end of its useful life. Replacing this manhole will eliminate a manhole in danger of collapsing.

Project Funding Source

SAW Grant	
Bonds/Grants/Other Financing Source	\$ 103,000
Assessments	
Wastewater Fund	
TOTAL	\$ 103,000



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Project Title: Spaulding Street between E. Linden Street and Oak Street

Quantity	Unit of Measure	Item	Unit Price	Subtotal
318	LF	Sanitary Sewer, PVC, 10-inch	\$ 75	\$ 23,850
1	EA	Sanitary Structure, 48-inch	\$ 5,000	\$ 5,000
4	EA	Sanitary Wye, 8-inch x 6-inch	\$ 500	\$ 2,000
318	LF	Sanitary Sewer, Rem, Less than 24-inch	\$ 15	\$ 4,770
1	EA	Sanitary Structure, Rem	\$ 500	\$ 500
636	SYD	Aggregate Base, 8-inch	\$ 10	\$ 6,360
122	TON	HMA, 3 1/2-inch	\$ 75	\$ 9,182
636	SYD	HMA, Rem	\$ 5	\$ 3,180
300	LFT	Sewer Lateral, 6-inch	\$ 30	\$ 9,000
150	SFT	Sidewalk, 4-inch Remove and Replace	\$ 6	\$ 900
1	LS	Mobilization	\$ 3,300	\$ 3,300
1	LS	Traffic Control	\$ 3,300	\$ 3,300

Project Costs			
Construction Costs (Subtotal)		\$	71,400
Engineering	10 %	\$	7,200
Construction Observation	10 %	\$	7,200
Contingency	20 %	\$	17,200
TOTAL		\$	103,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	8
Total Project Cost:	\$54,000

Project Title: Oak Street west of Spaulding Street

System: Wastewater

Project Description

Line the existing 8-inch sanitary sewer on Oak Street from Spaulding Street east to the first manhole along Oak Street and line the first manhole east of Spaulding Street on Oak Street (ssMH-1068).

Project Justification/Benefit

This segment of sewer is a worn concrete sewer of unknown age. Televising shows aggregate visible throughout the entire length of this sewer segment. In addition, a Grade 5 hole with soil visible and a Grade 5 hole with a void beginning to form were noted along with multiple Grade 4 fractures. If left unrepaired, the current void will continue to get larger and the other hole could also begin to form a void, placing the road above in danger of collapsing. The fractures also place the sewer in danger of structural failure. Lining this segment of sanitary sewer with a structural liner will prevent further degradation of the concrete, prevent the existing void from growing, prevent other voids from forming, eliminate the danger of the sewer and the road above collapsing, and will eliminate a segment of concrete sewer of unknown age.

In addition, the first manhole east of Spaulding Street along Oak Street (ssMH-1068) is a brick manhole of unknown age, considered to be among the oldest in the system and likely nearing the end of its useful life. Lining this manhole with a cementitious, structural liner will eliminate the danger of this manhole collapsing.

Project Funding Source

SAW Grant		
Bonds/Grants/Other Financing Source	\$	54,000
Assessments		
Wastewater Fund		
TOTAL	\$	54,000



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Project Title: Oak Street west of Spaulding Street

Quantity	Unit of Measure	Item	Unit Price	Subtotal
343	LF	Sewer Lining, 8-inch	\$ 70	\$ 24,010
1	EA	Manhole Lining, Cementitious, 48-inch (8'>15' depth)	\$ 6,000	\$ 6,000
1	LS	Mobilization	\$ 3,000	\$ 3,000
1	LS	Traffic Control	\$ 5,000	\$ 5,000

Project Costs			
Construction Costs (Subtotal)		\$	38,100
Engineering	7 %	\$	2,700
Construction Observation	9 %	\$	3,500
Contingency	20 %	\$	8,900
TOTAL		\$	54,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	9
Total Project Cost:	\$198,000

Project Title: Line CR-687 Interceptor Sewer

System: Wastewater

Project Description

Line the 15-inch concrete sanitary interceptor sewer on CR-687 from the CR-687 Lift Station discharge manhole (ssMH-933) north to the intersection of CR-687 and CR-372. Line all four sanitary manholes along this stretch (ssMH-933, ssMH-941, ssMH-942, and ssMH-943).

Project Justification/Benefit

This segment of concrete sewer is on the discharge of the CR-687 Lift Station and is beginning to show evidence of hydrogen sulfide attack. Lining this sewer with a structural lining system impervious to hydrogen sulfide will extend the useful life of this critical asset.

In addition, all four of the manholes on this stretch are beginning to show evidence of hydrogen sulfide attack. Lining the manholes with a lining system impervious to hydrogen sulfide will extend the useful lives of these critical assets.

Project Funding Source	
SAW Grant	
Bonds/Grants/Other Financing Source	\$ 198,000
Assessments	
Wastewater Fund	
TOTAL	\$ 198,000



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Project Title: Line CR-687 Interceptor Sewer

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1,215	LFT	Sewer Lining, 15-inch	\$ 100	\$ 121,500
35	VFT	Manhole Lining, Epoxy, 48-inch	\$ 400	\$ 14,000
1	LS	Mobilization	\$ 2,500	\$ 2,500
1	LS	Traffic Control	\$ 5,000	\$ 5,000

Project Costs			
Construction Costs (Subtotal)		\$	143,000
Engineering	7 %	\$	10,100
Construction Observation	8 %	\$	11,500
Contingency	20 %	\$	33,000
TOTAL		\$	198,000



CAPITAL IMPROVEMENT PLAN

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Project Number:	<u>10</u>
Total Project Cost:	<u>\$368,000</u>

Project Title: CR-687 Forcemain Replacement

System: Wastewater

Project Description

Replace the 8-inch ductile iron forcemain from the 687 Lift Station to ssMH-933.

Project Justification/Benefit

The existing forcemain is approximately 50 years old. The typical useful life of ductile iron pressure pipe is 100 years, however based on the significant deterioration of the nearby interceptor sewer, the City believes this forcemain is also in poor condition.

Preventative replacement of the forcemain could reduce the risk of significant disruption due to a future failure in this pipe. Additionally, this sewer crosses under the CSX Railroad; a failure within the impact area of the railway could compromise the safety and short term use of the railway if an emergency repair is necessary.

Project Funding Source

SAW Grant		
Bonds/Grants/Other Financing Source	\$	368,000
Assessments		
Wastewater Fund		
TOTAL	\$	368,000



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Project Title: CR-687 Forcemain Replacement

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1,500	LFT	Forcemain, DI, 8-inch	\$ 85	\$ 127,500
90	LFT	Bore and Jack, Steel Casing, 16-inch	\$ 600	\$ 54,000
4	TON	HMA Approach	\$ 150	\$ 660
1,333	SYD	Slope Restoration, Type A	\$ 7	\$ 9,333
1,500	LFT	Abandon Forcemain	\$ 15	\$ 22,500
1	LS	Railroad Permit	\$ 20,000	\$ 20,000
1	LS	Mobilization	\$ 10,700	\$ 10,700
1	LS	Traffic Control	\$ 10,700	\$ 10,700

Project Costs			
Construction Costs (Subtotal)		\$	255,400
Engineering	10 %	\$	25,600
Construction Observation	10 %	\$	25,600
Contingency	20 %	\$	61,400
TOTAL		\$	368,000



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CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	<u>11</u>
Total Project Cost:	<u>\$846,000</u>

Project Title: Forcemain Replacement from CR-372 Lift Station to WWTP

System: Wastewater

Project Description

Replace the 8-inch ductile iron forcemain from the 372 Lift Station to the WWTP.

Project Justification/Benefit

The existing forcemain is approximately 50 years old. The typical useful life of ductile iron pressure pipe is 100 years, however based on the significant deterioration of the nearby interceptor sewer, the City believes this forcemain is also in poor condition.

Project Funding Source

SAW Grant			
Bonds/Grants/Other Financing Source	\$	846,000	
Assessments			
Wastewater Fund			
TOTAL	\$	846,000	



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Title: Forcemain Replacement from CR-372 Lift Station to WWTP

Quantity	Unit of Measure	Item	Unit Price	Subtotal
4,000	LFT	Forcemain, DI, 10-inch	\$ 100	\$ 400,000
300	LFT	Forcemain, 10-inch, Directionally Drilled	\$ 130	\$ 39,000
3,556	SYD	Slope Restoration, Type A	\$ 7	\$ 24,889
4,000	LFT	Abandon Forcemain	\$ 15	\$ 60,000
2	EA	Air Release Valves	\$ 500	\$ 1,000
3,000	LFT	Soil Erosion Control, Silt Fence	\$ 4	\$ 12,000
1	LS	Mobilization	\$ 25,000	\$ 25,000
1	LS	Traffic Control	\$ 25,000	\$ 25,000

Project Costs			
Construction Costs (Subtotal)		\$	586,900
Engineering	10 %	\$	58,700
Construction Observation	10 %	\$	58,700
Contingency	20 %	\$	140,900
TOTAL		\$	846,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	12
Total Project Cost:	\$149,000

Project Title: CR 372 Lift Station Wet Well and Pump

System: Wastewater

Project Description

This project would add a secondary wet well at the CR 372 lift station and include addition of a third pump sized for off-peak flows and setup for tri-plex operation.

One alternative to this project would be to install an equalization tank at the WWTP before the headworks (estimated cost \$140,000).

Project Justification/Benefit

This project would reduce flow surges at the WWTP. The current operation causes surges of high inflow at the WWTP which affect the performance of downstream operations including chemical feed, clarifiers and UV disinfection. Either installing an additional wet well and third pump sized for non-peak flows at CR 372 LS, or installing an equalization tank at the WWTP before the headworks would improve operational challenges at the plant. The Equalization tank alternative would also reduce surging caused by high flows from Four Winds Casino

Project Funding Source

SAW Grant		
Bonds/Grants/Other Financing Source	\$	149,000
Assessments		
Wastewater Fund		
TOTAL	\$	149,000



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CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Title: CR 372 Lift Station Wet Well and Pump

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1	LS	Wet Well, 72-inch dia. And piping	\$ 60,000	\$ 60,000
1	EA	Discharge Pump	\$ 20,000	\$ 20,000
1	LS	Triplex controls set up	\$ 10,000	\$ 10,000
1	LS	Mobilization	\$ 8,000	\$ 8,000
1	LS	Traffic Control	\$ 8,000	\$ 8,000

Project Costs			
Construction Costs (Subtotal)		\$	106,000
Engineering	9 %	\$	9,600
Construction Observation	8 %	\$	8,500
Contingency	20 %	\$	24,900
TOTAL		\$	149,000

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CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	12
Total Project Cost:	\$49,000

Project Title: Miscellaneous WWTP equipment

System: Wastewater

Project Description

Plan for replacement of the following miscellaneous equipment located throughout the WWTP: Control Building Air Valves (x8); Control Building Air Compressors (x2); Polymer Mixer; and Polymer Feed Pump.

Project Justification/Benefit

There are multiple pieces of equipment throughout the WWTP that installation years could not be located for and are assumed to be original equipment from when the plant was built in 1977. There are other pieces of equipment with installation dates that indicate that their useful service lives have elapsed or will elapse by 2024. Planning on replacement of these pieces of equipment, though not in need of replacement now, will ensure that sufficient capital exists when replacement becomes necessary.

In addition, the polymer feed system currently only has one pump dedicated to metering polymer into the treatment process. Installation of a second polymer feed pump would add redundancy to the polymer feed process, lessening the possibility of equipment failure interrupting the flow of polymer to the treatment process.

Project Funding Source

SAW Grant	
Bonds/Grants/Other Financing Source	\$ 49,000
Assessments	
Wastewater Fund	
TOTAL	\$ 49,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Title: Miscellaneous WWTP equipment

Quantity	Unit of Measure	Item	Unit Price	Subtotal
4	EA	8-inch diameter butterfly valve	\$ 1,500	\$ 6,000
2	EA	6-inch diameter gate valve	\$ 1,000	\$ 2,000
2	EA	8-inch diameter check valve	\$ 1,600	\$ 3,200
1	EA	Air compressor (lime mixing - east)	\$ 2,500	\$ 2,500
1	EA	Air compressor (lime mixing - west)	\$ 2,000	\$ 2,000
1	EA	Mixer (polymer mixer)	\$ 6,000	\$ 6,000
2	EA	Chemical metering pump (polymer feed)	\$ 3,500	\$ 7,000

Project Costs			
Construction Costs (Subtotal)		\$	28,700
Engineering	20 %	\$	5,800
Construction Observation	15 %	\$	4,400
Contingency	25 %	\$	9,800
TOTAL		\$	49,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number: _____	12
Total Project Cost: _____	\$40,000

Project Title: Secondary Clarifier Launder Covers

System: Wastewater

Project Description

This project includes installation of covers on the effluent launders of the secondary clarifiers.

Project Justification/Benefit

Algae growth on the effluent weirs and within the effluent launders of the secondary clarifiers has been identified as exacerbating issues with the UV disinfection system. The addition of launder covers for both of the secondary clarifiers would prevent the growth of algae, improving the effectiveness of the UV disinfection system.

Project Funding Source	
SAW Grant	
Bonds/Grants/Other Financing Source	\$ 40,000
Assessments	
Wastewater Fund	
TOTAL	\$ 40,000

CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Title: Secondary Clarifier Launder Covers

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1	LS	Effluent Launder Covers	\$ 31,000	\$ 31,000

Project Costs			
Construction Costs (Subtotal)		\$	31,000
Engineering	7 %	\$	2,200
Construction Observation	0 %	\$	-
Contingency	20 %	\$	6,700
TOTAL		\$	40,000

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CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number: _____	12
Total Project Cost: _____	\$25,000

Project Title: WWTP Ferric Chloride System Improvements

System: Wastewater

Project Description

This project includes installation of a day tank with containment inside the headworks building at the WWTP and modifications to the ferric chloride feed piping, including replacement of the existing ultrasonic sensor with a radar level sensor in the bulk tank.

Project Justification/Benefit

The systems current ferric chloride ultrasonic level sensor is not producing accurate readings, replacement of the sensor would eliminate operational challenges due to this issue. The WWTP has experienced staining of the UV system bulbs due to ferric chloride dosing, the day tank would help to reduce the daily ferric dose and help alleviate the staining issue downstream.

Project Funding Source	
SAW Grant	
Bonds/Grants/Other Financing Source	\$ 25,000
Assessments	
Wastewater Fund	
TOTAL	\$ 25,000

CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Title: WWTP Ferric Chloride System Improvements

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1	LS	Ferric Chloride Day Tank	\$ 14,000	\$ 14,000
1	LS	Radar Level and Chemical Piping	\$ 3,500	\$ 3,500

Project Costs			
Construction Costs (Subtotal)		\$	17,500
Engineering	8 %	\$	1,400
Construction Observation	8 %	\$	1,400
Contingency	20 %	\$	4,100
TOTAL		\$	25,000

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CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	12
Total Project Cost:	\$97,000

Project Title: WWTP Lift Station Wet Well

System: Wastewater

Project Description

Repair the WWTP Lift Station Wet Well concrete where there is exposed reinforcing steel and coat the entire interior of the wet well structure with a coating impervious to hydrogen sulfide attack. Sand-blast and re-coat all exposed piping in the lift station wet well.

Project Justification/Benefit

The WWTP Lift Station serves to pump wastewater from various plant functions and drains up into the treatment process. There are areas within the existing lift station wet well with exposed reinforcing steel. Because this reinforcing steel is exposed, the steel can corrode. As the steel corrodes, it expands, chipping off further areas of concrete and exposing additional reinforcement to the corrosive atmosphere within the wet well. Repairing these areas of exposed reinforcing steel will protect the steel from further corrosion and prolong the life of this critical asset. In addition, coating the wet well with a lining system impervious to hydrogen sulfide attack will help to prolong the life of this asset.

Likewise, the exposed piping within the lift station wet well is showing signs of significant corrosion. Sand-blasting and re-coating all of the exposed piping will help to prolong the life of these assets.

Project Funding Source

SAW Grant	
Bonds/Grants/Other Financing Source	\$ 97,000
Assessments	
Wastewater Fund	
TOTAL	\$ 97,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Title: WWTP Lift Station Wet Well

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1	LS	Concrete repair of wet well where steel is exposed	\$ 5,000	\$ 5,000
1	LS	Coat the wet well interior	\$ 54,500	\$ 54,500
1	LS	Sand-blast and re-coat wet well piping	\$ 7,500	\$ 7,500

Project Costs			
Construction Costs (Subtotal)		\$	67,000
Engineering	7 %	\$	4,700
Construction Observation	8 %	\$	5,400
Contingency	25 %	\$	19,300
TOTAL		\$	97,000

CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	12
Total Project Cost:	\$12,000

Project Title: WWTP Polymer Transfer Pump

System: Wastewater

Project Description
 Replace the Polymer Transfer Pump at the WWTP.

Project Justification/Benefit
 WWTP staff make polymer for use in the treatment process by mixing dry polymer and water in the Polymer Bulk Storage/Mixing Tank. Once the polymer is mixed, polymer is transferred from the Polymer Bulk Storage/Mixing Tank to the Polymer Day tank to be metered to the treatment process. The transfer of the polymer is accomplished by the Polymer Transfer Pump. The actual age of the existing Polymer Transfer Pump is unknown, but it is assumed to be original equipment from when the polymer feed system was installed in 1977. This would mean the pump is well past its typical useful life. In addition, the bearings on the existing pump are beginning to fail and replacing them would be cost prohibitive compared to the price of a new pump. Replacing this failing asset will restore full functionality and reliability to the polymer feed process at the WWTP.

Project Funding Source	
SAW Grant	
Bonds/Grants/Other Financing Source	\$ 12,000
Assessments	
Wastewater Fund	
TOTAL	\$ 12,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Title: WWTP Polymer Transfer Pump

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1	EA	Polymer Transfer Pump; 480 volt, 3 phase, 2 hp	\$ 6,000	\$ 6,000

Project Costs			
Construction Costs (Subtotal)		\$	6,000
Engineering	30 %	\$	1,800
Construction Observation	25 %	\$	1,500
Contingency	25 %	\$	2,400
TOTAL		\$	12,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number: _____	12
Total Project Cost: _____	\$9,000

Project Title: WWTP potable water system

System: Wastewater

Project Description

Plan for replacement of the plant potable water system at the WWTP.

Project Justification/Benefit

Mechanical equipment used in wastewater service has a typical lifespan of 20 years. Planning on replacement of the plant potable water system, though not in need of replacement now, will ensure that sufficient capital exists when replacement becomes necessary.

Project Funding Source	
SAW Grant	
Bonds/Grants/Other Financing Source	\$ 9,000
Assessments	
Wastewater Fund	
TOTAL	\$ 9,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Title: WWTP potable water system

Quantity	Unit of Measure	Item	Unit Price	Subtotal
1	EA	Plant potable water system	\$ 6,500	\$ 6,500

Project Costs				
Construction Costs (Subtotal)			\$	6,500
Engineering	0 %		\$	-
Construction Observation	0 %		\$	-
Contingency	25 %		\$	1,700
TOTAL			\$	9,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Number:	<u>12</u>
Total Project Cost:	<u>\$194,000</u>

Project Title: WWTP site pavement

System: Wastewater

Project Description

Replace the asphalt driving surfaces throughout the WWTP.

Project Justification/Benefit

The asphalt pavement throughout the WWTP was installed in 1977, has surpassed its useful life, and is in poor condition. Repaving the driving surfaces of the treatment plant or replacing them with gravel driving surfaces will improve safety for employees walking around the treatment plant, improve the functionality of the treatment plant for vehicular traffic restoring full functionality to the treatment plant, and improve the aesthetics of the treatment plant.

Project Funding Source

SAW Grant			
Bonds/Grants/Other Financing Source	\$		194,000
Assessments			
Wastewater Fund			
TOTAL	\$		194,000



CAPITAL IMPROVEMENT PLAN

City of Hartford

Project Title: WWTP site pavement

Quantity	Unit of Measure	Item	Unit Price	Subtotal
536	TON	HMA, Surface	\$ 200	\$ 107,250
3,250	SYD	Aggregate Base, 4-inch	\$ 7	\$ 22,750
1	LS	Mobilization	\$ 5,000	\$ 5,000
1	LS	Traffic Control	\$ 5,000	\$ 5,000

Project Costs			
Construction Costs (Subtotal)		\$	140,000
Engineering	7 %	\$	9,800
Construction Observation	8 %	\$	11,200
Contingency	20 %	\$	32,200
TOTAL		\$	194,000



CAPITAL IMPROVEMENT PLAN

Number	Project	Total	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	Engineering, application, and legal fees for 2022 bond	\$102,000	\$ 102,000														
1	S. Haver Street south of Lincoln Street	\$38,000		\$ 38,000													
2	Clark Street between Spaulding Street and Olds Avenue	\$409,000			\$ 409,000												
3	Pleasant Street between W. Shepard Street and W. South Street	\$50,000				\$ 50,000											
4	CR-372 Interceptor Sewer Lining west half	\$890,000					\$ 690,000										
5	E. Linden Street east of Spaulding Street	\$395,000						\$ 355,000									
6	Siphon under river to CR-687 Lift Station inlet	\$395,000							\$ 395,000								
7	Spaulding Street between E. Linden Street and Oak Street	\$103,000								\$ 103,000							
8	Oak Street west of Spaulding Street	\$54,000									\$ 54,000						
9	Line CR-587 Interceptor Sewer	\$198,000										\$ 198,000					
10	CR-657 Force-main Replacement	\$388,000											\$ 388,000				
11	Force-main Replacement from CR-372 Lift Station to WWTP	\$846,000												\$ 846,000			
12	CR 372 Lift Station Wet Well and Pump	\$149,000													\$ 149,000		
12	Miscellaneous WWTP equipment	\$49,000													\$ 49,000		
12	Secondary Clarifier Launder Covers	\$40,000													\$ 40,000		
12	WWTP Ferric Chloride System Improvements	\$25,000													\$ 25,000		
12	WWTP Lift Station Wet Well	\$97,000													\$ 97,000		
12	WWTP Polymer Transfer Pump	\$12,000													\$ 12,000		
12	WWTP potable water system	\$9,000													\$ 9,000		
12	WWTP site pavement	\$194,000													\$ 194,000		
Subtotal of Non-Inflated Costs =			\$ 102,000	\$ 38,000	\$ 409,000	\$ 50,000	\$ 690,000	\$ 355,000	\$ 395,000	\$ 103,000	\$ 54,000	\$ 198,000	\$ 388,000	\$ 846,000	\$ 575,000	\$ -	\$ -
Inflation Adjusted Subtotal =			\$ 102,000	\$ 38,000	\$ 409,000	\$ 50,000	\$ 690,000	\$ 355,000	\$ 395,000	\$ 103,000	\$ 54,000	\$ 198,000	\$ 388,000	\$ 846,000	\$ 575,000	\$ -	\$ -
Total CIP =			\$ 102,000	\$ 38,000	\$ 409,000	\$ 50,000	\$ 690,000	\$ 355,000	\$ 395,000	\$ 103,000	\$ 54,000	\$ 198,000	\$ 388,000	\$ 846,000	\$ 575,000	\$ -	\$ -

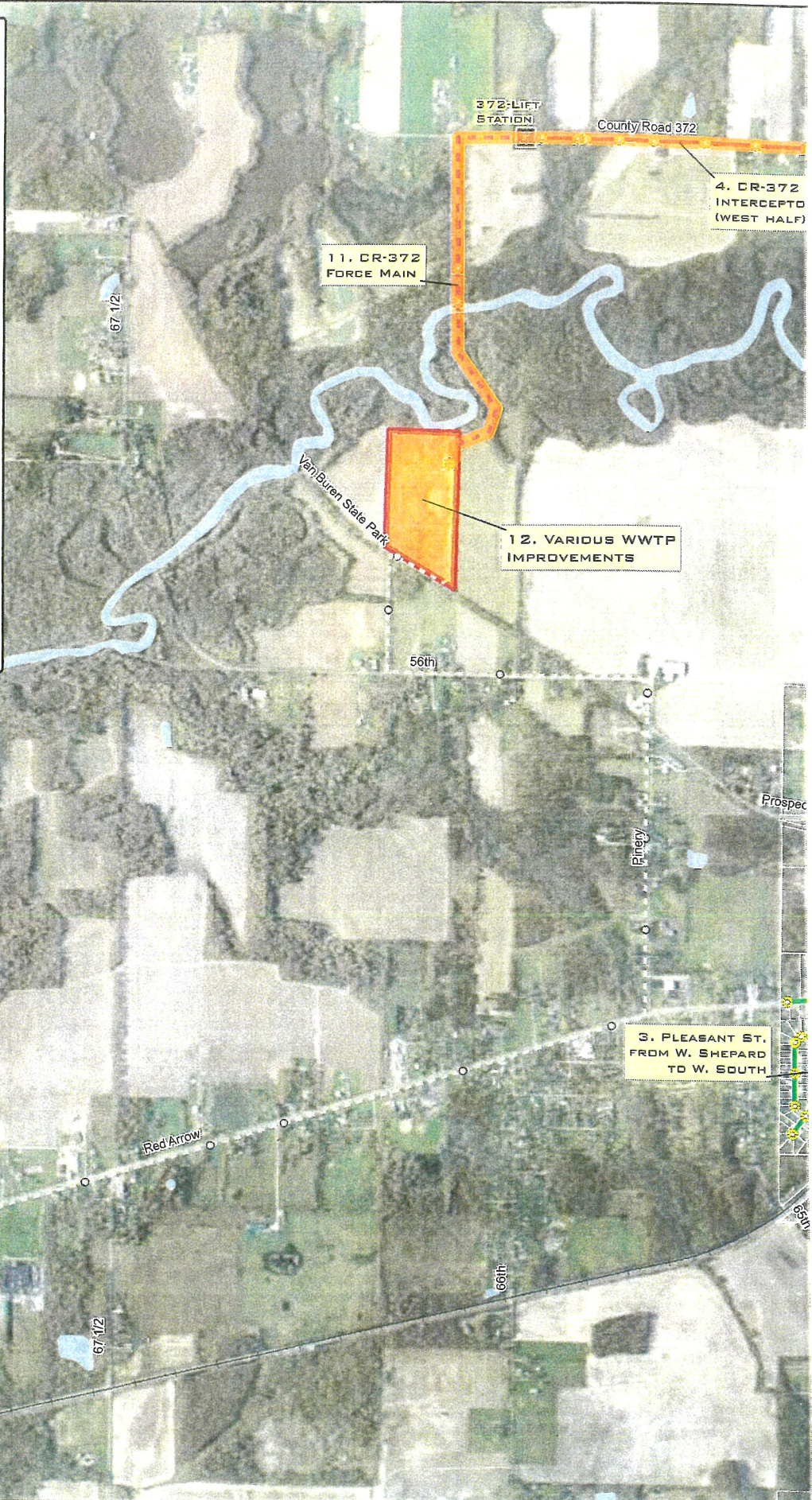
Assumptions:

1) Inflation Factor: 0.0%



LEGEND

- DIP PROJECT LOCATIONS
- LIFT STATION
- GRINDER STATION
- SEWER MANHOLES**
- CITY OWNED
- PRIVATELY OWNED
- SEWER FORCE MAINS**
- CITY OWNED
- PRIVATELY OWNED
- SEWER GRAVITY MAINS BY DIAMETER**
- 8"
- 10"
- 12"
- 15"
- 16"
- 18"
- PRIVATELY OWNED
- WASTE WATER TREATMENT PLANT
- CITY PARCELS
- RAIL ROADS



CAPITAL IMPROVEMENT PLAN

Number	Project	Total	15	16	17	18	19	20	21	Totals
0	Engineering, application, and legal fees for 2022 bond	\$102,000								\$ 102,000
1	S. Haver Street south of Lincoln Street	\$36,000								\$ 36,000
2	Clark Street between Spaulding Street and Olds Avenue	\$409,000								\$ 409,000
3	Pleasant Street between W. Shepard Street and W. South Street	\$50,000								\$ 50,000
4	CR-372 Interceptor Sewer Lining, west half	\$690,000								\$ 690,000
5	E. Linden Street east of Spaulding Street	\$355,000								\$ 355,000
6	Siphon under river to CR-687 Lift Station inlet	\$395,000								\$ 395,000
7	Spaulding Street between E. Linden Street and Oak Street	\$103,000								\$ 103,000
8	Oak Street west of Spaulding Street	\$54,000								\$ 54,000
9	Line CR-687 Interceptor Sewer	\$198,000								\$ 198,000
10	CR-687 Forcemain Replacement	\$366,000								\$ 366,000
11	Forcemain Replacement from CR-372 Lift Station to WWTP	\$646,000								\$ 646,000
12	CR 372 Lift Station Wet Well and Pump	\$149,000								\$ 149,000
12	Miscellaneous WWTP equipment	\$49,000								\$ 49,000
12	Secondary Clarifier Launder Covers	\$40,000								\$ 40,000
12	WWTP Ferric Chloride System Improvements	\$25,000								\$ 25,000
12	WWTP Lift Station Wet Well	\$97,000								\$ 97,000
12	WWTP Polymer Transfer Pump	\$12,000								\$ 12,000
12	WWTP potable water system	\$9,000								\$ 9,000
12	WWTP site pavement	\$194,000								\$ 194,000
Subtotal of Non-Inflated Costs =		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,183,000
Inflation Adjusted Subtotal =		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,183,000
Total CIP =		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,183,000

Assumptions:

1) Inflation Factor:

0.0%

