2023 CAPITAL IMPROVEMENT PLANS

Revised May 2023

CIP SYSTEM SECTIONS

AIRPORT

SIDEWALK/TRAIL

STREET

WATER DISTRIBUTION

SANITARY SEWER COLLECTION

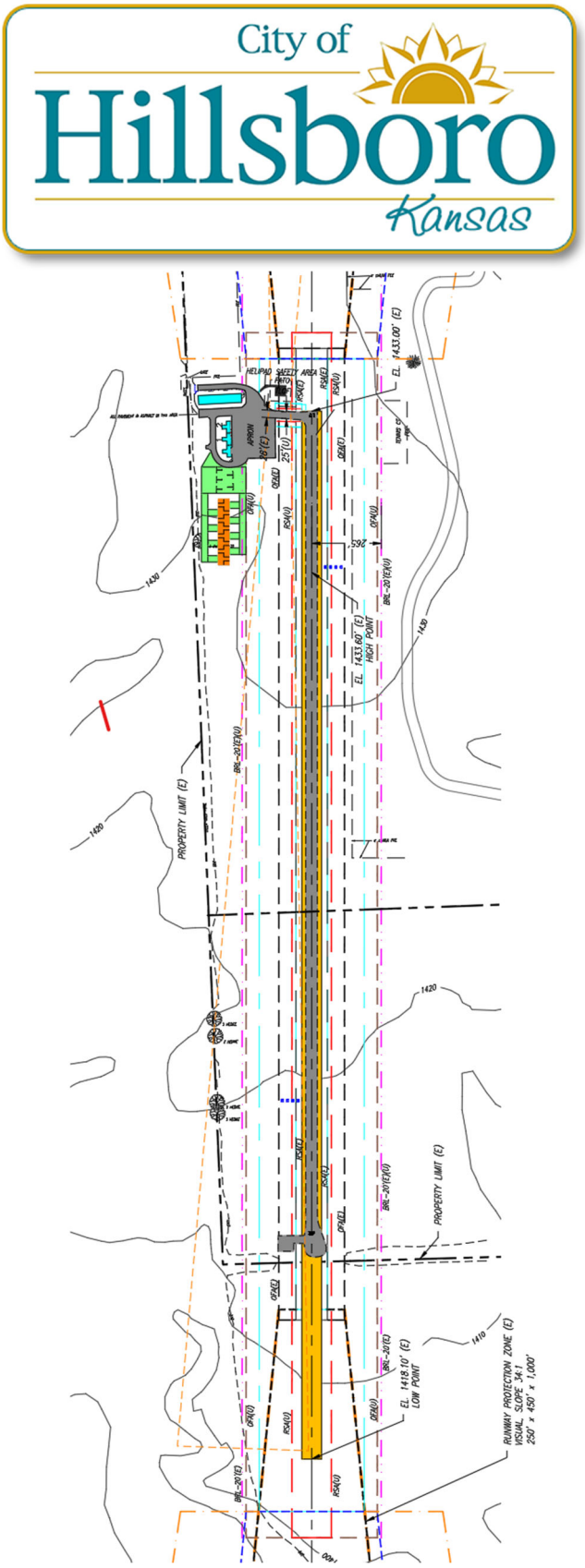
STORMWATER SYSTEM

City of Hillsboro **Capital Improvement Plans Summary** **Apr-23**

System	Priority	Year		Cost	System Cost
Street	1	2024	Lincoln D to south end, Wilson D to south end	$ 620,440.40	
Street	2	2026	Birch Grand to D, Cedar 2nd to B, B Ash to Cedar	$ 1,910,148.00	$ 3,094,452.40
Street	3	2028	Adams 1st to B	$ 563,864.00	
Airport	1	2024	Seal & Paint Asphalt Surfaces	$ 167,100.00	
Airport	2	2027	Crack Seal	$ 20,000.00	
Airport	2	2030	Crack Seal	$ 20,000.00	$ 247,100.00
Airport	2	2033	Crack Seal	$ 20,000.00	
Airport	2	2036	Crack Seal	$ 20,000.00	
Side/Trail	1	2023	Localized Replacement	$ 15,000.00	
Side/Trail	1	2024	3rd Street Sidewalk	$ 115,000.00	
Side/Trail	2	2024	Localized Replacement	$ 15,000.00	
Side/Trail	2	2025	Orchard St Sidewalk	$ 115,000.00	
Side/Trail	3	2025	Localized Replacement	$ 15,000.00	
Side/Trail	3	2026	Business Park Sidewalk Connector	$ 115,000.00	
Side/Trail	4	2026	Localized Replacement	$ 15,000.00	$ 617,556.00
Side/Trail	4	2027	D Street at Fairgrounds	$ 44,000.00	
Side/Trail	5	2027	Localized Replacement	$ 15,000.00	
Side/Trail	5	2028	Swimming Pool to Ballfields	$ 88,000.00	
Side/Trail	6	2028	Localized Replacement	$ 15,000.00	
Side/Trail	6	2029	Around Ballfield	$ 35,556.00	
Side/Trail	7	2029	Localized Replacement	$ 15,000.00	
Water	1	2024	Near Term Project 3 Streets (8 blocks)	$ 1,194,000.00	
Water	2	2029	Long Termo Project 18 streets (55 blocks)	$ 6,807,000.00	$ 8,001,000.00
SS	1	2023	Lining 15 blocks	$ 255,000.00	
SS	2	2023	Point Repairs	$ 10,000.00	
SS	2	2023	Video/Cleaning Lines	$ 25,000.00	
SS	2	2024	Lining 10 blocks	$ 296,900.00	
SS	3	2024	Point Repairs	$ 10,000.00	
SS	3	2024	Video/Cleaning Lines	$ 25,000.00	
SS	4	2025	Video/Cleaning Lines	$ 25,000.00	
SS	5	2026	Video/Cleaning Lines	$ 25,000.00	
SS	6	2027	Video/Cleaning Lines	$ 25,000.00	$ 1,046,900.00
SS	7	2028	Video/Cleaning Lines	$ 25,000.00	
SS	8	2029	Lining 11 blocks & 8 Manhole Rehab	$ 190,000.00	
SS	9	2029	Point Repairs	$ 10,000.00	
SS	10	2029	Video/Cleaning Lines	$ 25,000.00	
SS	11	2030	Video/Cleaning Lines	$ 25,000.00	
SS	12	2031	Video/Cleaning Lines	$ 25,000.00	
SS	13	2032	Video/Cleaning Lines	$ 25,000.00	
SS	14	2033	Video/Cleaning Lines	$ 25,000.00	
Storm	1	2023	Park Avenue Repair	$ 10,000.00	
Storm	1	2023	Commerce Street Repair	$ 5,000.00	
Storm	1	2023	Concrete Ditch Cleaning & Repair	$ 40,000.00	
Storm	2	2024	Orchard Pond Clean & Bank Stabilize	$ 100,000.00	
Storm	2	2025	City Park Pond Clean	$ 50,000.00	$ 480,000.00
Storm	2	2025	Ash/D Grate Inlet Repair	$ 30,000.00	
Storm	2	2026	Lincoln St French Drain & new Underground	$ 120,000.00	
Storm	3	2027	D Street Pipe upsize	$ 25,000.00	
Storm	3	2027	Alley, C to D Underground System	$ 75,000.00	
Storm	3	2027	Correct Grass Drainageway	$ 25,000.00	

City of Hillsboro **Capital Improvement Plans Summary** **Apr-23**

System	Priority	Year		Cost	System Cost
Side/Trail	1	2023	Localized Replacement	$ 15,000.00	
SS	1	2023	Lining 15 blocks	$ 255,000.00	
SS	2	2023	Point Repairs	$ 10,000.00	
SS	2	2023	Video/Cleaning Lines	$ 25,000.00	$ 360,000.00
Storm	1	2023	Park Avenue Repair	$ 10,000.00	
Storm	1	2023	Commerce Street Repair	$ 5,000.00	
Storm	1	2023	Concrete Ditch Cleaning & Repair	$ 40,000.00	
Street	1	2024	Lincoln D to south end, Wilson D to south end	$ 620,440.40	
Airport	1	2024	Seal & Paint Asphalt Surfaces	$ 167,100.00	
Side/Trail	1	2024	3rd Street Sidewalk	$ 115,000.00	
Side/Trail	2	2024	Localized Replacement	$ 15,000.00	
Water	1	2024	Near Term Project 3 Streets (8 blocks)	$ 1,194,000.00	$ 2,543,440.40
Storm	2	2024	Orchard Pond Clean & Bank Stabilize	$ 100,000.00	
SS	2	2024	Lining 10 blocks	$ 296,900.00	
SS	3	2024	Point Repairs	$ 10,000.00	
SS	3	2024	Video/Cleaning Lines	$ 25,000.00	
Side/Trail	2	2025	Orchard St Sidewalk	$ 115,000.00	
Side/Trail	3	2025	Localized Replacement	$ 15,000.00	
Storm	2	2025	City Park Pond Clean	$ 50,000.00	$ 235,000.00
Storm	2	2025	Ash/D Grate Inlet Repair	$ 30,000.00	
SS	4	2025	Video/Cleaning Lines	$ 25,000.00	
Street	2	2026	Birch Grand to D, Cedar 2nd to B, B Ash to Cedar	$ 1,910,148.00	
Side/Trail	3	2026	Business Park Sidewalk Connector	$ 115,000.00	
Side/Trail	4	2026	Localized Replacement	$ 15,000.00	$ 2,185,148.00
Storm	2	2026	Lincoln St French Drain & new Underground	$ 120,000.00	
SS	5	2026	Video/Cleaning Lines	$ 25,000.00	
Airport	2	2027	Crack Seal	$ 20,000.00	
Side/Trail	4	2027	D Street at Fairgrounds	$ 44,000.00	
Side/Trail	5	2027	Localized Replacement	$ 15,000.00	
Storm	3	2027	D Street Pipe upsize	$ 25,000.00	$ 229,000.00
Storm	3	2027	Alley, C to D Underground System	$ 75,000.00	
Storm	3	2027	Correct Grass Drainageway	$ 25,000.00	
SS	6	2027	Video/Cleaning Lines	$ 25,000.00	
Street	3	2028	Adams 1st to B	$ 563,864.00	
Side/Trail	5	2028	Swimming Pool to Ballfields	$ 88,000.00	$ 691,864.00
Side/Trail	6	2028	Localized Replacement	$ 15,000.00	
SS	7	2028	Video/Cleaning Lines	$ 25,000.00	
Side/Trail	6	2029	Around Ballfield	$ 35,556.00	
Side/Trail	7	2029	Localized Replacement	$ 15,000.00	
Water	2	2029	Long Termo Project 18 streets (55 blocks)	$ 6,807,000.00	$ 7,082,556.00
SS	8	2029	Lining 11 blocks & 8 Manhole Rehab	$ 190,000.00	
SS	9	2029	Point Repairs	$ 10,000.00	
SS	10	2029	Video/Cleaning Lines	$ 25,000.00	
Airport	2	2030	Crack Seal	$ 20,000.00	$ 45,000.00
SS	11	2030	Video/Cleaning Lines	$ 25,000.00	
SS	12	2031	Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
SS	13	2032	Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
Airport	2	2033	Crack Seal	$ 20,000.00	$ 45,000.00
SS	14	2033	Video/Cleaning Lines	$ 25,000.00	
Airport	2	2036	Crack Seal	$ 20,000.00	$ 20,000.00


HELIPAD
APRON
EL 1433.00' (E)
EL 1433.60' (E)
HIGH POINT
EL 1418.10' (E)
LOW POINT
PROPERTY LIMIT (E)
RUNWAY PROTECTION ZONE (E)
VISUAL SLOPE 34:1
250' x 450' x 1,000'
1420
1430
1410

EVALUATION ANALYSIS

The focus of this Capital Improvement Plan (CIP) is to provide the City with an evaluation of the existing Airport Pavement system. This process will evaluate the merits and deficiencies of alternatives and provide the technical basis necessary for determining preferred corrective actions and strategies to maintain, repair and replace the Airport Pavement.

While the assessment of development options or concepts are based on technical judgment, the most favorable improvement option should be compatible with other planning policies. Additionally, it should be consistent with social, economic, political, and environmental goals. To determine the best possible course of action, the alternatives incorporate the following factors in the development and evaluation of potential options.

We will also provide analysis of multiple infrastructure systems and the impacts they have on each other in the recommended areas of work.

The output of our findings will be both in table format as well as a colorized map for visual reference of the Hike Bike Sidewalk system.

EXISTING SYSTEM ANALYSIS

The map and tables on the following pages are a visual representation of the system and include the most recent projects and proposed improvement projects. This analysis was performed in conjunction with city staff in March 2023.

TABLE 1 – HIKE BIKE SIDEWALK SYSTEM INVENTORY

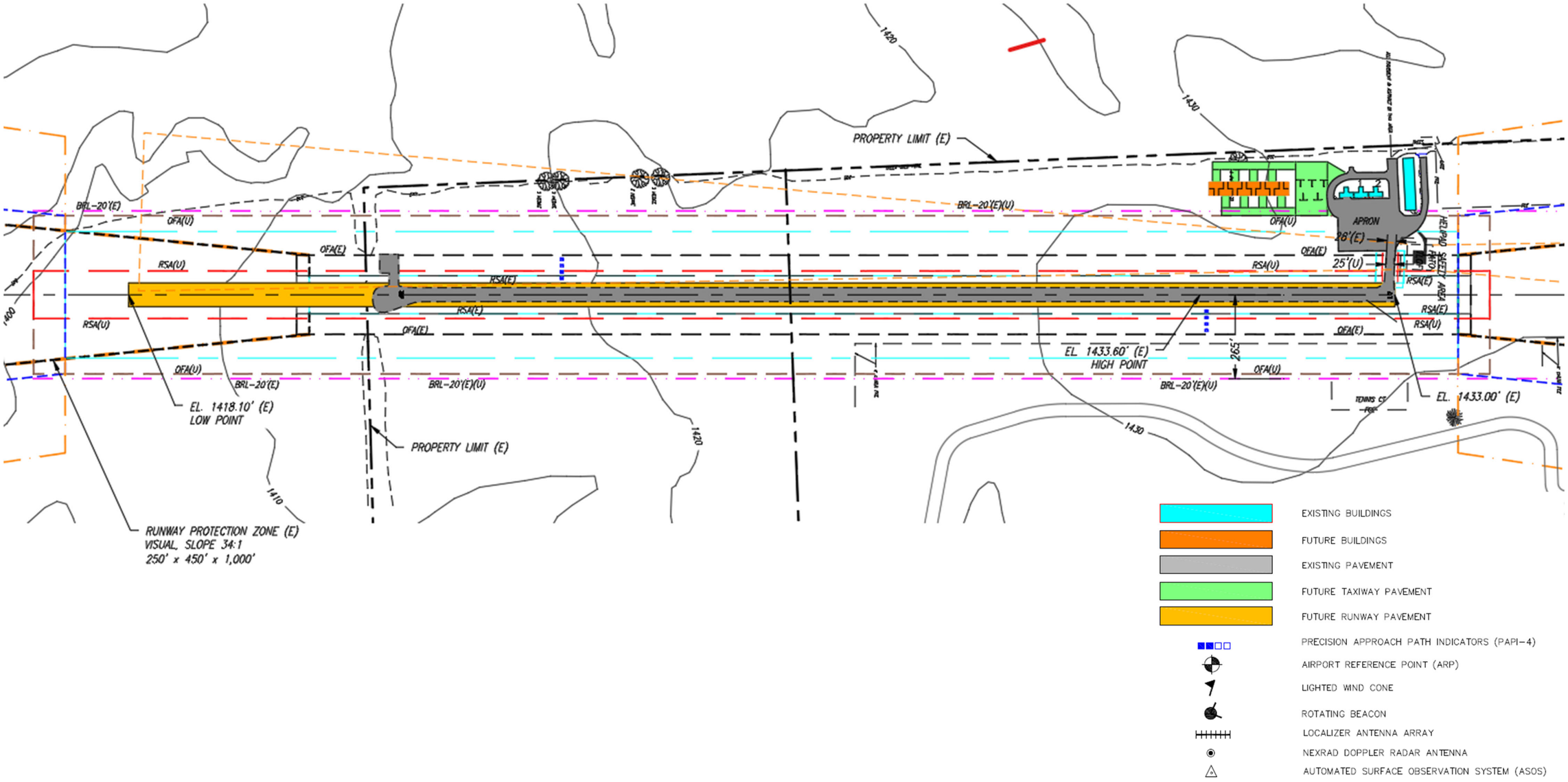
	Quantity	Unit	Notes
Asphalt Pavement – Runway/Taxiway/Apron	23,400	SY	Sealed and Painted in 2012
RR Hike/Bike Trial			

ALTERNATIVES/RECOMMENDATIONS

EBH developed a list of recommendations based on all of the factors discussed in this document. EBH and City Staff had a meeting to discuss the alternatives and recommendations. The following is a list of priority Hike Bike Sidewalks and areas that were jointly agreed upon by the City and EBH.

Priority 1 (2024)
Crack Seal 10,000 LF
Emulsified Slurry Seal all Asphalt surfaces 23,400 SY
Paint 5,500 SF

FIGURE 1 – AIRFIELD PAVEMENT MAP



PRIORITY 1 – 2024

Priority 1 includes the sidewalk shown on Figure 2 and in Table 2.

TABLE 2 – PROJECT SCOPE

Item	Quantity	Unit
Crack Seal	10,000	LF
Slurry Seal	23,400	SY
Paint	5,500	SF

TABLE 3 - COST ESTIMATE

Priority 1		
Project	$	167,100.00
Total	**$**	**167,100.00**

MAINTENANCE ACTIVITIES

One of the keys to maintaining any infrastructure system is the recurring maintenance that is scheduled and completed. In the case of the airport, checking for cracked, settled and deteriorated pavement is really the only maintenance activity. The cracks should be sealed on the frequency to prevent moisture from entering the base material. This could be annually, or it could be up to every 4 years.

FUNDING OPPORTUNITIES

As a general rule, there are very few outside funding opportunities to offset the cost of airport projects.

One alternative is the Kansas Department of Transportation Division of Aviation Airport Capital Improvement Program. This program has varying local match based on the type of improvements being proposed.

General Obligation (GO) Bonds are another mechanism to proceed with these types of projects. The use of capital improvement funds to special benefit districts could be used to back and pay off GO Bonds.

Small scope projects can be accomplished purely through the annual general budget. While this does work for small projects, it can have an impact on other general budget costs of the City.

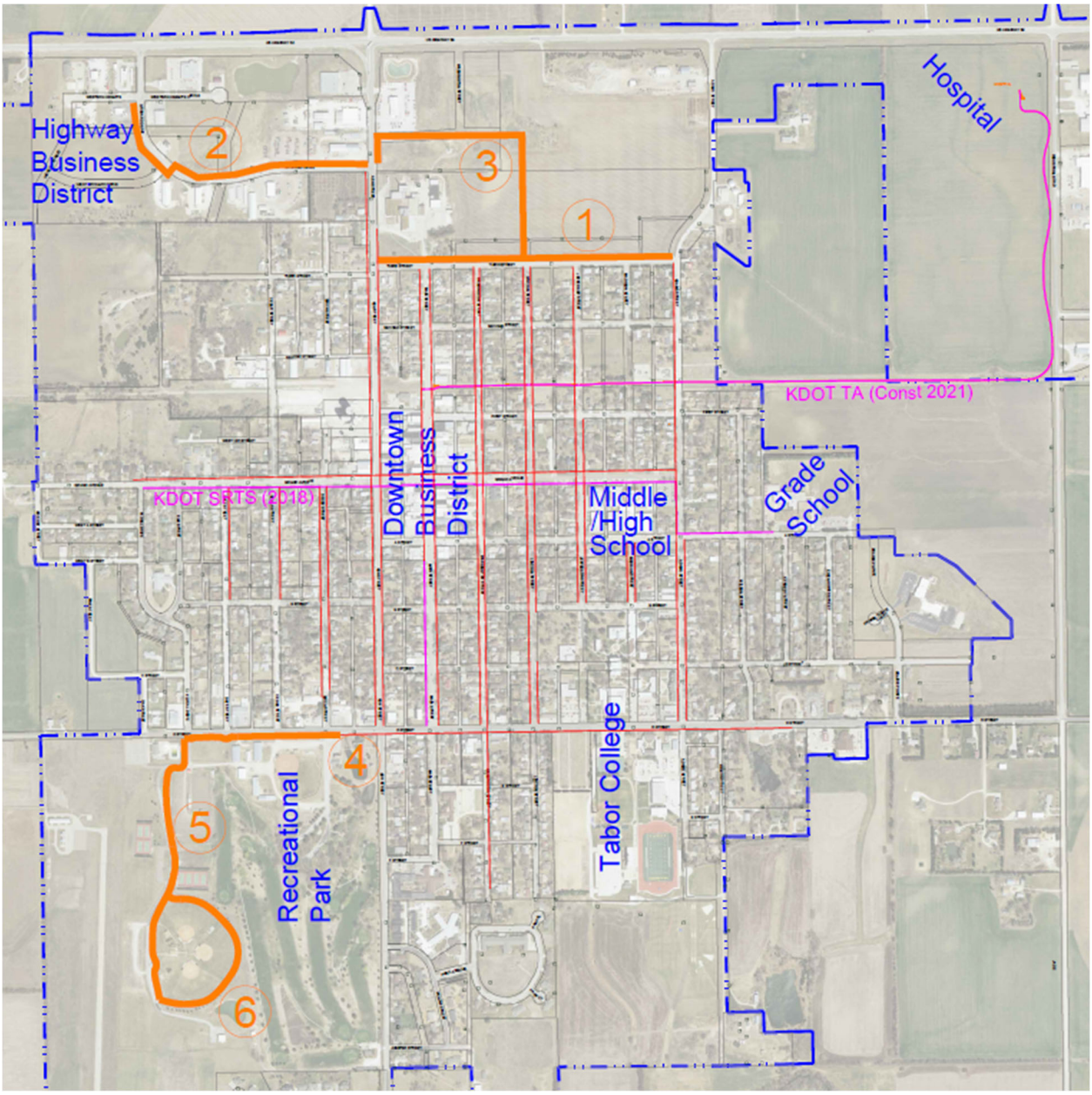
The City must find the best economic fit for scope of a project versus utility rate structure. We hope that by laying out what the future potential repair, replacement and maintenance projects might look like, the decision on how and when to create a project package will become an easier task for the staff and the City Council.

AIRPORT BUDGET

TABLE 4 – BUDGET

	Total Cost	Local Cost
2024 Seal & Paint Project	$ 167,100.00	$ 16,710.00
2027 – Crack Seal	$ 20,000.00	$ 20,000.00
2030 – Crack Seal	$ 20,000.00	$ 20,000.00
2033 – Crack Seal	$ 20,000.00	$ 20,000.00
2036 – Crack Seal	$ 20,000.00	$ 20,000.00

Prices do not include any inflationary increase


Highway Business District
2
3
1
Hospital
KDOT TA (Const 2021)
KDOT SRTS (2018)
Downtown Business District
Middle /High School
Grade School
4
5
6
Recreational Park
Tabor College

EVALUATION ANALYSIS

The focus of this Capital Improvement Plan (CIP) is to provide the City with an evaluation of the existing Hike Bike Sidewalk system within the City Limits. This process will evaluate the merits and deficiencies of alternatives and provide the technical basis necessary for determining preferred corrective actions and strategies to maintain, repair and replace areas of the City Hike Bike Sidewalk system.

While the assessment of development options or concepts are based on technical judgment, the most favorable improvement option should be compatible with other planning policies. Additionally, it should be consistent with social, economic, political, and environmental goals. To determine the best possible course of action, the alternatives incorporate the following factors in the development and evaluation of potential options.

We will also provide analysis of multiple infrastructure systems and the impacts they have on each other in the recommended areas of work.

The output of our findings will be both in table format as well as a colorized map for visual reference of the Hike Bike Sidewalk system.

EXISTING SYSTEM ANALYSIS

The map and tables on the following pages are a visual representation of the system and include the most recent large projects, existing sidewalk locations and proposed improvement projects. This analysis was performed in conjunction with city staff in March 2023.

TABLE 1 – HIKE BIKE SIDEWALK SYSTEM INVENTORY

	Quantity	Unit	Notes
Safe Routes to Schools - Grand	5,300	LF	KDOT Safe Routes to Schools (5' to 8' wide)
RR Hike/Bike Trial	7,500	LF	KDOT TE Hike Bike Trail (8' wide trail) – Main St to Hospital
Standard Sidewalk	46,550	LF	5' Sidewalk throughout City

ALTERNATIVES/RECOMMENDATIONS

EBH developed a list of recommendations based on all of the factors discussed in this document. EBH and City Staff had a meeting to discuss the alternatives and recommendations. The following is a list of priority Hike Bike Sidewalks and areas that were jointly agreed upon by the City and EBH.

Priority (2023)
Remove/Replace 450' of standard sidewalk at various locations around the City

Priority 1- 3rd Street from Ash St to Adams St (2024)
Construct 10' Sidewalk along North side of 3rd Street – 2300'
Remove/Replace 450' of standard sidewalk at various locations around the City

Priority 2 – Orchard Drive from Hickory St to Ash St (2025)
Construct 10' Sidewalk along North side of Orchard Drive – 2300'
Remove/Replace 450' of standard sidewalk at various locations around the City

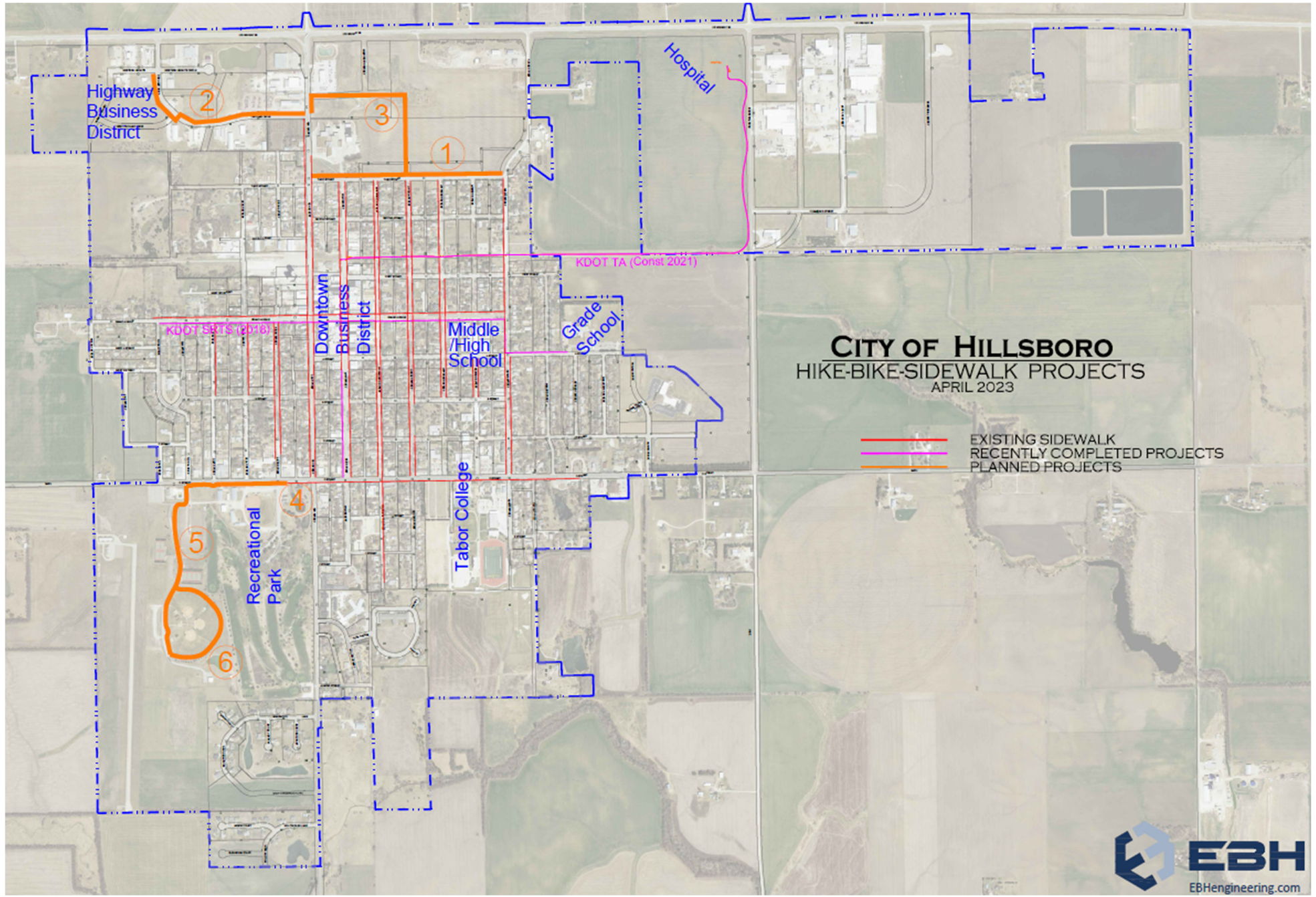
Priority 3 – Business Park from Ash St to 3rd St (2026)
Construct 10' Sidewalk from Ash St, east through Business Park, then south to 3rd St – 2300'
Remove/Replace 450' of standard sidewalk at various locations around the City

Priority 4 – D Street from Birch St to Date St (2027)
Construct 8' Sidewalk along south side of D St – 1100'
Remove/Replace 450' of standard sidewalk at various locations around the City

Priority 5 – Sports Complex Road from D St to Ball complex (2028)
Construct 8' Sidewalk from D St to the Ballfield complex – 2200'
Remove/Replace 450' of standard sidewalk at various locations around the City

Priority 6 – Ballfield Loop (2029)
Construct 10' gravel trail around Ballfield complex – 2200'
Remove/Replace 450' of standard sidewalk at various locations around the City

FIGURE 1 – EXISTING SIDEWALKS, RECENTLY COMPLETED AND PROJECT PRIORITY MAP



PRIORITY 1 – 2024

Priority 1 includes the sidewalk shown on Figure 2 and in Table 2.

TABLE 2 – PROJECT SCOPE

Street	From	To	Material	Length
3rd St	Ash St	Adams St	Conc	2,300
Various Locations			Conc	450

TABLE 3 - COST ESTIMATE

Priority 1 – Option 1		
New Sidewalk	$	115,000.00
Rem/Replace Sidewalk	$	15,000.00
Total	**$**	**130,000.00**

PRIORITY 2 – 2025

Priority 2 includes the sidewalk shown on Figure 2 and in Table 4.

TABLE 4 – PROJECT SCOPE

Street	From	To	Material	Length
Orchard Dr	Hickory St	Ash St	Conc	2,300
Various Locations			Conc	450

TABLE 5 - COST ESTIMATE

Priority 1 – Option 1		
New Sidewalk	$	115,000.00
Rem/Replace Sidewalk	$	15,000.00
Total	**$**	**130,000.00**

PRIORITY 3 – 2026

Priority 3 includes the sidewalk shown on Figure 2 and in Table 6.

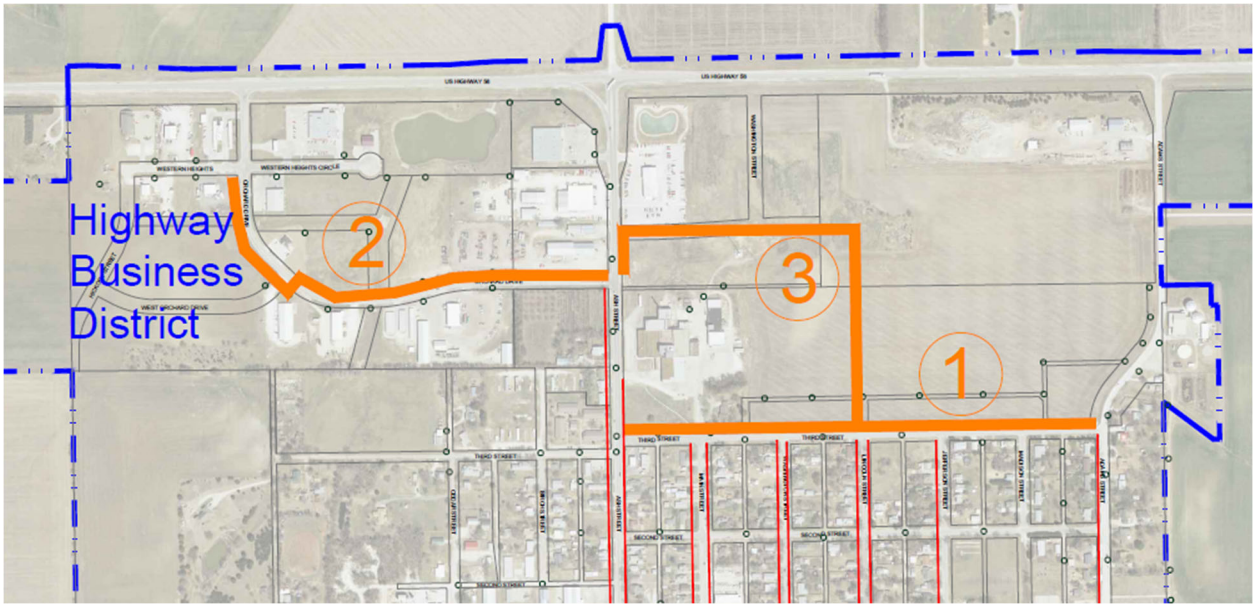
TABLE 6 – PROJECT SCOPE

Street	From	To	Material	Length
Business Park	Ash St	Adams St	Conc	2,300
Various Locations			Conc	450

TABLE 7 - COST ESTIMATE

Priority 1 – Option 1		
New Sidewalk	$	115,000.00
Rem/Replace Sidewalk	$	15,000.00
Total	**$**	**130,000.00**

FIGURE 2 – PRIORITY 1 2 3



PRIORITY 4 – 2027

Priority 4 includes the sidewalk shown on Figure 3 and in Table 8.

TABLE 8 – PROJECT SCOPE

Street	From	To	Material	Length
D St	Birch St	Date St	Conc	1100
Various Locations			Conc	450

TABLE 9 - COST ESTIMATE

Priority 1 – Option 1		
New Sidewalk	$	44,000.00
Rem/Replace Sidewalk	$	15,000.00
Total	**$**	**59,000.00**

PRIORITY 5 – 2028

Priority 5 includes the sidewalk shown on Figure 3 and in Table 10.

TABLE 10 – PROJECT SCOPE

Street	From	To	Material	Length
Sport Complex Road	D St	Ballfield Complex	Conc	2200
Various Locations			Conc	450

TABLE 11 - COST ESTIMATE

Priority 1 – Option 1		
New Sidewalk	$	88,000.00
Rem/Replace Sidewalk	$	15,000.00
Total	**$**	**103,000.00**

PRIORITY 6 – 2029

Priority 6 includes the sidewalk shown on Figure 3 and in Table 12.

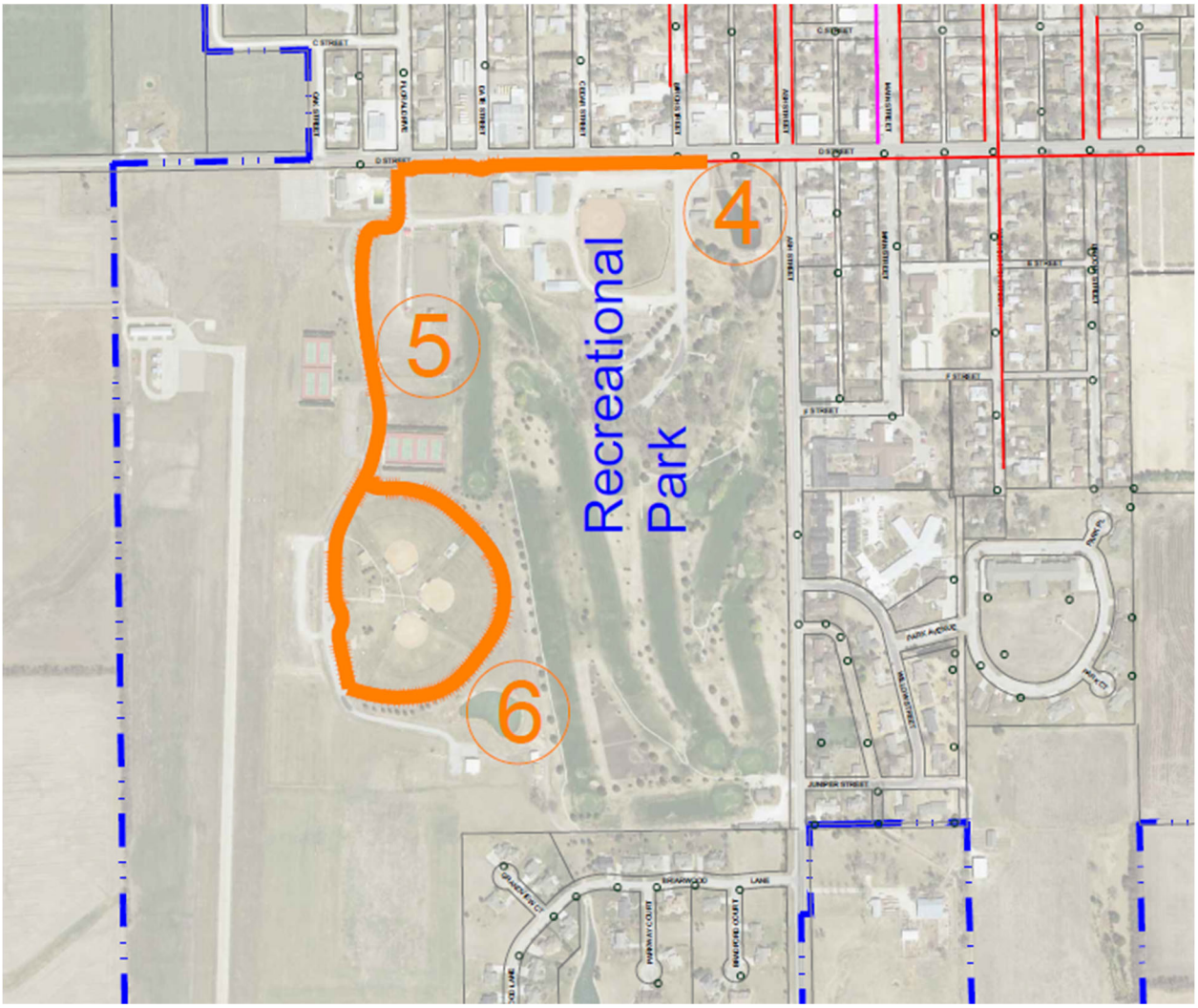
TABLE 12 – PROJECT SCOPE

Street	From	To	Material	Length
Loop Around Ballfields			Gravel	1600
Various Locations			Conc	450

TABLE 13 - COST ESTIMATE

Priority 1 – Option 1		
New Trail	$	35,556.00
Rem/Replace Sidewalk	$	15,000.00
Total	**$**	**50,556.00**

FIGURE 3 – PRIORITY 4 5 6



PRIORITY

As on ongoing maintenance priority, the City staff would like to propose the addition of $15,000 per year to complete sidewalk removal/replacement at various locations around the City.

TABLE 14 - COST ESTIMATE

Priority 3		
Rem/Replace Sidewalk	$	15,000.00
Total	**$**	**15,000.00**

The sidewalk replacement program costs would also cover extending some sidewalks as needed to complete blocks that currently do not have connections at both ends.

MAINTENANCE ACTIVITIES

One of the keys to maintaining any infrastructure system is the recurring maintenance that is scheduled and completed. In the case of the Hike Bike Sidewalk system, checking for cracked, settled and deteriorated sidewalk is really the only maintenance activity. If the annual replacement program is not adopted, repair by replacement of sidewalk sections that go bad will need to be addressed on a single location basis.

FUNDING OPPORTUNITIES

As a general rule, there are very few outside funding opportunities to offset the cost of Hike Bike Sidewalk projects.

One alternative is the Kansas Department of Transportation Cost Share Program. This program has a minimum 15% local match. It is not restricted to location or purpose. A higher local match will score better with the review committee. Our recommendation is to apply using at least 25% local match.

A second grant program is the Kansas Department of Wildlife & Parks trails grant. This grant is intended to only be used within an existing park system. Priority 5 and 6 could utilize this funding, however, no other currently listed projects would fit the requirements.

Another grant is the Kansas Department of Transportation Enhancement Grant. This grant program uses federal pass through funding. It currently is on hold and there has not been a grant round in several years. When it is available, the intent of this program is to connect community end points. In the case of your proposed projects, Priority 2 and maybe 4 would fit the requirements of the project.

General Obligation (GO) Bonds are the most standard mechanism to proceed with these types of projects. The use of capital improvement funds to special benefit districts could be used to back and pay off GO Bonds.

Small scope projects can be accomplished purely through the annual general budget. While this does work for small projects, it can have an impact on other general budget costs of the City.

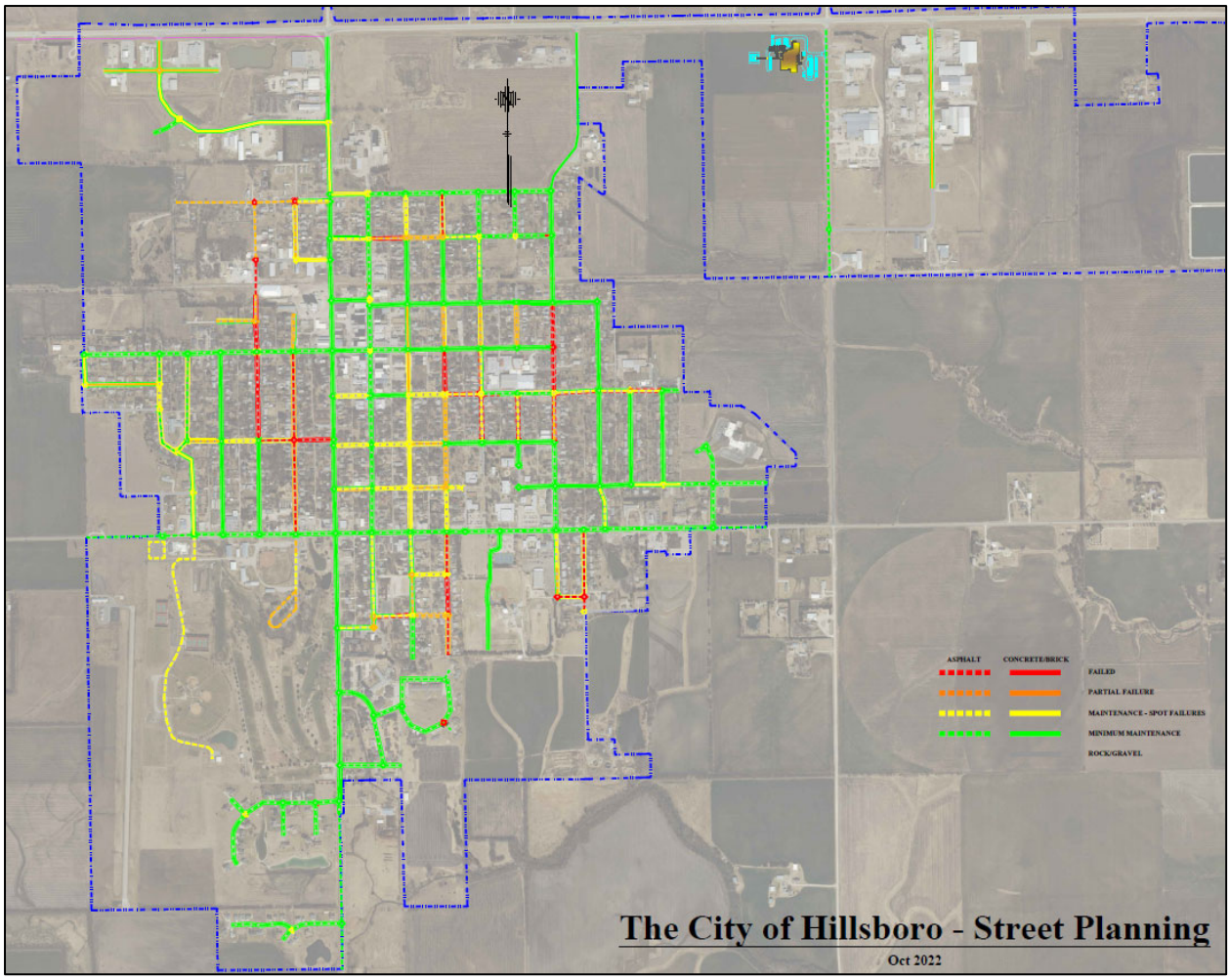
The City must find the best economic fit for scope of a project versus utility rate structure. We hope that by laying out what the future potential repair, replacement and maintenance projects might look like, the decision on how and when to create a project package will become an easier task for the staff and the City Council.

HIKE BIKE SIDEWALK SYSTEM BUDGET

TABLE 7 – 30 YEAR BUDGET

2023 Replacement Program	$	15,000.00	
2024 – Priority 1	$	115,000.00	
2024 Replacement Program	$	15,000.00	
2025 - Priority 2	$	115,000.00	
2025 Replacement Program	$	15,000.00	
2026 – Priority 3	$	115,000.00	
2026 Replacement Program	$	15,000.00	
2027 – Priority 4	$	44,000.00	
2027 Replacement Program	$	15,000.00	
2028 – Priority 5	$	88,000.00	
2028 Replacement Program	$	15,000.00	
2029 – Priority 6	$	35,556.00	
2029 Replacement Program	$	15,000.00	

Prices do not include any inflationary increase


ASPHALT
CONCRETE/BRICK
FAILED
PARTIAL FAILURE
MAINTENANCE - SPOT FAILURES
MINIMUM MAINTENANCE
ROCK/GRAVEL
The City of Hillsboro - Street Planning
Oct 2022

EVALUATION ANALYSIS

The focus of this Capital Improvement Plan (CIP) is to provide the City with an evaluation of the existing street and curb system within the City Limits. This process will evaluate the merits and deficiencies of alternatives and provide the technical basis necessary for determining preferred corrective actions and strategies to maintain, repair and replace areas of the City transportation system.

EBH uses a process similar to national Pavement Condition Index (PCI) grading and scoring. We use a simplified version of this system we have derived to meet our clients needs in a faster, more economical fashion. Our system takes into account the current condition of the pavement/curb to include pavement/curb distress, base distress, past maintenance activities and pavement use category. National systems use a 10-100 grading score. Our system uses 1-4, with corresponding Green, Yellow, Orange and Red colors.

While the assessment of development options or concepts are based on technical judgment, the most favorable improvement option should be compatible with other planning policies. Additionally, it should be consistent with social, economic, political, and environmental goals. To determine the best possible course of action, the alternatives incorporate the following factors in the development and evaluation of potential options.

We will also provide analysis of multiple infrastructure systems and the impacts they have on each other in the recommended areas of work.

The output of our findings will be both in table format as well as a colorized map for visual reference of the transportation system.

EXISTING SYSTEM ANALYSIS

The map and tables on the following pages are a visual representation of the existing condition analysis performed in June 2022. This is a snapshot of the conditions at this time. It does not take into account the rate of deterioration or any projected change in use. Therefore, we are not projecting how soon any street or curb will change in its rating.

There are typically three lines on each street and intersection. The thicker middle line is the street and the thinner outer lines are the curb. In cases when there is no curb, the thin lines have been omitted. The index on the map shows there are four choices for each of the curb and street. Both Green-Yellow-Orange-Red colors in both solid lines representing concrete material and dashed line representing asphalt material.

FIGURE 1 - EXISTING CONDITION – JUNE 2022

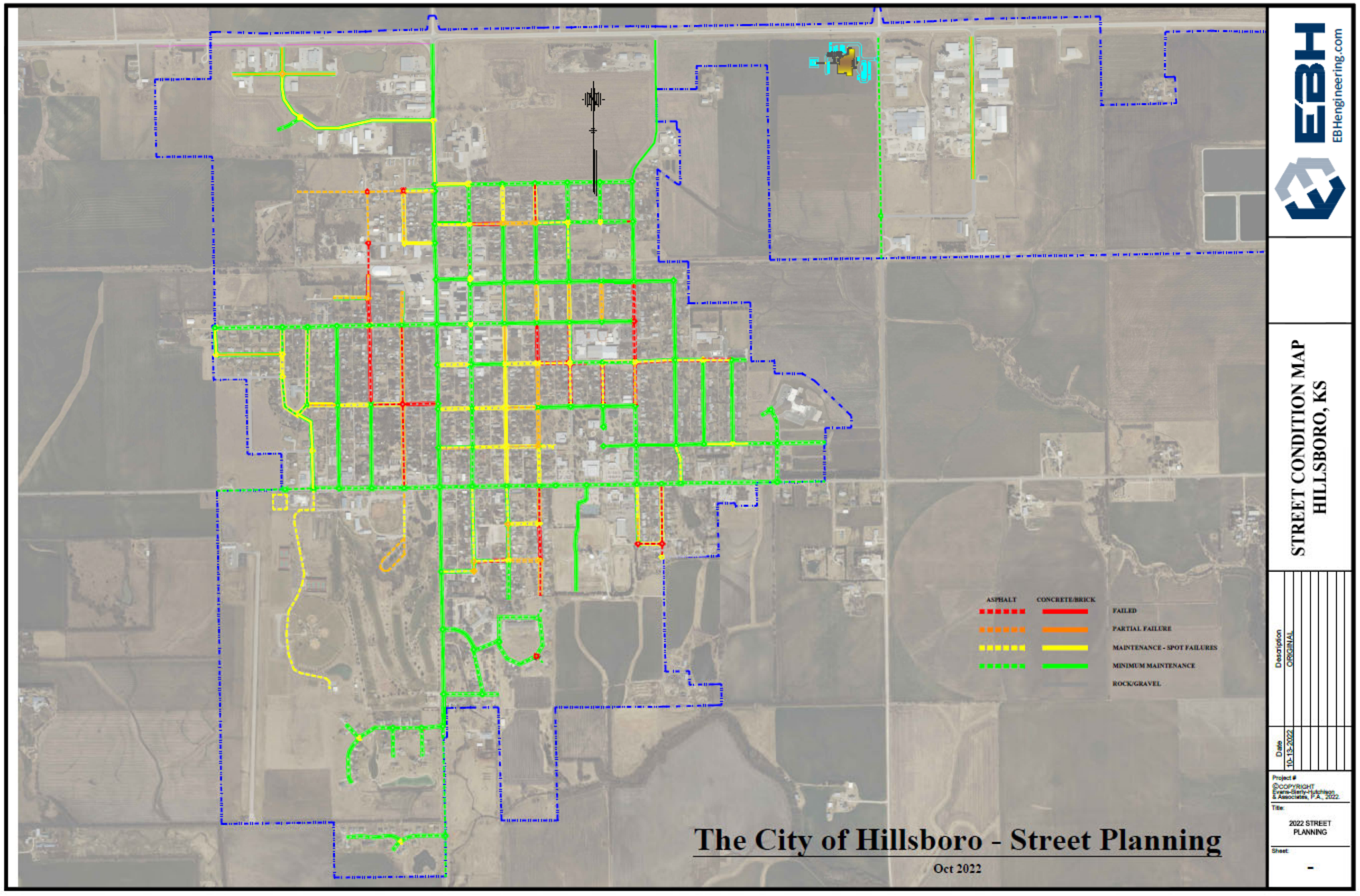


TABLE 1 - BLOCK & INTERSECTION RATING TOTALS

Street	From	To		Type	Category	Rating
A	Jefferson	Alley to East	Curb	Asphalt	Collector	4
A	Adams	Wilson	Curb	Asphalt	Collector	4
A	Wilson	Kennedy	Curb	Asphalt	Collector	4
A	Kennedy	Eisenhower	Curb	Asphalt	Collector	4
A	Lincoln	Jefferson	Curb	Asphalt	Residential	4
Adams	First	A	Street	Asphalt	Arterial	4
Adams	First	A	Curb	Asphalt	Arterial	4
Adams	A	B	Curb	Asphalt	Arterial	4
Adams	A	A	Curb	Asphalt	Arterial	4
Adams	F	F	Street	Asphalt	Collector	4
B	Birch	Ash	Street	Asphalt	Residential	4
B	Cedar	Birch	Street	Asphalt	Residential	4
B	Birch	Ash	Curb	Concrete	Residential	4
Birch	Grand	B	Street	Asphalt	Residential	4
Birch	B	B	Street	Asphalt	Residential	4
Birch	B	D	Street	Asphalt	Residential	4
Birch	Third	Third	Street	Asphalt	Residential	4
Birch	Third	Third	Curb	Concrete	Residential	4
Briarwood Lane	Bradford Court	Bradford Court	Curb	Concrete	Residential	4
Cedar	Second	Grand	Street	Asphalt	Industrial	4
Cedar	Grand	B	Street	Asphalt	Residential	4
Cedar	Third	Third	Street	Asphalt	Residential	4
Cedar	Second	Second	Street	Asphalt	Industrial	4
Cedar	Grain Storage	First	Curb	Concrete	Industrial	4
Cedar	First	Grand	Curb	Concrete	Industrial	4
Cedar	First	First	Curb	Concrete	Industrial	4
Cedar	Grand	B	Curb	Concrete	Residential	4
F	Adams	Wilson	Street	Asphalt	Residential	4
F	Main	Washington	Curb	Asphalt	Residential	4
Jefferson	Grand	A	Curb	Asphalt	Collector	4
Jefferson	A	A	Curb	Asphalt	Collector	4
Jefferson	A	B	Curb	Asphalt	Residential	4
Lincoln	D	end	Street	Asphalt	Residential	4
Lincoln	E	F	Curb	Concrete	Residential	4
Lincoln	Third	Second	Street	Asphalt	Residential	4
Lincoln	Grand	A	Street	Asphalt	Residential	4
Lincoln	Grand	A	Curb	Concrete	Residential	4
Lincoln	E	F	Curb	Concrete	Residential	4
Madison	A	B	Curb	Asphalt	Residential	4
Second	Adams	Adams	Street	Asphalt	Collector	4
Second	Main	Washington	Curb	Concrete	Residential	4
Wilson	D	F	Street	Asphalt	Residential	4
Wilson	F	F	Street	Asphalt	Residential	4
Wilson	F	South	Street	Asphalt	Residential	4
A	Hickory	Floral	Street	Concrete	Residential	3
Adams	A	B	Street	Asphalt	Arterial	3
Adams	D	E	Street	Asphalt	Collector	3
B	Washington	Lincoln	Street	Asphalt	Residential	3
B	Elm	Date	Street	Asphalt	Residential	3

Birch	Grand	B	Curb	Concrete	Residential	3
Birch	B	B	Curb	Concrete	Residential	3
Birch	B	D	Curb	Concrete	Residential	3
Birch	Third	Second	Street	Asphalt	Residential	3
Birch	First	Grand	Street	Asphalt	Commercial	3
Birch	First	Grand	Curb	Concrete	Commercial	3
C	Ash	Main	Curb	Concrete	Residential	3
C	Washington	Lincoln	Street	Asphalt	Residential	3
Cedar	Third	Second	Street	Asphalt	Residential	3
Cedar	Grain Storage	First	Street	Asphalt	Industrial	3
Cedar	First	First	Street	Asphalt	Industrial	3
E	Washington	Washington	Street	Asphalt	Residential	3
F	Washington	Lincoln	Street	Asphalt	Residential	3
F	Washington	Lincoln	Curb	Asphalt	Residential	3
First Street	West End	Cedar	Street	Asphalt	Residential	3
Jefferson	First	Grand	Street	Asphalt	Residential	3
Lincoln	D	E	Curb	Concrete	Residential	3
Lincoln	F	end	Curb	Concrete	Residential	3
Lincoln	First	Grand	Street	Asphalt	Residential	3
Lincoln	A	B	Street	Asphalt	Residential	3
Lincoln	B	C	Street	Asphalt	Collector	3
Lincoln	C	C	Street	Asphalt	Collector	3
Lincoln	F	F	Street	Asphalt	Residential	3
Lincoln	Second	Second	Curb	Concrete	Residential	3
Lincoln	First	Grand	Curb	Concrete	Residential	3
Lincoln	A	B	Curb	Concrete	Residential	3
Lincoln	B	C	Curb	Concrete	Collector	3
Lincoln	C	C	Curb	Concrete	Collector	3
Madison	First	Grand	Street	Asphalt	Residential	3
Madison	First	Grand	Curb	Concrete	Residential	3
Main	F	F	Street	Asphalt	Collector	3
Main	F	F	Street	Asphalt	Collector	3
Memorial Drive	Park Court	Park Court	Street	Asphalt	Collector	3
Orchard Drive	Western Heights	US 56	Street	Concrete	Arterial	3
Orchard Drive	Western Heights	Western Heights	Street	Concrete	Arterial	3
Santa Fe	US 56	South	Street	Concrete	Industrial	3
Second	Main	Washington	Street	Asphalt	Residential	3
Second	Washington	Washington	Street	Asphalt	Residential	3
Second	Washington	Lincoln	Street	Asphalt	Residential	3
Second	Lincoln	Lincoln	Street	Asphalt	Residential	3
Second	Washington	Lincoln	Curb	Concrete	Residential	3
Third	West End	Cedar	Street	Asphalt	Residential	3
Third	Cedar	Birch	Street	Asphalt	Residential	3
Third	Birch	Ash	Curb	Concrete	Residential	3
Washington	First	Grand	Street	Concrete	Collector	3
Washington	Grand	A	Street	Concrete	Collector	3
Washington	E	F	Street	Asphalt	Residential	3
Washington	Second	Second	Curb	Concrete	Residential	3
Western Heights	West Edge	Orchard Drive	Street	Concrete	Commercial	3
Western Heights Circle	Orchard Drive	Cul-de-Sac	Street	Concrete	Commercial	3

The table shows only the streets and curb in the Red and Orange condition. While we do have the Yellow and Green information, we feel the focus of the alternatives will be primarily on the Red and Orange areas. If the City would like to see the entire database, we can provide it.

A summary breakdown of all evaluations is shown here.

TABLE 2 - BLOCK & INTERSECTION RATING TOTALS

		Street					Curb			
		Red	Orange	Yellow	Green		Red	Orange	Yellow	Green
Block	Concrete	0	7	16	60	83	8	13	63	296
Intersection	Concrete	0	1	10	37	48	3	3	7	99
Block	Asphalt	13	22	35	78	148	11	1	2	0
Intersection	Asphalt	7	8	17	40	72	2	0	1	0

Total Block 231

ALTERNATIVES/RECOMMENDATIONS

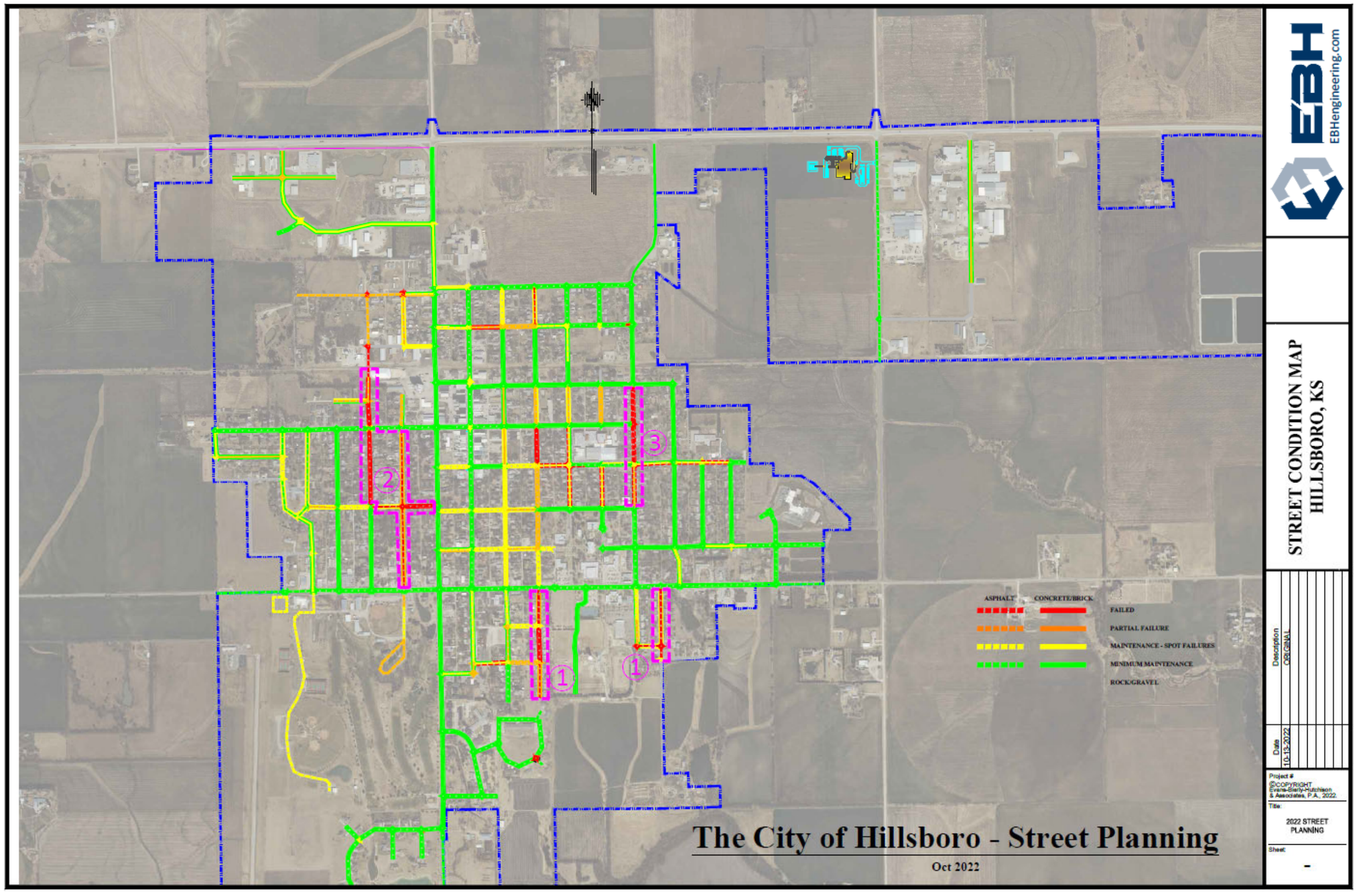
EBH developed a list of recommendations based on the ratings. Simultaneously, we sent the City staff the rating list, fore-which they developed their own list of priorities. EBH and City Staff had a meeting to discuss both sets of alternatives and recommendations. The following is a list of priority streets and areas that were jointly agreed upon by the City and EBH.

Priority 1
Lincoln Street from D Street south to the end of the street (3 blocks)
Wilson Street from D Street south to the east leg of F Street (2 blocks)

Priority 2
Birch Street from Grand Ave to D Street (4 blocks)
Cedar Street from 2nd Street to B Street (4 blocks)
B Street from Ash Street to Cedar Street (2 blocks)

Priority 3
Adams Stret from 1st Street to B Street (3 blocks)

FIGURE 2 – PROJECT PRIORITY MAP



PRIORITY 1

Priority 1 includes the curb and pavement on Lincoln Street from D Street to the south end of the street (3 blocks) and Wilson Street from D Street to the east leg of F Street (2 blocks). We are presenting 2 options for the base and pavement combination.

OPTION 1 – CURB, CONCRETE INTERSECTION, CMT BASE WITH DOUBLE CHIP SEAL

- Remove pavement (for reuse in new base) and curb
- Correct grade and crossslopes
- Construct new curb over new rock base
- Construct 6" concrete intersections over 4" rock base and geofabric
- Construct 12" cement treated base using existing asphalt, soil, some added sand and cement at a rate of approximately 5%
- Construct double chip seal over new base

The key to a successful project using this method is the testing and design of the correct proportions of soil, possible sand and cement percentage

To evaluate this priority, positive and negative impacts to the materials and costs must be considered. A list of the positive and negative impacts associated with Option 1, Priority 1 is as follows. See **Table 3** for cost estimate.

PROS

- Fastest completion time
- Most economical use of materials

CONS

- Unknown design conditions could create unknown cost scenarios
- Long term material stability
- Increased maintenance activities

TABLE 3 - COST ESTIMATE

Priority 1 – Option 1		
Lincoln – D to south end Wilson – D to south end	$	545,440.40
Engineering	$	75,000
Total	**$**	**620,440.40**

OPTION 2 – CURB, CONCRETE PAVEMENT OVER ROCK BASE

- Remove pavement and curb
- Correct grade and crossslopes
- Construct new curb over new rock base
- Construct 6" concrete pavement over 4" rock base and geofabric

To evaluate this priority, positive and negative impacts to the materials and costs must be considered. A list of the positive and negative impacts associated with Option 2, Priority 1 is as follows. See **Table 4** for cost estimate.

PROS

- Long term material stability
- Less future maintenance activities

CONS

- Higher initial construction cost
- Longer construction time

TABLE 4 - COST ESTIMATE

Priority 1 – Option 2		
Lincoln – D to south end Wilson – D to south end	$	860,498.00
Engineering	$	120,000
Total	**$**	**980,498.00**

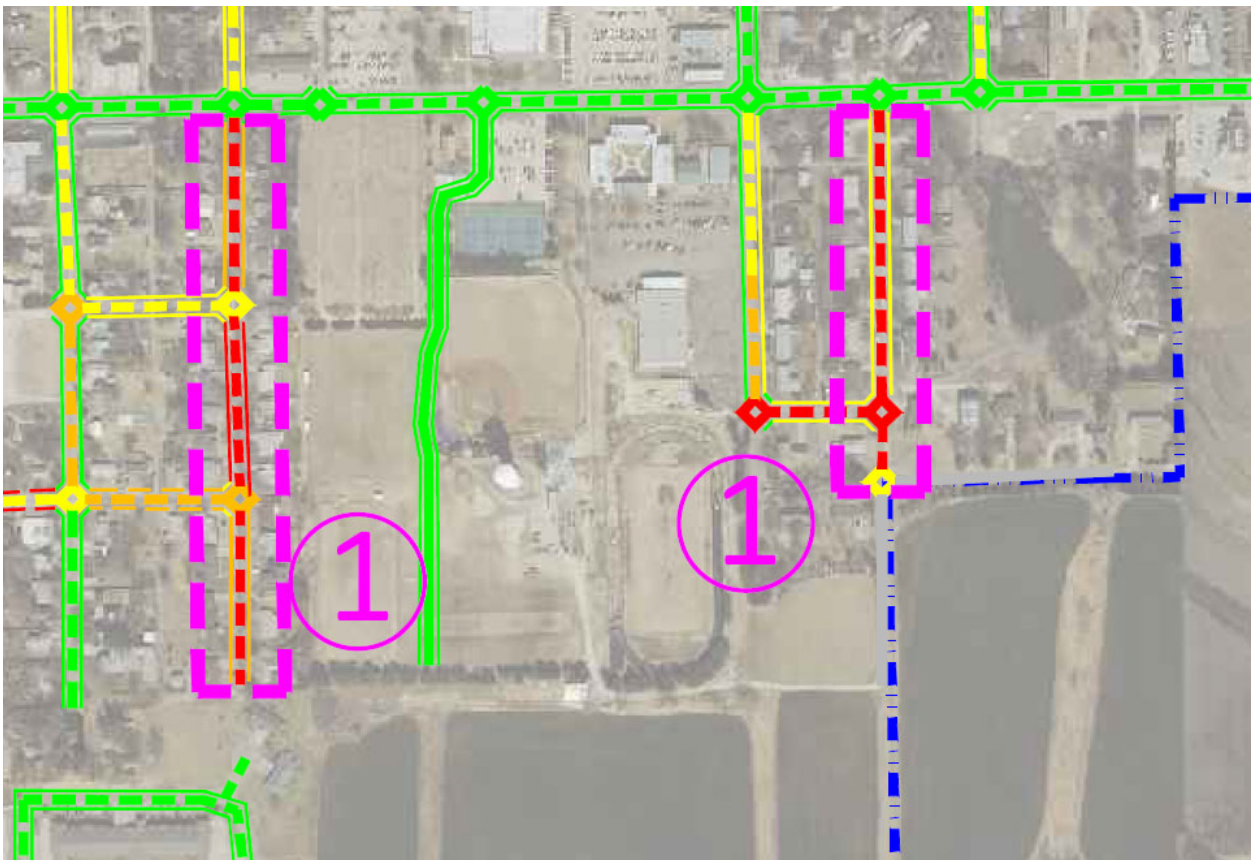
PRIORITY 1 - OPTION 1 VS 2 EVALUATION

As with all infrastrucuture systems, there is a choice to be made between pay now or pay later. While the initial cost of Option 2 is $360,000 higher, the life cycle of this option greatly outlasts that of the cheaper Option 1. Here is a 30 year life cycle analysis of the two options.

TABLE 5 - 30 YEAR LIFE CYCLE ANALYSIS

Option 1			Option 2		
Initial Project	$	620,440.04	Initial Project	$	980,498.00
Chip Seal at 5 years	$	40,000			
Chip Seal at 10 years	$	45,000			
Chips Seal at 15 years	$	50,000			
Chip Seal at 20 years	$	55,000	2% Slab Repair	$	10,000
Chip Seal at 25 years	$	60,000			
Chip Seal at 30 years	$	65,000			
Total	**$**	**935,440.04**	Total	**$**	**990,498.00**

FIGURE 3 – PRIORITY 1



PRIORITY 2

Priority 2 includes the curb and pavement on Birch Street from Grand Ave to D Street (4 blocks), Cedar Street from 2nd Street to B Street (4 blocks) and B Street from Ash Street to Cedar Street (2 blocks). Unlike Priority 1, we are only presenting one option for this area. The proposed method of pavement replacement for this area is based on past projects and knowledge of the underlying soil types and drainage in this area. This combination does not lend well to the cement treated base option.

- Remove pavement and curb
- Correct grade and crossslopes
- Construct new curb over new rock base
- Construct 6" concrete pavement over 4" rock base and geofabric

To evaluate this priority, positive and negative impacts to the materials and costs must be considered. A list of the positive and negative impacts associated with Priority 2 is as follows. See **Table 6** for cost estimate.

PROS

- Long term material stability
- Less future maintenance activities

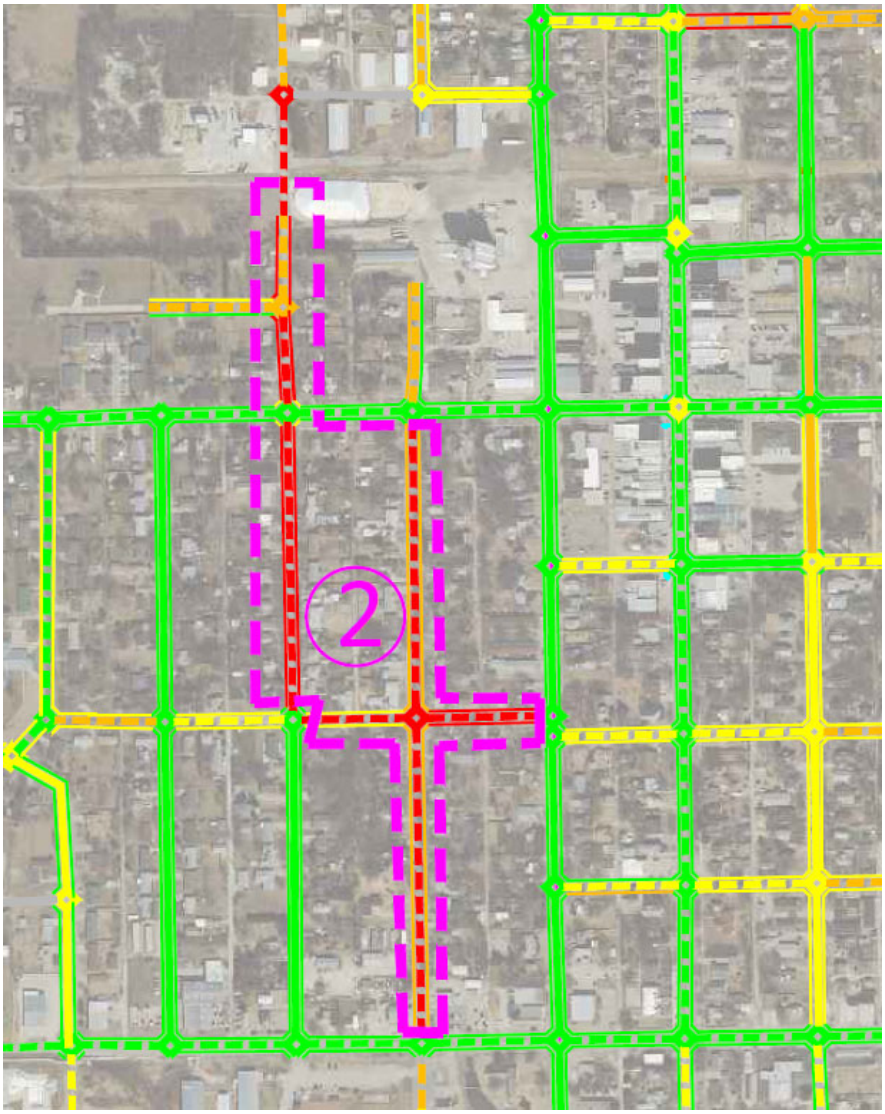
CONS

- Higher initial construction cost
- Longer construction time

TABLE 6 - COST ESTIMATE

Priority 1 – Option 1	
Birch Street - Grand to D Cedar Street - 2nd to B B Street - Ash to Cedar	$ 1,740,148.00
Engineering	$ 170,000.00
Total	**$ 1,910,148.00**

FIGURE 4 – PRIORITY 2



PRIORITY 3

Priority 3 includes the curb and pavement on Adams Stret from 1st Street to B Street (3 blocks). Similar to Priority 2, we are only presenting one option for this area. The proposed method of pavement replacement for this area is based on past projects and knowledge of the underlying soil types and drainage in this area as well as the level of traffic that is present on this corridor. All of these factors do not lend well to the cement treated base option.

- Remove pavement and curb
- Correct grade and crossslopes
- Construct new curb over new rock base
- Construct 6" concrete pavement over 8" rock base and geofabric

To evaluate this priority, positive and negative impacts to the materials and costs must be considered. A list of the positive and negative impacts associated with Priority 3 is as follows. See **Table 7** for cost estimate.

PROS

- Long term material stability
- Less future maintenance activities

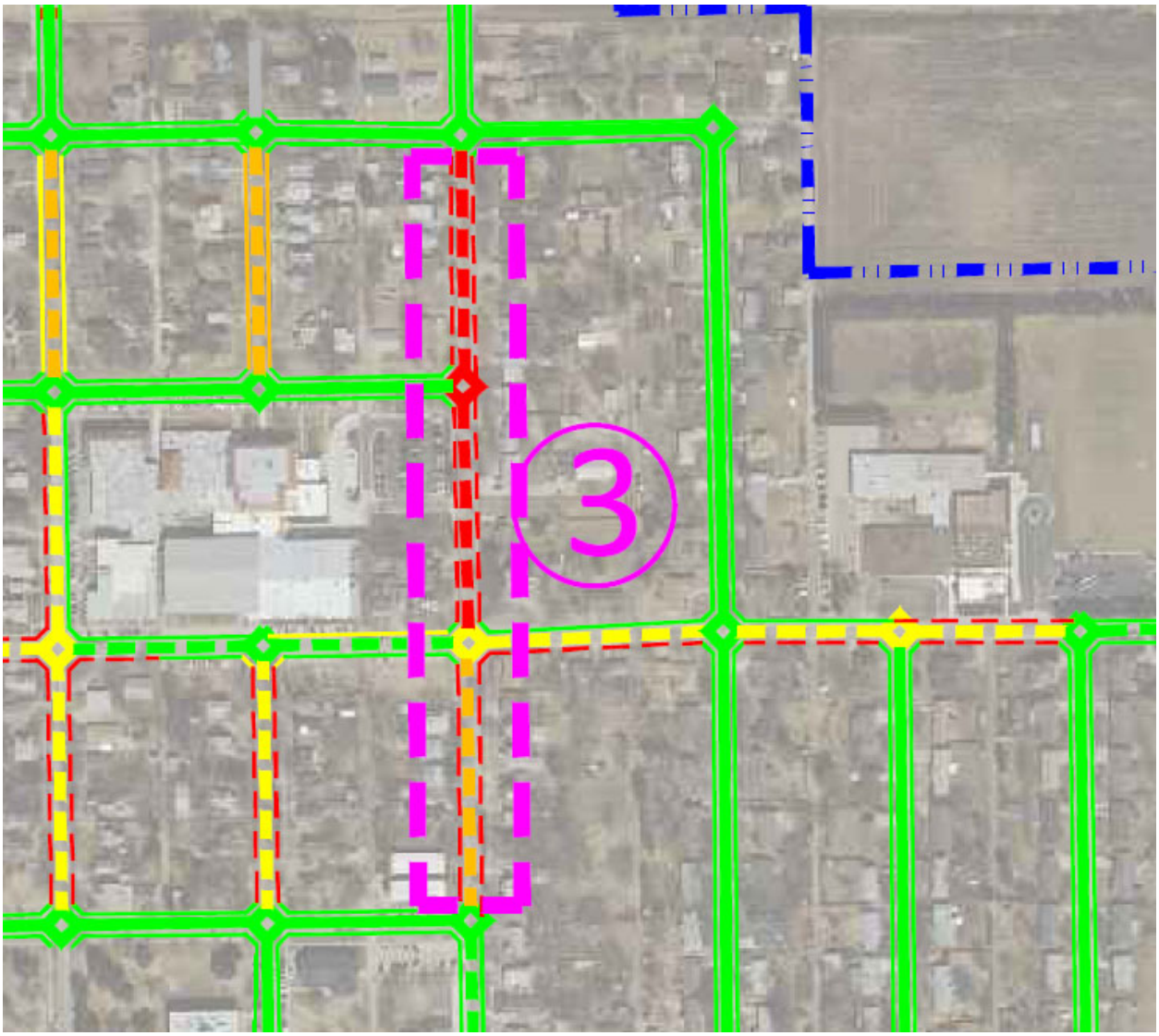
CONS

- Higher initial construction cost
- Longer construction time

TABLE 7 - COST ESTIMATE

Priority 1 – Option 1		
Adams Street – 1st to B	$	488,864.00
Engineering	$	75,000.00
Total	**$**	**563,864.00**

FIGURE 5 – PRIORITY 3



MAINTENANCE ACTIVITIES

One of the keys to maintaining any infrastructure system is the recurring maintenance that is scheduled and completed.

For concrete streets

- Annual review of the joint seal (plan to reseal one time every 15 years)
- Annual review of slabs for partial or full replacement and crack sealing (Plan on 2% replacement in 10 year period)

For asphalt streets

- Annual review for crack seal (plan on each year)
- Three to five year seal coat (chip seal, slurry seal, fog seal)
- Pothole patching (plan on 1% of area requiring patch each year)
- Rut leveling (plan on 2% of area requiring leveling in 10 year period)

For curb and gutter

- Annual review for drainage separation issues (plan on 1% replacement in 10 year period)

The maintenance alternatives can vary depending on the type of pavement material. Asphalt pavements should be crack sealed on an annual basis. This activity is currently being addressed using city staff. Since it is being addressed, we did not provide a line item or cost for this activity in the life cycle analysis of pavement options.

Asphalt Seal Coats should be planned on a 3 to 5 year cycle. Using this cycle, 1/3 to 1/5 of the asphalt streets in the City would receive a seal coat every year. Other maintenance and repair will not occur on a standard interval or size. Much of this repair will occur based on weather conditions and the timing of moisture in conjunction with wide temperature swings.

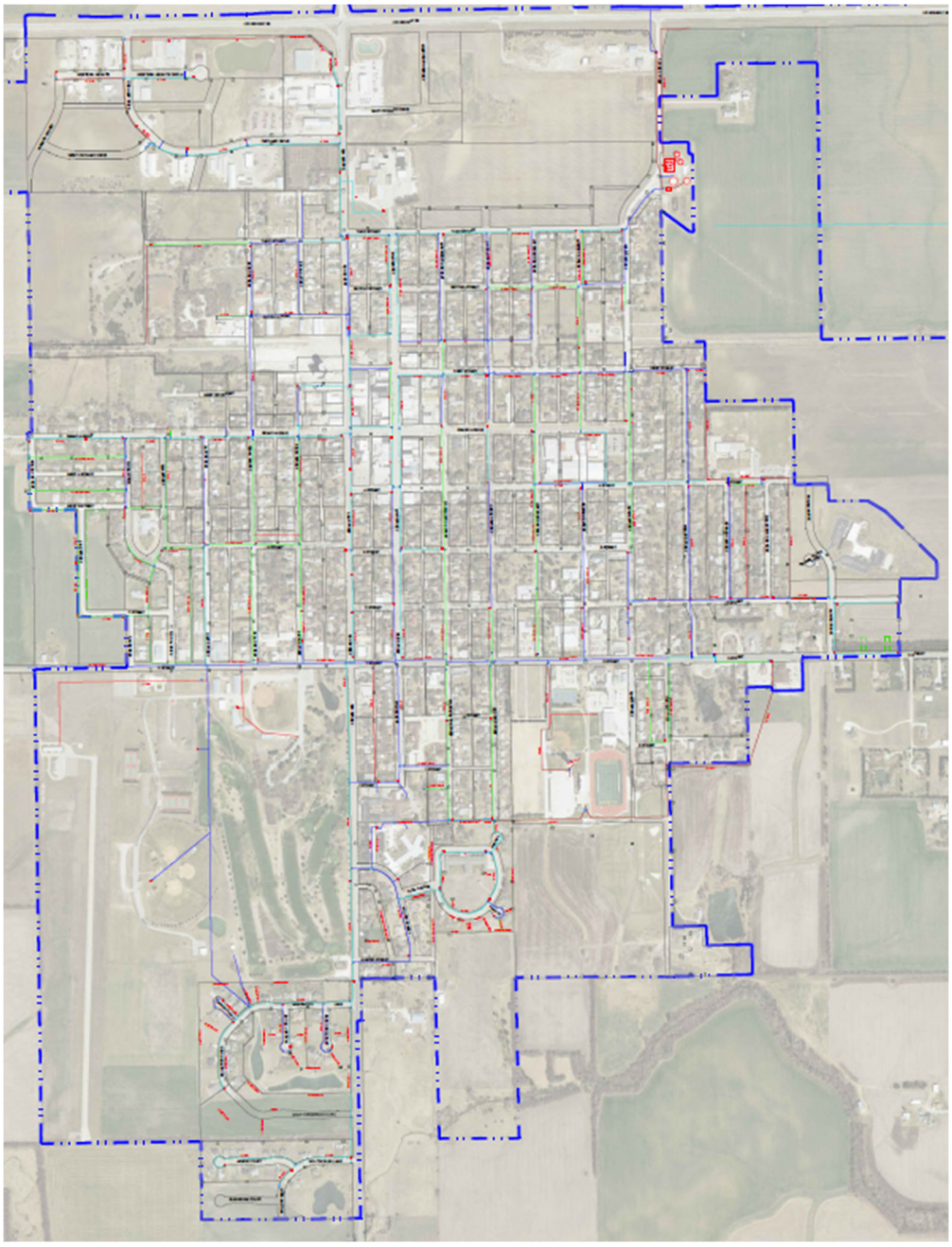
FUNDING OPPORTUNITIES

As a general rule, unless the pavement is on a KDOT highway or connecting link, there are very few funding opportunities to offset the cost of these projects.

One alternative funding source is the KDOT Cost Share program. This relatively new funding source has two application periods per year. One in the fall and one in the spring. Minimum local match is 15%, however to be competitive in this program, the local match should be submitted as 25% or more. This program can be used for pavement replacement, curb, drainage, economic development, sidewalks and other transportation systems located off KDOT right of way. It is targeted at projects that cannot be funded by other grant programs.

Another funding alternative is CDBG. While there was not a Community Facility application in 2020, it is supposed to be available again in the fall of 2023. This program could supply up to 600,000 matching 50% to the local funds. Since the City of Hillsboro as a whole does not meet the Low to Moderate Income (LMI) criteria, a defined target area would have to be surveyed to determine if a specific target area can be used as a project application.

General Obligation (GO) Bonds are by far the overwhelming mechanism to proceed with these types of projects. A range of sales tax to property tax is typically used to back and pay off GO Bonds.



EVALUATION ANALYSIS

The focus of this Capital Improvement Plan (CIP) is to provide the City with an evaluation of the existing Water Distribution System within the City Limits. This process will evaluate the merits and deficiencies of alternatives and provide the technical basis necessary for determining preferred corrective actions and strategies to maintain, repair and replace areas of the City Water Distribution System.

EBH uses a process of reviewing past projects and locations and staff recommendations from repair and maintenance activities.

While the assessment of development options or concepts are based on technical judgment, the most favorable improvement option should be compatible with other planning policies. Additionally, it should be consistent with social, economic, political, and environmental goals. To determine the best possible course of action, the alternatives incorporate the following factors in the development and evaluation of potential options.

We will also provide analysis of multiple infrastructure systems and the impacts they have on each other in the recommended areas of work.

The output of our findings will be both in table format as well as a colorized map for visual reference of the Water Distribution System.

EXISTING SYSTEM ANALYSIS

The map and tables on the following pages are a visual representation of the existing system as shown by material type and past rehabilitation projects. This analysis was performed in conjunction with city staff in April 2023. This is a snapshot of the system at this time.

FIGURE 1 - EXISTING SYSTEM – APRIL 2023

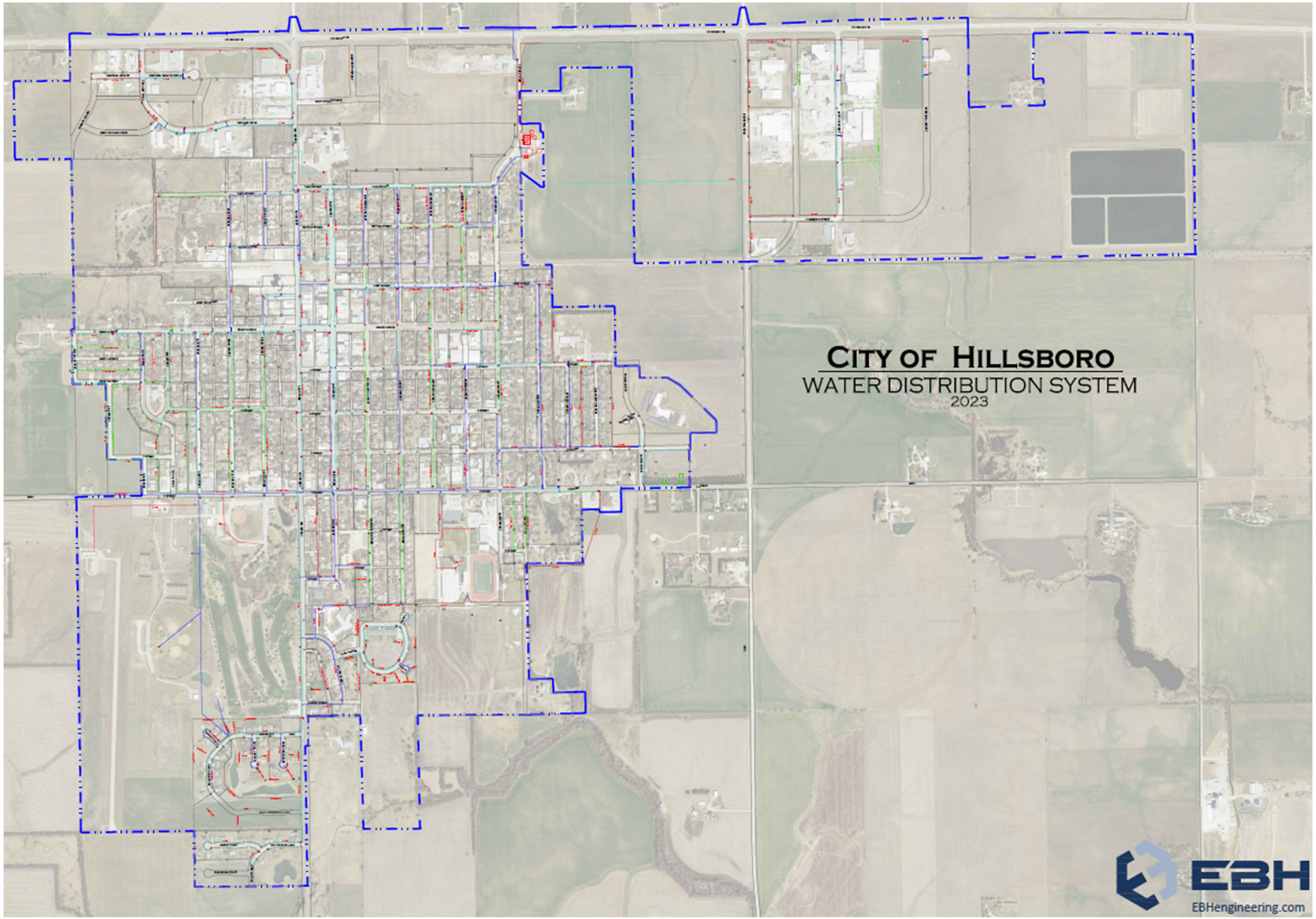


TABLE 1 – WATER DISTRIBUTION SYSTEM INVENTORY

	Quantity	Unit	Notes
12" Watermain	19,700	Linear Feet	
8" Watermain	38,700	Linear Feet	
6" Watermain	43,200	Linear Feet	
4" Watermain	27,400	Linear Feet	
2" & Less Watermain	7,000	Linear Feet	
Valve	387	Each	
Fire Hydrants	141	Each	
Meters		Each	

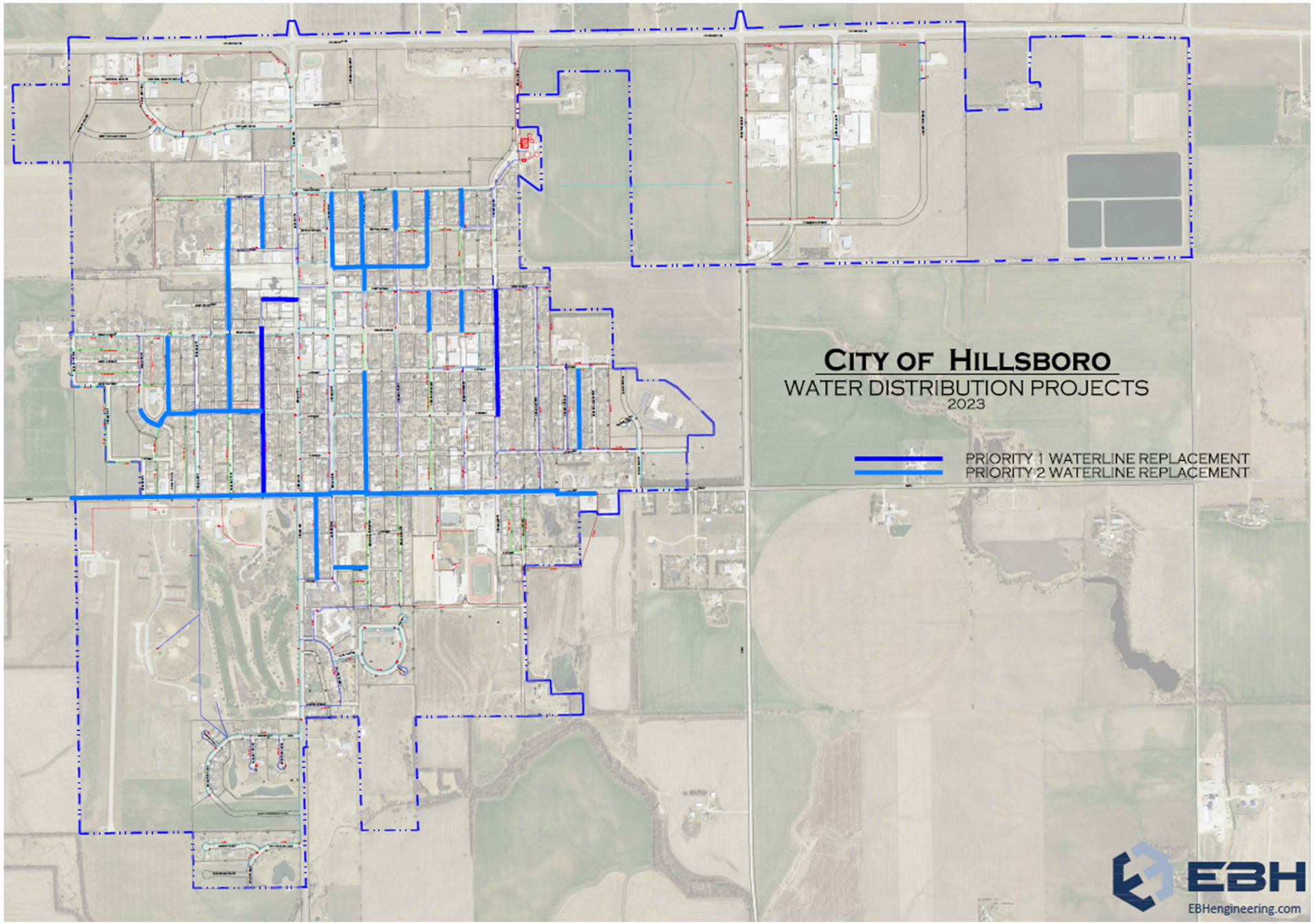
ALTERNATIVES/RECOMMENDATIONS

EBH developed a list of recommendations based on all of the factors discussed in this document. EBH and City Staff had a meeting to discuss the alternatives and recommendations. The following is a list of priority Water Distribution Systems and areas that were jointly agreed upon by the City and EBH.

Priority 1- 2023 Project
Replace 8 blocks of water main and 78 service connections

Priority 2 – Future Year Project
Replace 50 blocks of water main and 270 service connections

FIGURE 2 – PROJECT PRIORITY MAP



PRIORITY 1 – NEAR TERM PROJECT

Priority 1 includes the replacement of the lines as shown on Figure 3 and in Table 2.

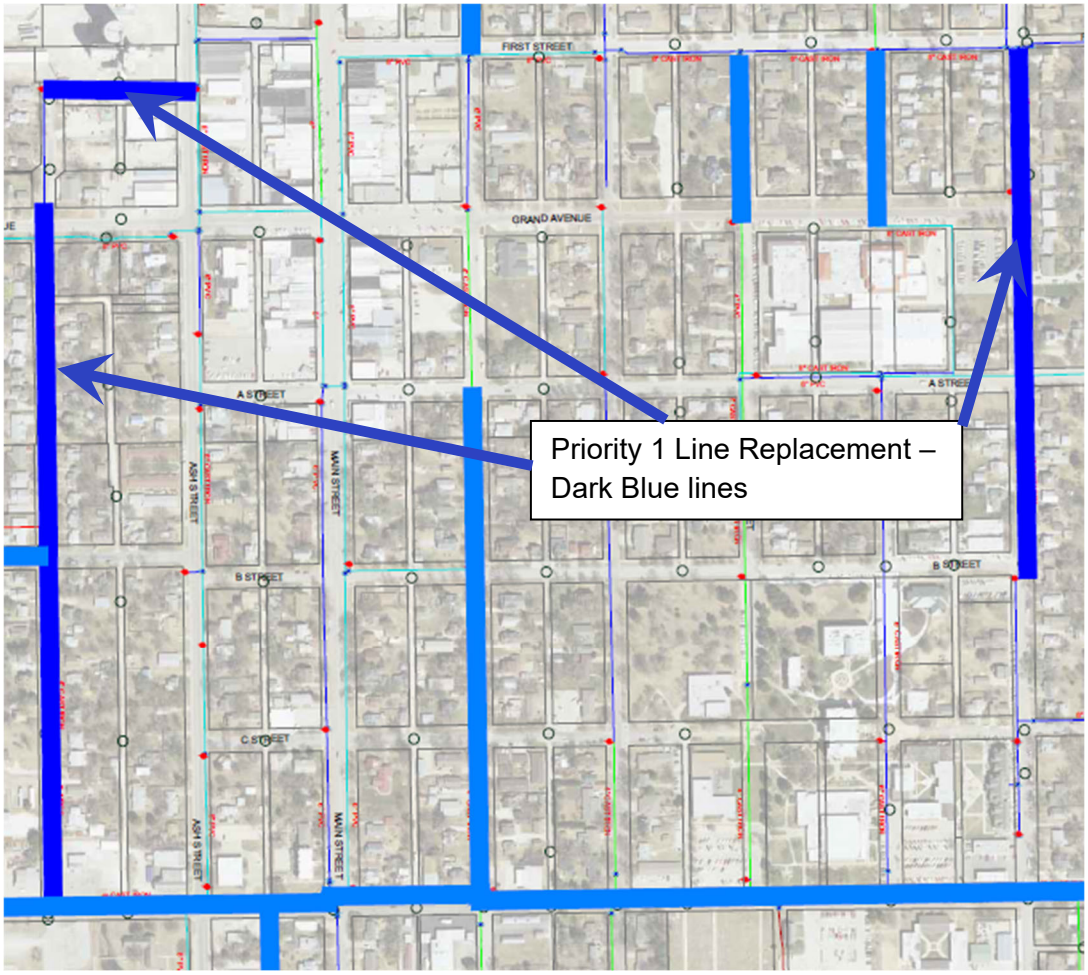
TABLE 2 – PROJECT SCOPE

Street	From	To	Blocks	Services
Adams	B	1st	3	31
B	Birch	Ash	1	0
Birch	Grand	D	4	47
			8	78

TABLE 3 - COST ESTIMATE

Priority 1	
Priority 1 Replacement Project	$ 1,194,000.00
Total	$ 1,194,000.00

FIGURE 3 – PRIORITY 1



PRIORITY 2 – NEXT LARGE PROJECT

Priority 2 includes the replacement of the water main and service lines as shown on Figure 4, Table 4 and Table 5.
Priority 1, includes the replacement of the watermain and services as shown on Figure 4, Table 4 and Table 5.

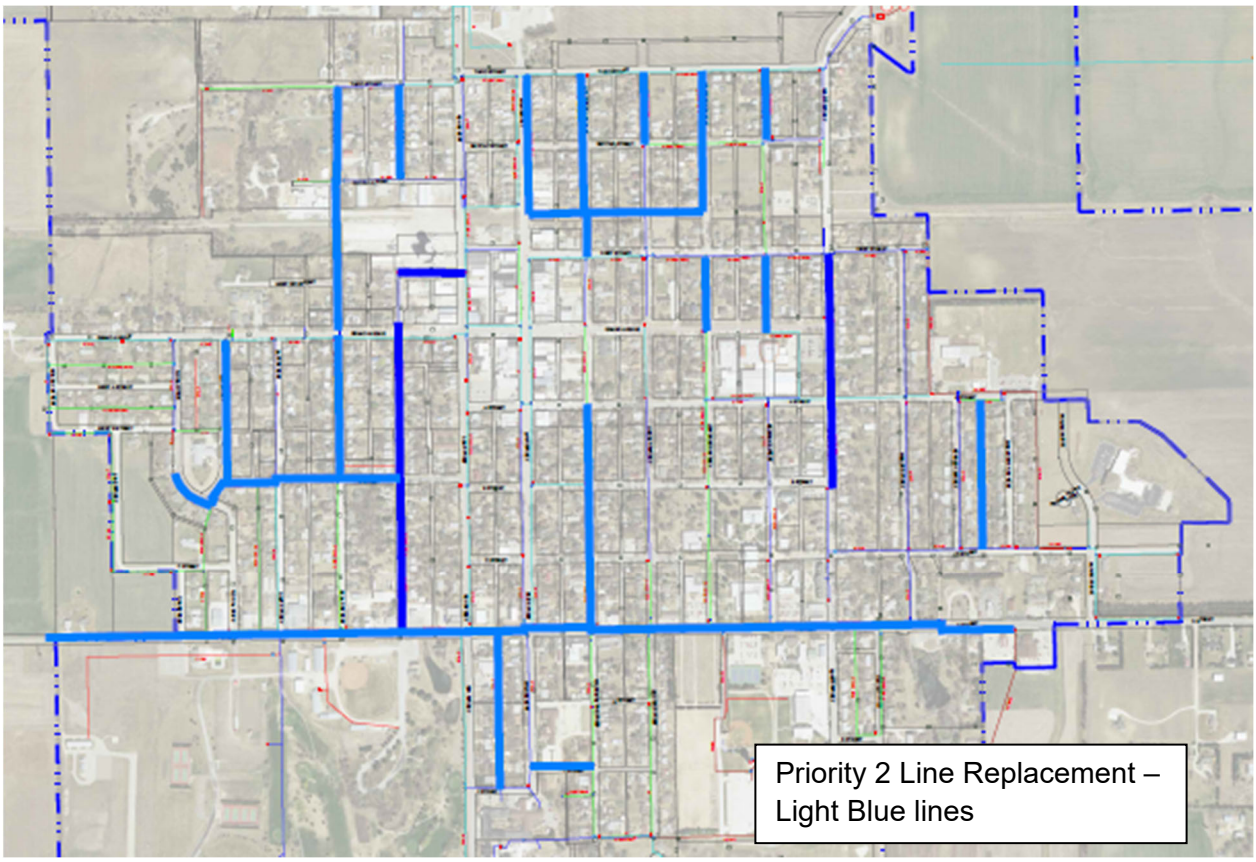
TABLE 4 – PROJECT SCOPE

Street	From	To	Blocks	Services
Elm	Grand	Floral	3	15
Floral	Elm	West B	1	6
B	Elm	Birch	3	6
RR	Main	Jefferson	3	0
Jefferson	Grand	3rd	3	24
Lincoln	2nd	3rd	1	11
Madison	2nd	3rd	1	10
Cedar	B	Grand	2	26
Madison	Grand	1st	1	9
D	Floral	Prairie Pt	15	0
Washington	A	D	3	34
Washington	1st	3rd	2	30
Main	1st	3rd	2	23
Alley (Ash & Main)	D	F	2	24
Birch	2nd	3rd	1	14
Cedar	Grand	3rd	4	17
F	Main	Washington	1	0
Eisenhower	A	C	2	20
			50	269

TABLE 5 - COST ESTIMATE

Priority 2	
Priority 2 Replacement	$ 6,807,000.00
Total	**$ 6,807,000.00**

FIGURE 4 – PRIORITY 2



MAINTENANCE ACTIVITIES

One of the keys to maintaining any infrastructure system is the recurring maintenance that is scheduled and completed. In the case of the Water Distribution System, routine valve turning and line flushing is the best alternative for identifying areas that requires repairs or replacement.

FUNDING OPPORTUNITIES

As a general rule, there are only a couple of outside funding opportunities to offset the cost of Water Distribution System projects.

One alternative funding source is the KDHE Loan program. These long term, low interest loans typically are used for large scale projects. Smaller single block or repair projects typically are not large enough to be considered for this type of funding. The payback for these loans must come from the utility rate or special benefit district charges.

Another funding alternative is CDBG. Since the City of Hillsboro as a whole does not meet the Low to Moderate Income (LMI) criteria, a defined target area would have to be surveyed to determine if a specific target area can be used as a project application.

General Obligation (GO) Bonds are by far the overwhelming mechanism to proceed with these types of projects. A range of utility rates to special benefit districts could be used to back and pay off GO Bonds.

Small scope projects can be accomplished purely through the annual utility budget. While this does work for small projects, it can have an impact on other maintenance and operational costs of the utility.

The City must find the best economic fit for scope of a project versus utility rate structure. We hope that by laying out what the future potential repair, replacement and maintenance projects might look like, the decision on how and when to create a project package will become an easier task for the staff and the City Council.

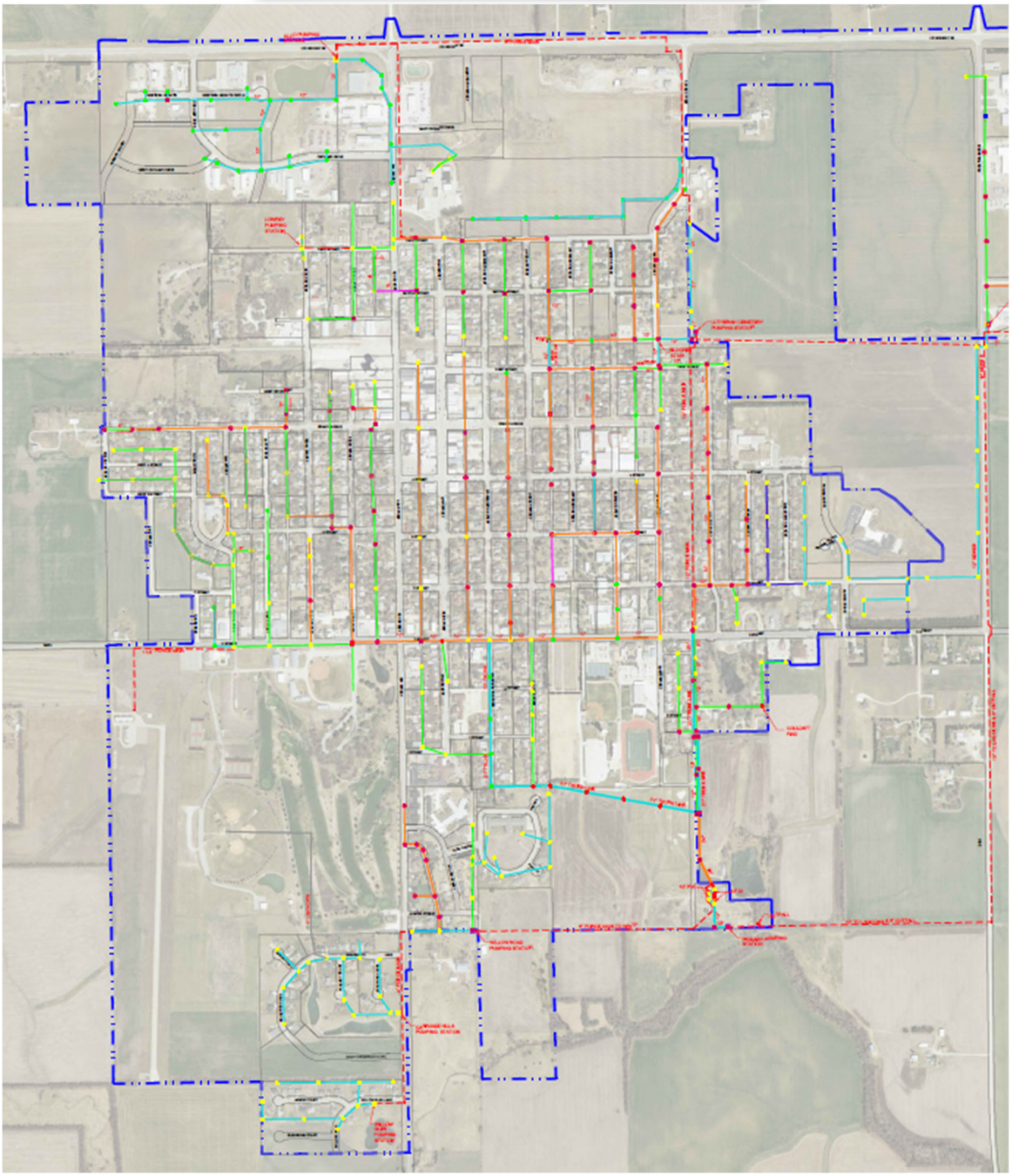
WATER DISTRIBUTION SYSTEM BUDGET

TABLE 6 – FUTURE PROJECT BUDGET

Near Term Project	$ 1,194,000.00	
Next Large Project	$ 6,807,000.00	

Prices do not include any inflationary increase

City of Hillsboro Kansas



EVALUATION ANALYSIS

The focus of this Capital Improvement Plan (CIP) is to provide the City with an evaluation of the existing sanitary sewer collection within the City Limits. This process will evaluate the merits and deficiencies of alternatives and provide the technical basis necessary for determining preferred corrective actions and strategies to maintain, repair and replace areas of the City sanitary sewer system.

EBH uses a process of reviewing video and recommendations from the inspection services from Mayer Specialty Services, as well as reviewing past project types and locations and staff recommendations from repair and maintenance activities.

While the assessment of development options or concepts are based on technical judgment, the most favorable improvement option should be compatible with other planning policies. Additionally, it should be consistent with social, economic, political, and environmental goals. To determine the best possible course of action, the alternatives incorporate the following factors in the development and evaluation of potential options.

We will also provide analysis of multiple infrastructure systems and the impacts they have on each other in the recommended areas of work.

The output of our findings will be both in table format as well as a colorized map for visual reference of the sanitary sewer system.

EXISTING SYSTEM ANALYSIS

The map and tables on the following pages are a visual representation of the existing system as shown by material type and past rehabilitation projects. This analysis was performed in conjunction with city staff in March 2023. This is a snapshot of the system at this time. It is mostly based on the cleaning and video inspections completed by Mayer over the past several years

FIGURE 1 - EXISTING SYSTEM – MARCH 2023

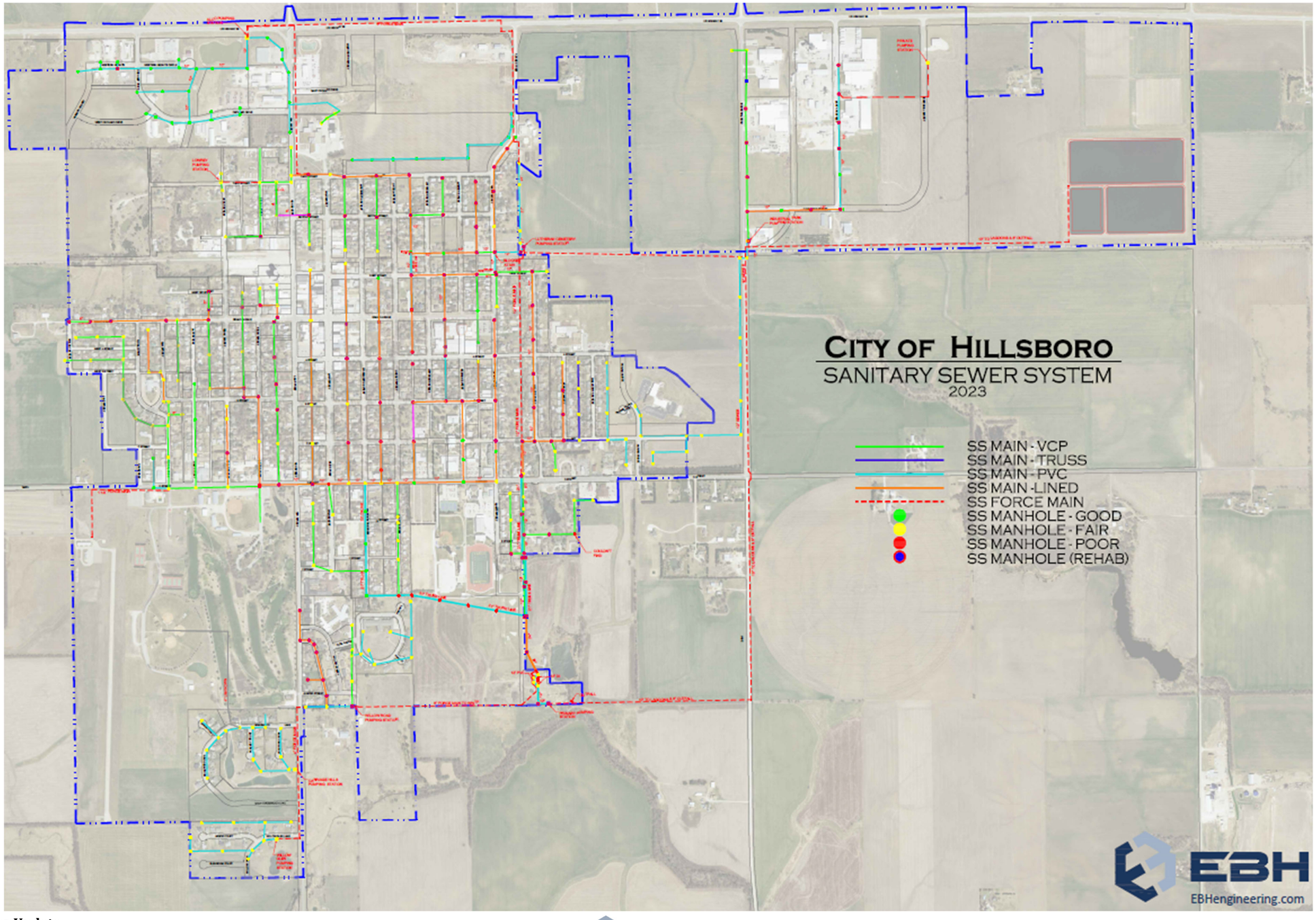


TABLE 1 – SANITARY SEWER SYSTEM INVENTORY

	Quantity	Unit	Notes
Sewer Main – VCP	68	Blocks	Replace 15 blocks (2023) 9 blocks (2024)
Sewer Main – Truss Pipe	3.5	Blocks	
Sewer Main – Iron	2	Blocks	
Sewer Main – PVC	62.5	Blocks	
Sewer Main – Lined	80	Blocks	
Force Main	44,000	Linear feet	Replace Lutheran to Industrial pipeline
Manholes – Good	59		
Manholes – Fair	175		Rehab 18 (2029), 25 every 5th year
Manholes – Poor	7		Rehab 1 (2024) 6 (2029)
Manholes – Rehab'd	123		
Lift Stations			
Fairgrounds			
Willow Glenn			
Carriage Hills			
Willow Road			
Primary			Plan to Double in Size
Lowery			
Alco			
Lutheran Cemetery			
Industrial Park			
SST Return			

ALTERNATIVES/RECOMMENDATIONS

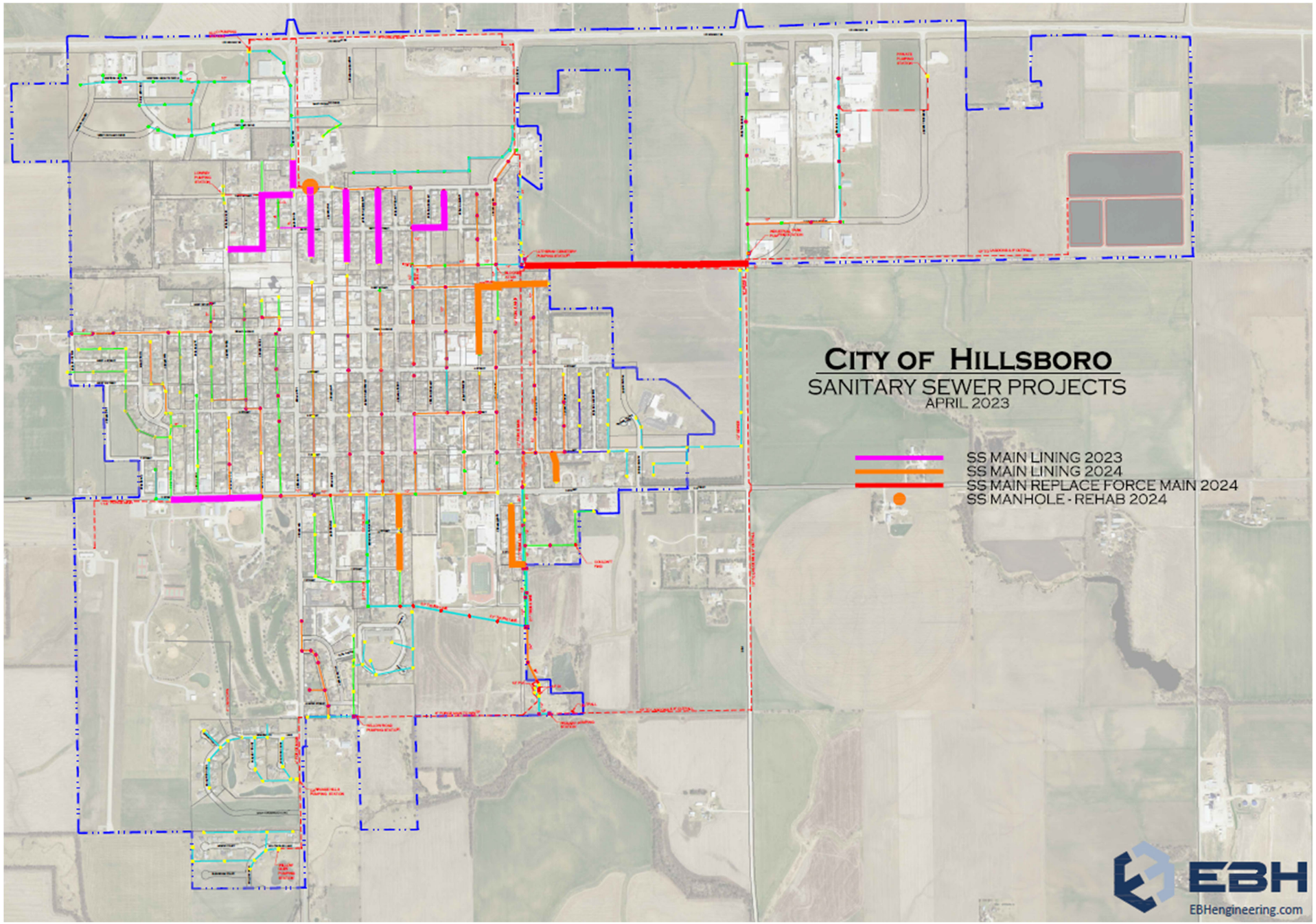
EBH developed a list of recommendations based on all of the factors discussed in this document. EBH and City Staff had a meeting to discuss the alternatives and recommendations. The following is a list of priority Sanitary Sewers and areas that were jointly agreed upon by the City and EBH.

Priority 1- 2023 Lining Project
Line 6220 LF of VCP Pipe

Priority 2 – 2024 Lining, Force Main and Manhole Rehab
Line 3800 LF of VCP Pipe
Replace 2650 LF of Force Main
Rehabilitate 1 Manhole

Priority 3 – Lining and Manhole Rehab
Line 4000 LF of VCP, Iron or Truss Pipe
Rehabilitate 25 Manholes
Per project with a new project approximately every 5 years (will take until approximately 2054 to complete)

FIGURE 2 – PROJECT PRIORITY MAP



PRIORITY 1 – 2023 LINING

Priority 1 includes the lining of the VCP pipe as shown on Figure 3 and in Table 2.

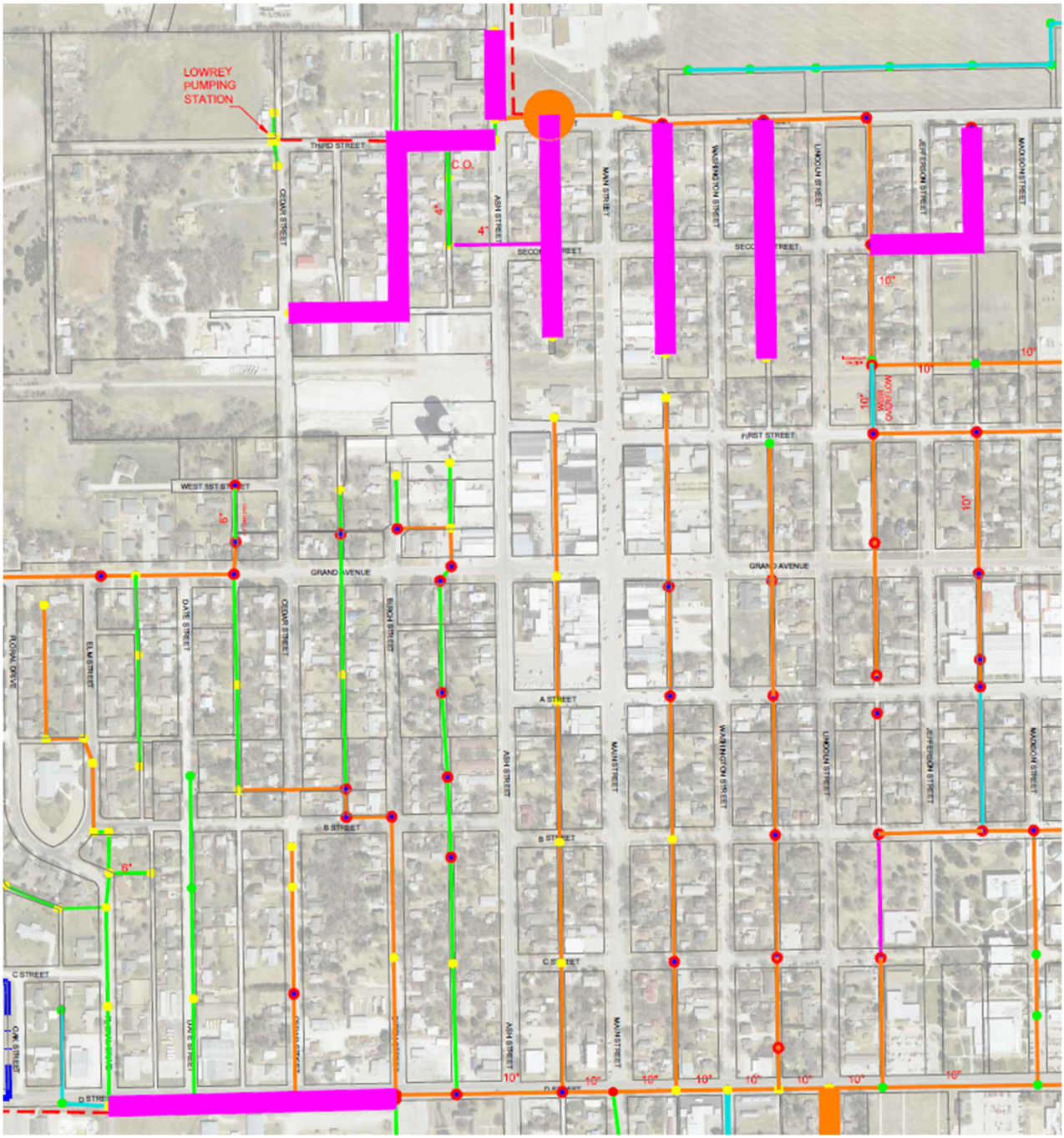
TABLE 2 – PROJECT SCOPE

Street	From	To	Material	Length
Ash	EMS Building	3rd	VCP	330
Alley (2nd/1st)	Cedar	Birch	VCP	410
Birch	Alley (2nd/1st)	3rd	VCP	620
3rd	Birch	Ash	VCP	360
Alley (Ash/Main)	1st	3rd	VCP	830
Alley (Main/Washington)	1st	3rd	VCP	860
Alley (Washington/Lincoln)	1st	3rd	VCP	860
2nd	Alley (Lincoln/Jefferson)	Alley (Jefferson/Madison)	VCP	400
Alley (Jefferson/Madison)	2nd	3rd	VCP	450
D	Floral	Birch	VCP	1100
				6220

TABLE 3 - COST ESTIMATE

Priority 1 – Option 1	
Lining	$ 255,000.00
Total	**$ 255,000.00**

FIGURE 3 – PRIORITY 1



PRIORITY 2 – 2024 LINING, FORCE MAIN & MANHOLE REHAB

Priority 2 includes the lining, force main replacement and manhole rehabilitation as shown on Figure 4 and in Table X.
Priority 1 includes the lining of the VCP pipe as shown on Figure 4 and in Table 4.

TABLE 4 – PROJECT SCOPE

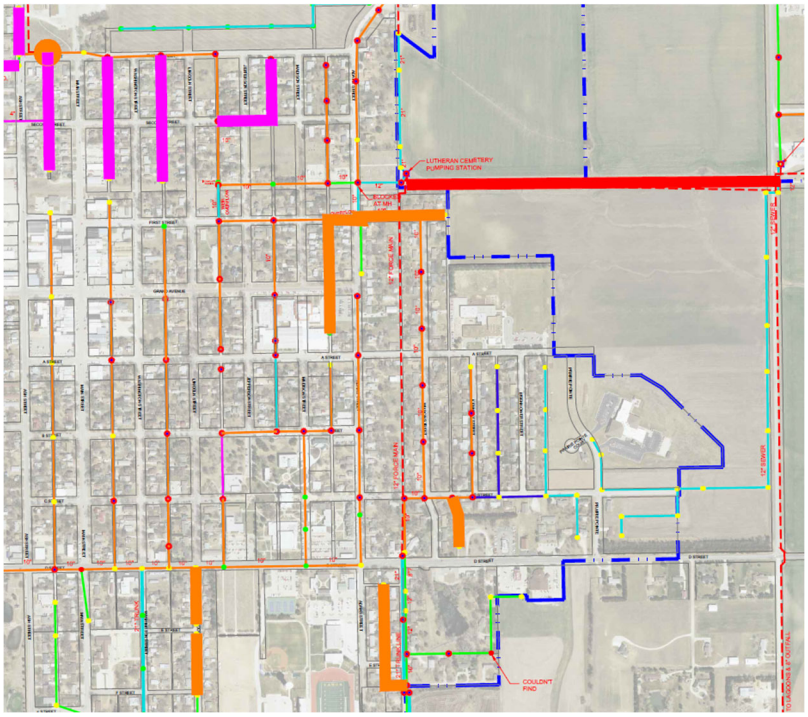
Street	From	To	Material	Length
Alley (Madison/Adams)	High School	1st	VCP	800
1st	Alley (Madison/Adams)	Alley (east of Wilson)	VCP	900
Lincoln	F	E	VCP	430
Lincoln	E	D	VCP	430
Alley (Adams/Wilson)	F	Alley (south of D)	VCP	870
Alley (Wilson/Kennedy)	D	C	VCP	370
RR	Lutheran Lift Station	Industrial Lift Station		2650
Alley (Ash/Main) & 3rd			Manhole	12

3800 LF LINING

TABLE 5 - COST ESTIMATE

Priority 2		
Lining	$	162,600.00
Force Main Replacement	$	132,500.00
Manhole Rehab	$	1,800.00
Total	**$**	**296,900.00**

FIGURE 4 – PRIORITY 2



PRIORITY 3

Priority 3 includes all future years lining and replacement projects.

The City has chosen to rehabilitate the VCP pipe by lining in groups of approximately 4,000 lf. The city budget will dictate the frequency of these projects. Based on the amount of remaining VCP pipe (excluding the planned 2023 and 2024), it will take 2 of this size projects to fully rehabilitate the remaining VCP/Truss/Iron pipe. While the exact locations of the next projects are not known, the 21" and 24" trunk lines near the primary lift station will be in this next priority project.

The City has also chosen to rehabilitate the manholes, beginning with those rated as POOR condition. At anticipated rate of 8 manholes per project, it will take 1 project to rehabilitate the Poor Condition manholes, at which point, there may be some of the FAIR condition manholes that migrate to the POOR condition.

TABLE 6 - COST ESTIMATE

Priority 3		
Lining	$	175,000.00
Manhole Rehab	$	15,000.00
Total	**$**	**190,000.00**

It would take 6 rounds of this level project (2029, 2034, 2039, 2044, 2049 & 2054) to complete the lining of all non PVC pipe and the POOR condition manholes.

MAINTENANCE ACTIVITIES

One of the keys to maintaining any infrastructure system is the recurring maintenance that is scheduled and completed. In the case of the sanitary sewer system, routine cleaning and video is the best alternative for identifying areas that requires repairs or replacement.

Currently, the City is on a cycle to clean 10,000 linear feet per year. This will be approximately $20,000 per year. This cost will be to clean and camera this linear footage. At 10,000 linear feet per year, it will take approximately 9 years to clean/camera all of the sewer mains in the City.

FUNDING OPPORTUNITIES

As a general rule, there are very few outside funding opportunities to offset the cost of sanitary sewer projects.

One alternative funding source is the KDHE Loan program. These long term, low interest loans typically are used for large scale projects. Smaller point repairs or minimal block lining projects typically are not large enough to be considered for this type of funding. The payback for these loans must come from the utility rate or special benefit district charges.

Another funding alternative is CDBG. Since the City of Hillsboro as a whole does not meet the Low to Moderate Income (LMI) criteria, a defined target area would have to be surveyed to determine if a specific target area can be used as a project application.

General Obligation (GO) Bonds are by far the overwhelming mechanism to proceed with these types of projects. A range of utility rates to special benefit districts could be used to back and pay off GO Bonds.

Small scope projects can be accomplished purely through the annual utility budget. While this does work for small projects, it can have an impact on other maintenance and operational costs of the utility.

The City must find the best economic fit for scope of a project versus utility rate structure. We hope that by laying out what the future potential repair, replacement and maintenance projects might look like, the decision on how and when to create a project package will become an easier task for the staff and the City Council.

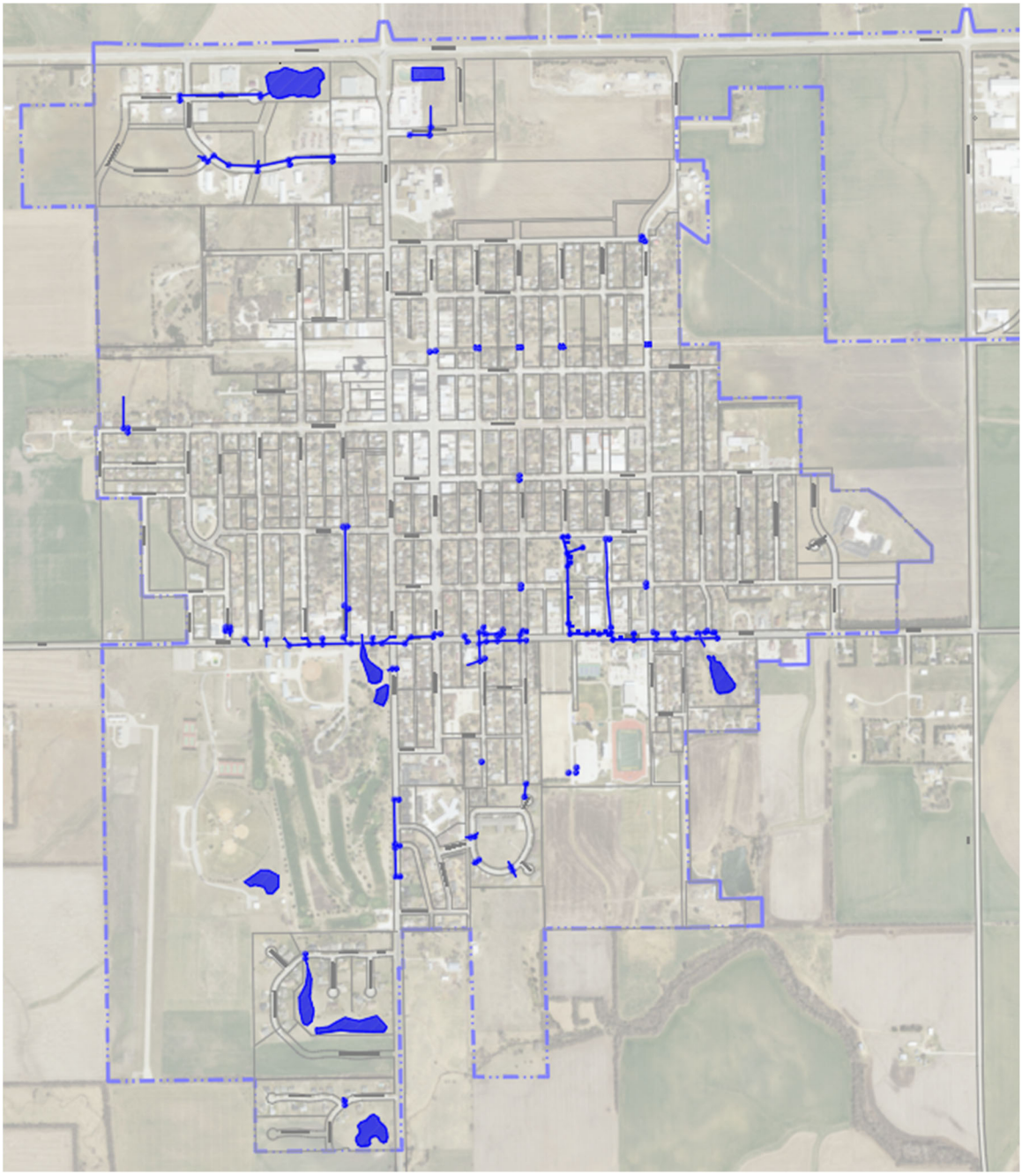
SANITARY SEWER SYSTEM BUDGET

TABLE 7 – 30 YEAR BUDGET

2023	$ 255,000.00	$ 290,000.00
2023 Point Repairs	$ 10,000.00	
2023 Video/Cleaning Lines	$ 25,000.00	
2024	$ 296,900.00	$ 331,900.00
2024 Point Repairs	$ 10,000.00	
2024 Video/Cleaning Lines	$ 25,000.00	
2025 Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
2026 Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
2027 Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
2028 Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
2029 Project	$ 190,000.00	$ 225,000.00
2029 Point Repairs	$ 10,000.00	
2029 Video/Cleaning Lines	$ 25,000.00	
2030 Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
2031 Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
2032 Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
2033 Video/Cleaning Lines	$ 25,000.00	$ 25,000.00
2034 Project	$ 190,000.00	$ 200,000.00
2034 Point Repairs	$ 10,000.00	
2039 Project	$ 190,000.00	$ 200,000.00
2039 Point Repairs	$ 10,000.00	
2044 Project	$ 190,000.00	$ 200,000.00
2044 Point Repairs	$ 10,000.00	
2049 Project	$ 190,000.00	$ 200,000.00
2049 Point Repairs	$ 10,000.00	
2054 Project	$ 190,000.00	$ 200,000.00
2054 Point Repairs	$ 10,000.00	

Prices do not include any inflationary increase

City of Hillsboro Kansas



EVALUATION ANALYSIS

The focus of this Capital Improvement Plan (CIP) is to provide the City with an evaluation of the existing stormwater collection within the City Limits. This process will evaluate the merits and deficiencies of alternatives and provide the technical basis necessary for determining preferred corrective actions and strategies to maintain, repair and replace areas of the City stormwater system.

While the assessment of development options or concepts are based on technical judgment, the most favorable improvement option should be compatible with other planning policies. Additionally, it should be consistent with social, economic, political, and environmental goals. To determine the best possible course of action, the alternatives incorporate the following factors in the development and evaluation of potential options.

We will also provide analysis of multiple infrastructure systems and the impacts they have on each other in the recommended areas of work.

The output of our findings will be both in table format as well as a colorized map for visual reference of the stormwater system.

EXISTING SYSTEM ANALYSIS

The map and tables on the following pages are a visual representation of the existing system as shown by material type and past rehabilitation projects. This analysis was performed in conjunction with city staff in April 2023. This is a snapshot of the system at this time.

There are 14 drainage basins in the City, draining to 3 tributaries. Two of these flow south to the Cottonwood River and the north one flows to French Creek. See Figure 2.

FIGURE 1 - EXISTING SYSTEM – APRIL 2023

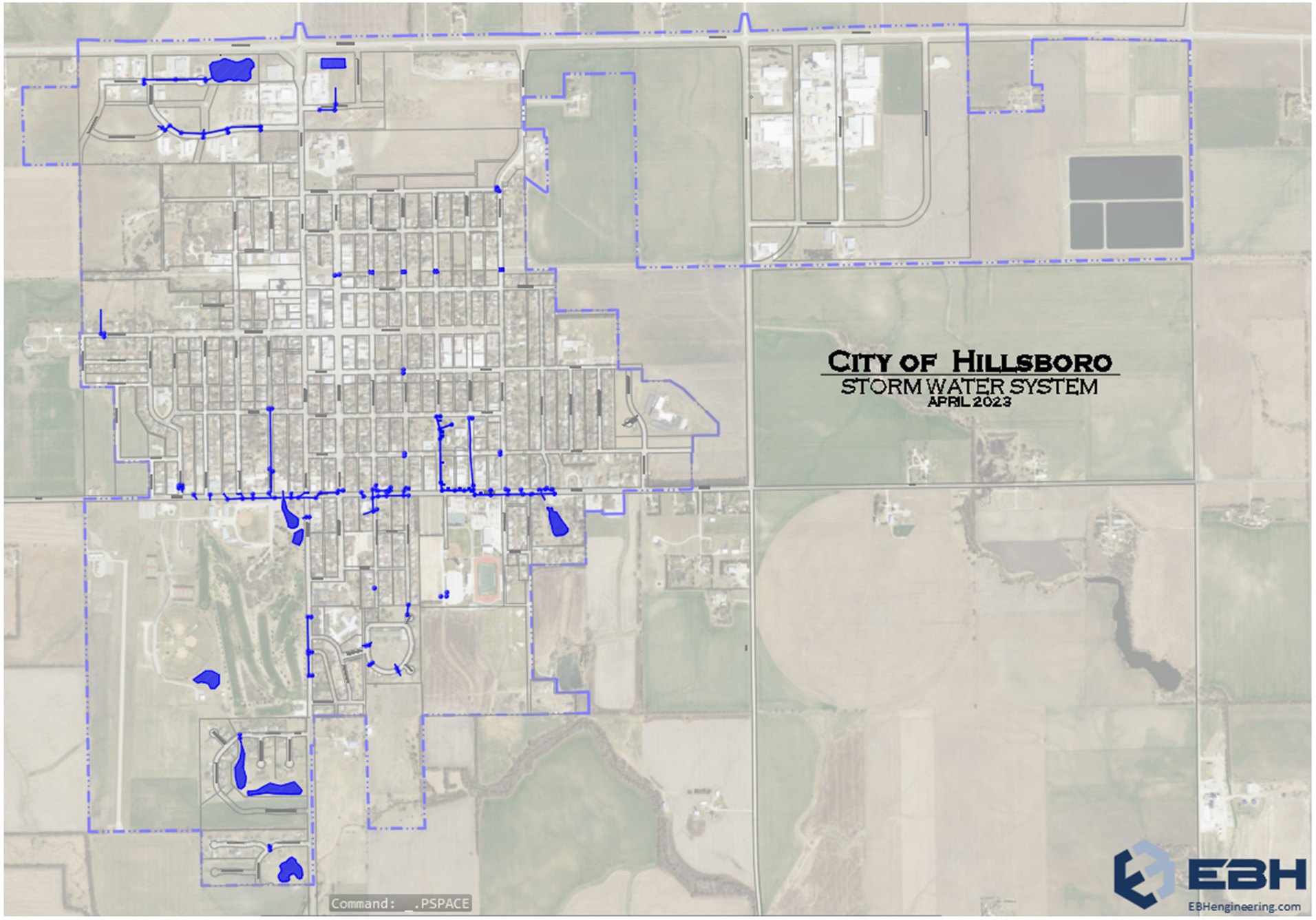


FIGURE 2 – DRAINAGE BASIN MAP

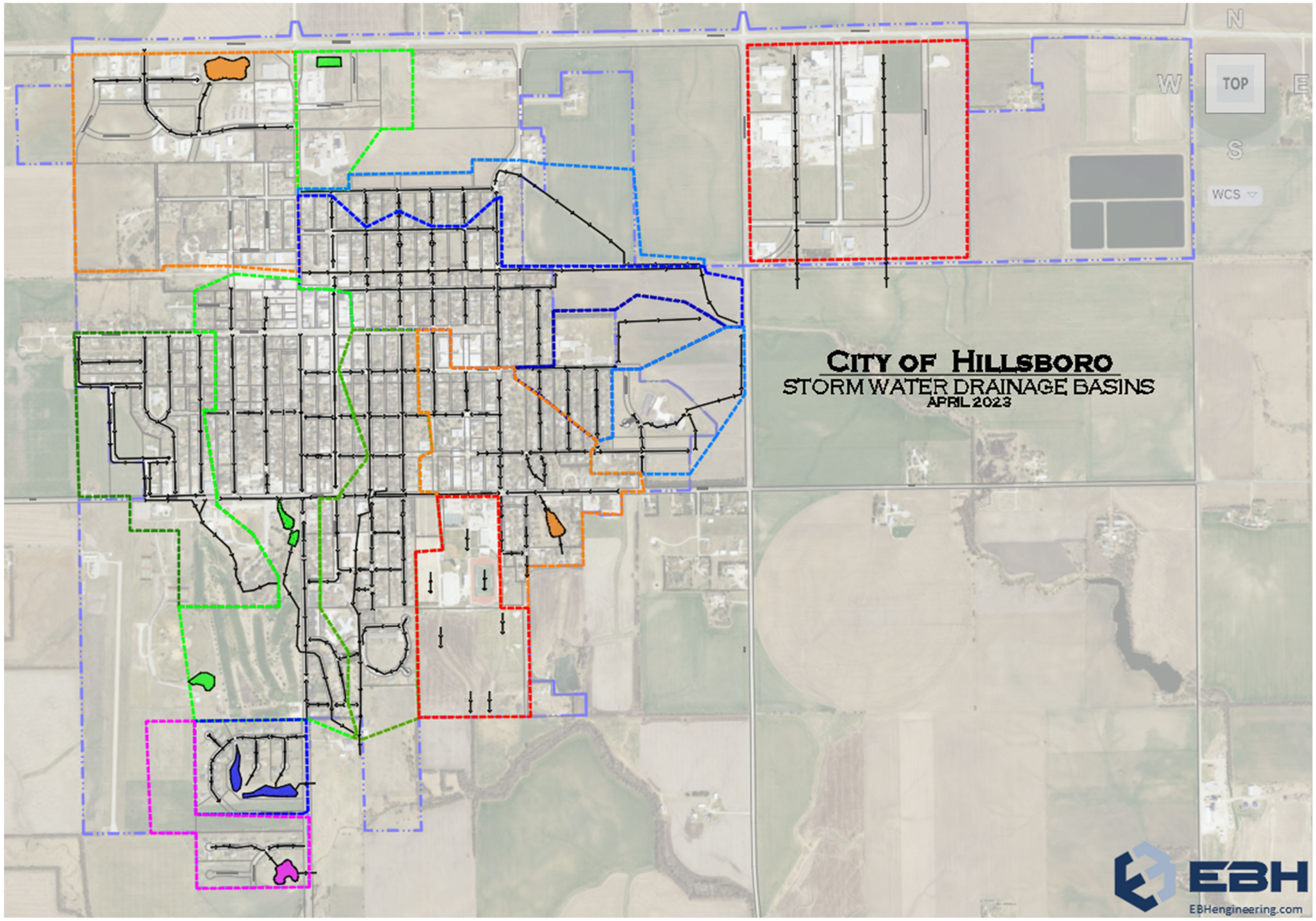


TABLE 1 – STORMWATER SYSTEM INVENTORY

	Quantity	Unit	Size	Notes
Inlets	115	Each		Various sizes. Typical open throat 4' inlets
Storm Pipe	2,335	LF	24"	Orchard Pond
Storm Pipe	450	LF	24"	Business Park system
Storm Pipe	3,630	LF	24"	West D Street system (Main to Floral)
Storm Pipe	1,325	LF	24"	Middle D Street system (Lincoln to Main)
Storm Pipe	3,365	LF	24" & 30"	East D Street system (Wilson to Jefferson)
Storm Pipe	100	LF	24"	3rd/Adams
Storm Pipe	800	LF	24"	South Ash
Storm Pipe	300	LF	18"	West Grand
Storm Pipe	75	LF	24"	Willow Glenn
Storm Pipe	85	LF	24"	Carriage Hills

ALTERNATIVES/RECOMMENDATIONS

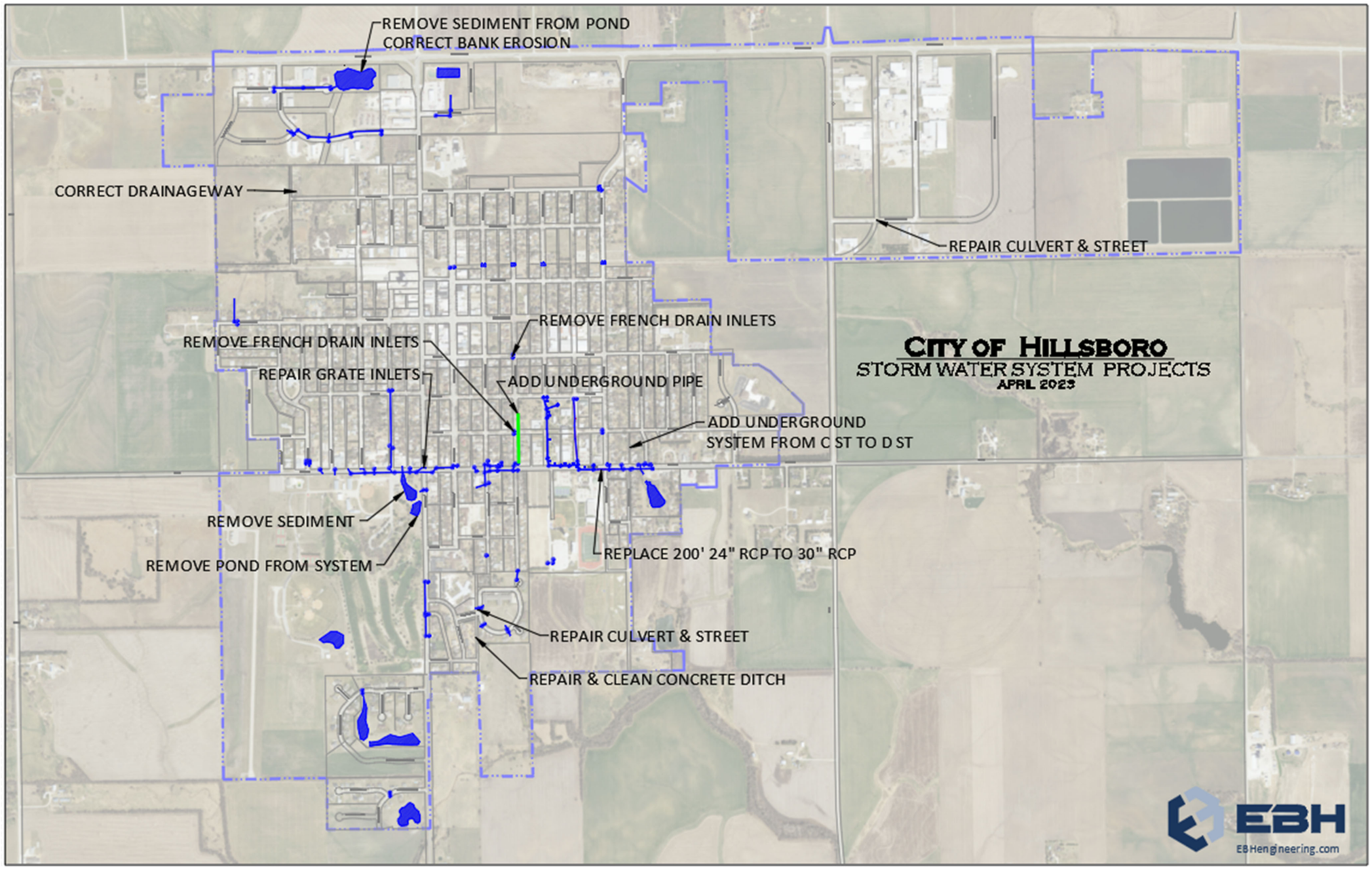
EBH developed a list of recommendations based on all of the factors discussed in this document. EBH and City Staff had a meeting to discuss the alternatives and recommendations. The following is a list of priority stormwaters and areas that were jointly agreed upon by the City and EBH.

Priority 1-
Clean & Repair Concrete Ditch – Park Avenue to South City Limits
Repair Culvert - Commerce
Repair Culvert – Park Ave
Repair Grate Inlet – North side of Ash & D
Add Underground Pipe & Inlets – Tabor Fine Arts detention to D Street

Priority 2 –
Remove French Drains – A & Lincoln
Remove French Drains – C & Lincoln
Remove Sediment & Correct Bank Erosion – Orchard Pond
Remove Sediment – Park Pond
Remove Lower Pond – Park Pond

Priority 3 –
Correct Drainageway – West Grand to Orchard Dr
Add Underground Pipe & Inlets – C to D, ½ block East of Adams
Replace 200' 24" to 30" – D St west of Adams

FIGURE 3 – DRAINAGE PROJECTS MAP



PRIORITY 1 – REPAIRS & CLEANING

Priority 1 includes the repair to the pipes in Park Avenue Circle and Commerce (Industrial Park), as well as the cleaning and repair of the concrete ditch that runs from Park Avenue to the south city limits.

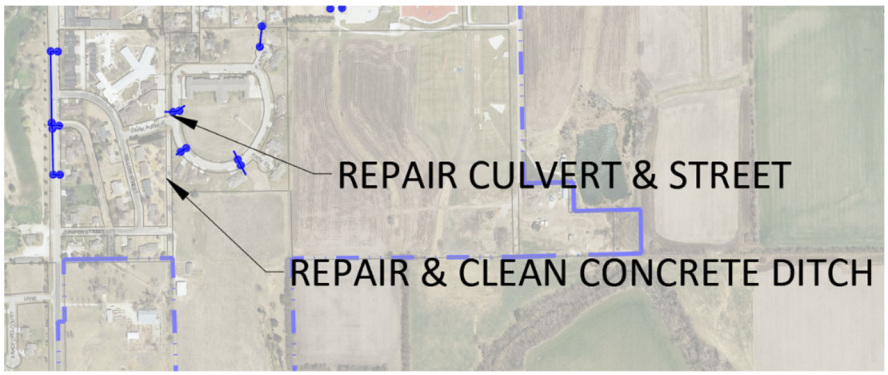
TABLE 2 – PRIORITY 1 PROJECT SCOPE

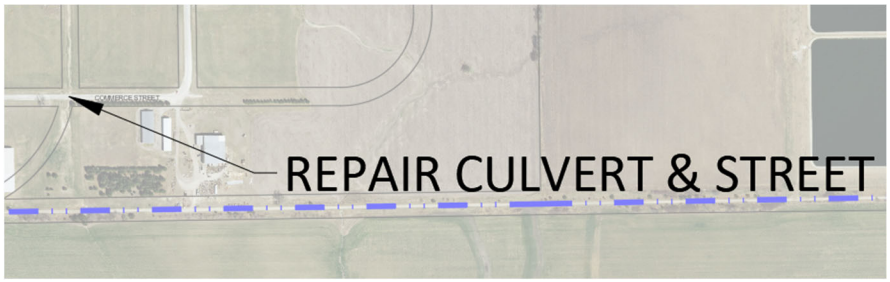
Street	Scope	Material	Length
Park Avenue	Fix RCP and street pavement sinking	RCP	20
Commerce St	Fix RCP and replace street rock	RCP	20
Concrete Ditch clean & repair	Clean concrete ditch and patch	Concrete	800

TABLE 3 - COST ESTIMATE

Priority 1 – Option 1		
Park RCP fix	$	10,000.00
Commerce RCP fix	$	5,000.00
Ditch clean & repair	$	40,000.00
Total	**$**	**55,000.00**

FIGURE 4 – PRIORITY 1





PRIORITY 2 – POND SEDIMENT REMOVAL & LINCOLN SYSTEM ADDITION

Priority 2 includes the Removal of Sediment in the Orchard Pond and the City Park Pond as well as Repairing the Grate Inlet on the north side of Ash & D, Removal of the remaining French drain inlets along Lincoln Street and the addition of an underground system on Lincoln from B to D.

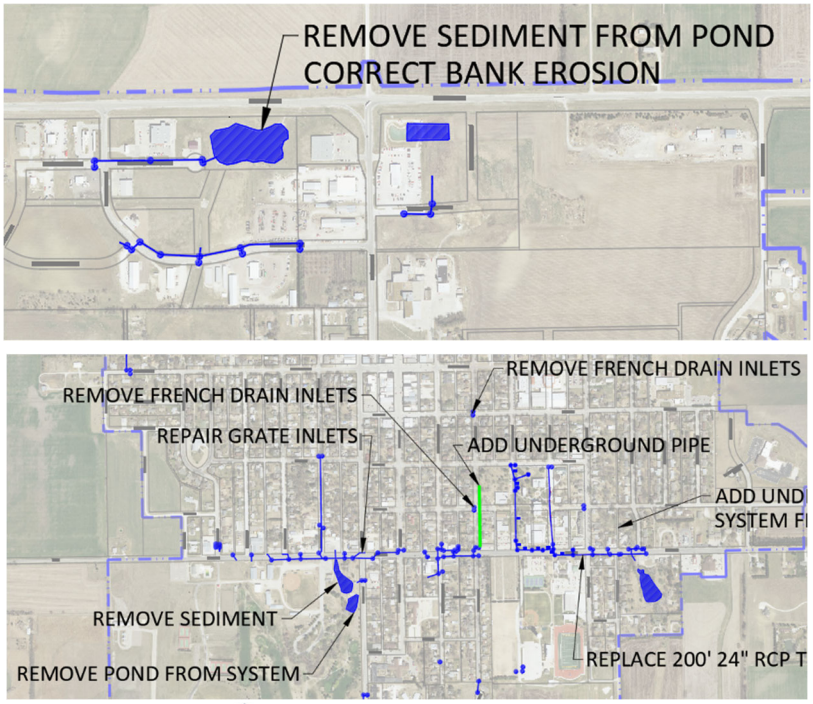
TABLE 4 – PRIORITY 2 PROJECT SCOPE

Street	Scope	Material	Length
Orchard Pond	Remove sediment and bank stabilization		
City Park Pond	Remove sediment and eliminate lower pond		
North side grate D & Ash Intersection	Repair Grate and Inlet		
Remove French Drains	Remove inlets and install Valley Gutters		
Install underground storm pipe and inlets on Lincoln from B to D	Install 700 feet of 18" storm pipe and 3 inlets		

TABLE 5 - COST ESTIMATE

Priority 2		
Orchard Park Pond	$	100,000.00
City Park Pond	$	50,000.00
D/Ash Grate Inlet	$	30,000.00
Remove French Drains	$	40,000.00
Lincoln Storm System	$	80,000.00
Total	**$**	**300,000.00**

FIGURE 5 – PRIORITY 2



PRIORITY 3

Priority 3 includes Replacing 24" RCP along D Street to 30" RCP as well as adding an underground system between C and D Streets and correcting the drainageway south of Orchard Drive, west of Cedar Street.

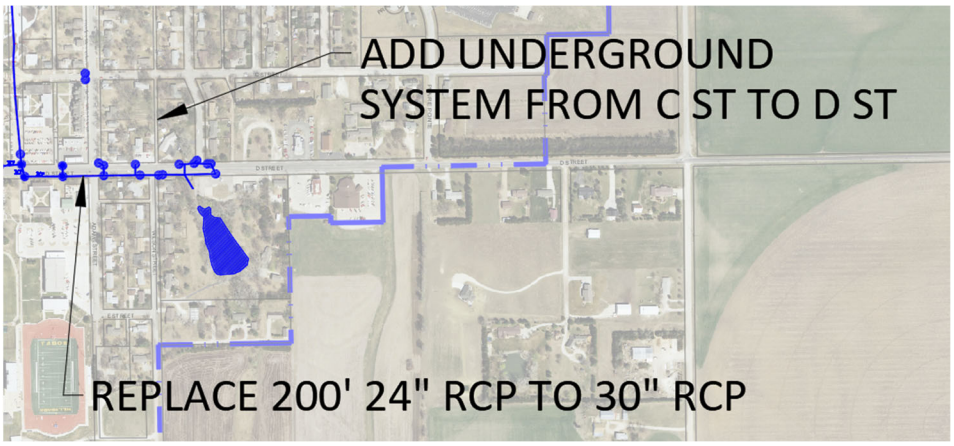
TABLE 6 – PRIORITY 3 PROJECT SCOPE

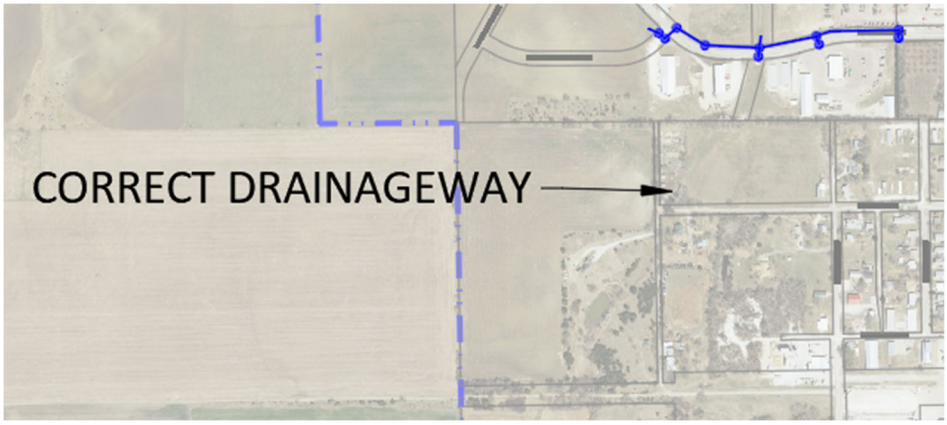
Street	Scope	Material	Length
D Street	Upsize 24" RCP to 30" RCP	RCP	200
Alley – C to D	Add underground system	RCP	550
Correct Drainageway	Grass drainageway through farmstead south of Orchard, west of Cedar		

TABLE 7 - COST ESTIMATE

Priority 3		
D Street	$	25,000.00
Underground in Alley from C to D	$	75,000.00
Correct Drainageway	$	25,000.00
Total	**$**	**125,000.00**

FIGURE 6 – PRIORITY 3





MAINTENANCE ACTIVITIES

One of the keys to maintaining any infrastructure system is the recurring maintenance that is scheduled and completed. In the case of the stormwater system, routine cleaning of the underground systems and slow moving ditch areas are critical to the longevity of the stormwater systems.

FUNDING OPPORTUNITIES

As a general rule, there are very few outside funding opportunities to offset the cost of stormwater projects.

General Obligation (GO) Bonds and local general fund budgets are about the only two alternatives to proceed with these types of projects. A range of utility rates to special benefit districts could be used to back and pay off GO Bonds.

Small scope projects can be accomplished purely through the annual utility budget. While this does work for small projects, it can have an impact on other maintenance and operational costs of the utility.

The City must find the best economic fit for scope of a project. We hope that by laying out what the future potential repair, replacement and maintenance projects might look like, the decision on how and when to create a project package will become an easier task for the staff and the City Council.

STORMWATER SYSTEM BUDGET

TABLE 8 – 10 YEAR BUDGET

2023 Park Avenue Repair	$ 10,000.00	$ 55,000.00
2023 Commerce Street Repair	$ 5,000.00	
2023 Concrete Ditch Cleaning & Repair	$ 40,000.00	
2024 Orchard Pond Clean & Bank Stabilization	$ 100,000.00	$ 100,000.00
2025 City Park Pond Clean	$ 50,000.00	$ 80,000.00
2025 Ash/D Grate Inlet Repair	$ 30,000.00	
2026 Lincoln Street French Drain & new Underground System	$ 120,000.00	$ 120000.00
2027 D Street Pipe Upsize	$ 25,000.00	$ 125,000.00
2027 Alley, C to D Underground System	$ 75,000.00	
2027 Correct Grass Drainageway south of Orchard, west of Cedar	$ 25,000.00	

Prices do not include any inflationary increase