

# CITY OF GLENDALE

## Street Assessment & Master Plan

424 North Sappington Road  
Glendale, Missouri 63122

September 2024



**LOCHMUELLER  
GROUP**

Reinvent Your Future

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## EXECUTIVE SUMMARY

In July 2023, Lochmueller Group (“Lochmueller”) began preparation of a Transportation Maintenance Plan to identify street repair needs for the City of Glendale, Missouri. The City Council, Mayor, and City Administrator desire a plan to adequately budget funds to meet Glendale’s needs for a systematic street maintenance program.

Lochmueller inventoried and surveyed approximately twenty-nine (29) centerline miles of streets in the City of Glendale between December 2023 and January 2024. The results of the survey showed that 10.51 miles of streets were in good to excellent condition (PASER value of 6 to 9). This represents approximately 36% of all Glendale’s streets. The survey also showed that 5.59 miles of streets were in fair condition (PASER value of 5 and approximately 19% of all streets). Approximately 12.9 miles of streets were in fair to very poor condition (PASER value of 2 to 4 and 44.52% of all streets).

The analysis of the street system in Glendale indicated that about a third of the city’s streets are in good to excellent condition, a third are in fair condition, and a third are in poor condition. To improve those streets in need of repair and to maintain a good to very good condition of all streets, the streets will need the forecasted maintenance strategies proposed in the five year plan. The overall average surface condition of the streets in the City of Glendale ranks 4.5 on a 1 to 10 scale with 10 being excellent.

The structural distress in streets within the city is a function of a number of factors: 1) fatigue from repetitive stresses of wheel path traffic; 2) temperature changes coupled with advanced oxidation of the asphalt cement (the tendency for asphalt to oxidize with age, making the pavement brittle, amplifies the stresses of both traffic and temperature); and 3) settlement of the road bed, due to water reaching the subgrade soil. Each of these processes leads to extensive cracking within the surface of the pavement.

Once the pavement is cracked, water can move into the underlying soil causing loss of support to the pavement in surrounding areas. An acceleration of the spread of cracking usually results. Further deterioration of a different type follows, beginning at the originally cracked area. Water and traffic will cause a base failure, such that reconstruction is necessary. This secondary deterioration is also accelerative, in that once the base fails in a particular area, the base in surrounding areas begins to fail.

Preventive maintenance strategies are much cheaper than major resurfacing or reconstruction strategies. Research shows that \$1 spent on a preventive maintenance strategy will save \$8 that would be needed if the street surface were allowed to continue to deteriorate to the rehabilitation stage and \$20 if the roadway needs reconstruction. The condition of the road network is dynamic; and an effective maintenance program must be reviewed and revised regularly for best preventative maintenance solutions in order to protect the City of Glendale’s capital investment.

For purposes of this study, street surface improvements were divided into six maintenance and improvement levels: routine maintenance, preventive maintenance, necessary action, rehabilitation, reconstruction, and no action. Based on the preliminary analysis, the total roadway investment needed is estimated to \$12,978,767 over a five year improvement and maintenance cycle. In addition, the condition of sidewalks, sidewalk ramps, stormwater facilities, street signs, traffic signals, and light poles was evaluated. The total investment in these is estimated to be \$7,983,086. This report details this need and recommends a five year program for the city.

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# 1

## INTRODUCTION

Among the many challenges for the City of Glendale is managing its transportation network to provide a safe and efficient system of streets with limited available funds. To accomplish this goal, the City must have an ongoing program of street maintenance. Money spent wisely in maintaining the existing streets will result in a good transportation system for the community. The need to identify street maintenance projects and to budget money to complete these projects has prompted the City of Glendale to prepare a Street Maintenance Plan. To prepare this plan, the Street and Road Management System SRMS™, a process developed by Lochmueller Group, was used to identify street and drainage maintenance needs.

In Fall 2023, Lochmueller began developing the City of Glendale’s Street Maintenance Plan. This plan presents the street inventory, street maintenance needs, condition ratings, cost to maintain the streets, and proposes priorities in implementing the plan. To prepare the plan, a survey team identified each street, along with any associated sidewalk, and its condition to determine an estimate of the cost to maintain the street network. The team assigned a Pavement Surface Evaluation and Rating (PASER) value for each street segment. Using average unit prices based on past experience, the cost of the needed work for each street was calculated giving an estimate of the total cost for maintenance and improvement of Glendale’s street system.

The data gathered in the survey of streets was incorporated into a Geographic Information Systems (GIS) database. The data was summarized and included in this report for purposes of distribution to a wider audience within the City’s administration and the public. The final data will be made available to the City Administrator and staff in digital format as well. This database includes an inventory of existing sidewalks, existing signs, existing street light posts, and traffic signals.

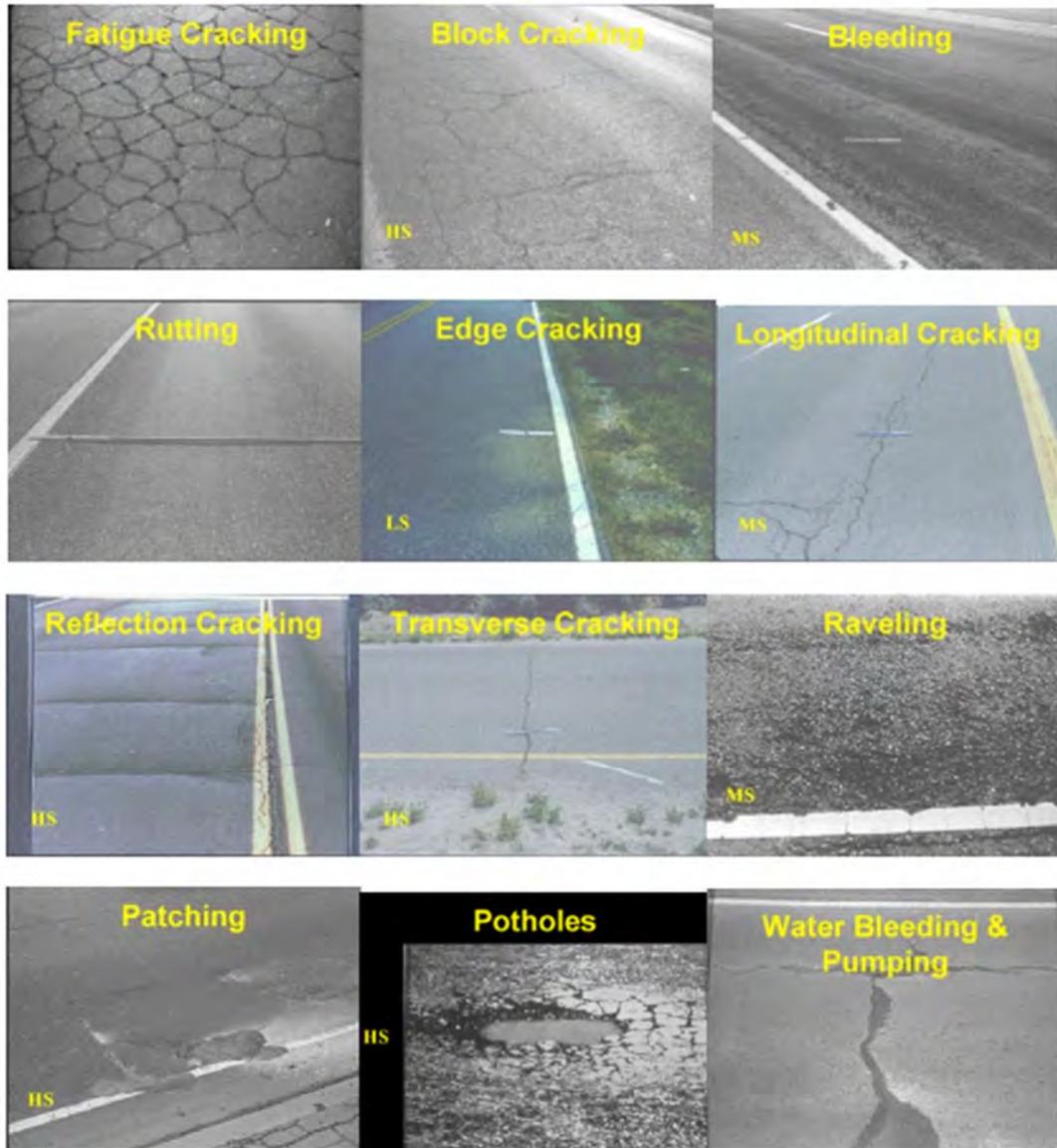
# 2

## SUMMARY OF RESULTS

The inventory portion of the Street Maintenance Plan provides data containing many aspects of the street system. The inventory includes features such as length, functional class, and type of street. The survey revealed the city has approximately twenty-nine (29) miles of street to maintain.

### **Roadway Strategies**

The following strategies are considered for roadway surface maintenance or reconstruction: crack sealing, mill and overlay, micro-surface treatment, roadway patching, and full reconstruction. Which strategy is most appropriate for a given street is a function of the distress observed in the street. The following shows the typical distresses found in bituminous concrete (asphalt) surfaces.



**Figure 1: Examples of Pavement Surface Distress**

Extensive fatigue cracking, patching, and excessive water bleeding and pumping may require complete reconstruction of the roadway to fix the underlying problem causing the surface distress. Localized foundational failures may be remedied by full-depth patching of the area of concern. If the base is sound and only the surface needs maintenance, milling and overlay or surface treatment (micro-surfacing) may be sufficient to restore the roadway's condition.

**Maintenance Categories**

To organize the streets and the maintenance needs, the street segments were classified and grouped according to PASER values. The following summarizes a typical strategy based on the PASER rating:

No Action (PASER = 10): Streets which have little to no cracks or deficiencies and were recently reconstructed.

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Routine Maintenance (PASER = 9): Low cost strategies on streets which are developing some cracks. Strategies for routine maintenance include crack sealing.

Preventive Maintenance (PASER = 8, 7, 6): Strategies for preventative maintenance include crack sealing, maintenance overlays, overlay – mill (with patching if needed), patch – surface, and patch – surface mill with asphalt are listed for these roads in the maintenance recommendation tables. More costly strategies are needed in this category to address extensive cracking in order to prevent structural failure.

Necessary Action (PASER = 5): The street surface has deteriorated to a point where preventive maintenance strategies are not effective and rehabilitation will soon be needed. Necessary action strategies will keep the street in a safe and drivable condition until the time when rehabilitation becomes necessary. Strategies for necessary action include maintenance overlays, overlay – mill (with patching if needed), patch – surface, and patch – surface mill with asphalt.

Rehabilitation (PASER = 4, 3, 2): Substantial work is needed to repair numerous spot structural failures and to restore a smooth surface. Some existing base and surface will be used. Strategies for rehabilitation, including full depth asphalt replacement.

Reconstruction (PASER = 1): The condition is so poor that the existing pavement must be removed and a new street constructed. No improvement strategies were listed for these roads in the maintenance recommendation tables.

The proposed maintenance program assembles streets into logical groups to avoid one type of maintenance method employed between two similar maintenance methods on either side of a block. This will help minimize frustration and discontent for residents in the middle segment. Some street segments have either a higher or lower maintenance recommendation to be consistent with the adjacent maintenance being performed.

	<b>Miles of Street</b>	<b>Percentage</b>
No Action	1.93	6.65%
Routine Maintenance	0.84	2.89%
Preventive Maintenance	7.74	26.67%
Necessary Action	5.59	19.26%
Rehabilitation	12.92	44.52%
Reconstruction	0	0%
<b>Totals</b>	<b>29.02</b>	<b>100%</b>

### **Total Roadway Maintenance Needs**

In order to maintain a satisfactory driving surface in the City of Glendale, an annual expenditure of \$2,610,843 in 2026, \$1,873,052 in 2027, \$3,393,840 in 2028, \$2,458,351 in 2029, and \$2,642,680 in 2030 is needed to accomplish the identified strategy solutions. For each strategy that was selected to correct a problem, the cost<sup>1</sup> of that strategy was calculated. The unit prices used in SRMS™ were estimated for 2026 through 2030.

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<sup>1</sup> Whenever the word “cost” is used in this report it is intended to be an opinion of probable construction cost based on past unit price experience and assumptions of material application rates.

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## **Sidewalk Maintenance and Improvements**

The City owns approximately 6.4 miles of sidewalks. Most sidewalks are in good condition. Routine maintenance of the sidewalk is sufficient for most sidewalks with reconstruction only recommended for Austin Place, Cornelia Avenue, Edwin Avenue, portions of Kirkham Avenue, and Oakway Place. In areas where the existing sidewalk is only four (4) feet wide, the City should install occasional five (5) foot wide passing lanes to bring the sidewalks into compliance with current accessibility requirements. The passing lanes can be constructed when the repair of the sidewalks is being performed.

Sidewalk connectivity has also been evaluated throughout the City, and new sidewalk locations have been included in the five-year program costs. Due to the anticipated land acquisition that will be required for new sidewalks, construction of new sidewalks is programmed to begin in 2027.

The annual expenditure to update the existing sidewalks and install new sidewalk is \$1,352,000 in 2027, \$1,688,000 in 2028, \$2,103,000 in 2029, and \$1,862,000 in 2030.

## **Sidewalk Ramp Improvements**

“Resurfacing is an alteration that triggers the requirement to add/upgrade curb ramps if it involves work on a street or roadway spanning from one intersection to another . . . and includes overlays of additional material to the road surface, with or without milling. Examples include, but are not limited to[,] the following treatments or their equivalents: addition of a new layer of asphalt, reconstruction, concrete pavement rehabilitation and reconstruction, open-graded surface course, micro-surfacing and thin lift overlays, cape seals, and in-place asphalt recycling.” Department of Justice/Department of Transportation Joint Technical Assistance on the Title II of the Americans with Disabilities Act Requirements to Provide Curb Ramps when Streets, Roads, or Highways are Altered through Resurfacing.

All the sidewalk curb ramps inspected by the survey team were navigable; however, several ramps are not in compliance with current accessibility standards. These ramps will be required to be updated to current accessibility standards when the adjacent roadway is improved. The intersection of Chelsea Avenue and Venneman Avenue, however, is not scheduled to be improved for several years. The ramp at this intersection is non-compliant with current accessibility standards, and we recommend it be reconstructed before the roadway is “altered.”

The annual expenditure to update the existing sidewalk curb ramps is \$180,600 in 2027, \$39,900 in 2028, and \$28,200 in 2030.

## **Street Signs**

The City of Glendale owns approximately 553 street signs. Most signs are in fair to good condition, a testament to the City’s proactive commitment to ensuring proper signage of the roadways. Of the 555 signs inventoried, 419 are in good condition, 115 are in fair condition, and only twenty-one (21) signs are in poor condition. Lochmueller Group recommends all twenty-one poor condition signs be replaced by the end of 2026 at a cost of approximately \$7,500. The remaining signs can be replaced on a case-by-case basis as the need arises.

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### **Pavement Markings**

Most of the City's streets are residential and do not have pavement markings. Updating and refreshing the existing pavement markings can be performed by the City as part of its routine maintenance procedures.

### **Signals**

The only traffic signals are on Sappington Road. Improvements to these signals are part of the roadway preservation project currently underway.

## **3**

### **FIVE-YEAR STREET MAINTENANCE PLAN**

A proposed five-year maintenance and rehabilitation plan is shown in Appendix A. The five-year plan is the beginning of the street maintenance programming, and the plan will need to be adjusted annually to reflect changes in condition as the plan progresses. If a roadway included in the Year 5 program suddenly begins developing problems, that roadway may need to be moved forward in the planning to address a specific need. Likewise, if additional funding (Federal aid funding) becomes available, some projects may be constructed using those funds in the year the federal funds are programmed.

Where appropriate, costs for engineering, surveying, environmental compliance, right-of-way acquisitions, and other incidental costs are included in this analysis.

## **4**

### **DRAINAGE IMPROVEMENTS**

Most streets in the City have bituminous concrete (asphalt) curbs. This has led to deterioration of the curb and adjoining pavement in many locations. Therefore, it is recommended that asphalt curbs be upgraded to concrete curb and gutter where practical. For the purposes of this report, it is assumed that the existing asphalt curb will be replaced with concrete curb and gutter on any roadways being rehabilitated (milled and overlaid) or reconstructed on the Five-Year Maintenance Program, with the exception of streets otherwise in the table in Appendix A.

### **Stormwater Improvements**

Lochmueller Group has identified three stormwater projects from the City's Stormwater Master Plan that coincide with nearby roadway improvements from the Five-Year Maintenance Plan. It is recommended that these three projects are completed in conjunction with the programmed roadway maintenance.

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**Project #P009 (Alexandra Ave Storm Sewer):**

There are no storm sewers along N Sappington Rd between Glendale Elementary and Alexandra Ave. All of the stormwater in this area flows down Alexandra Ave to inlets in front of 815 Alexander Ave. In this area it is recommended to extend the storm sewer network so there are inlets to collect the water and storm sewers to convey the water along Alexandra Ave.

Inlets should be added at the corner of N Sappington Rd and Alexandra Avenue to collect the water flowing from N Sappington Rd. Inlets should also be added along Alexandra Ave to collect water along Alexandra Ave so all of the water does not have to be collected at one point along the street, but instead can be collected at several points along the street.

The expenditure for this project is expected to be \$487,886 in 2026.

**Project #P014 C (Berry Oaks Dr Inlet and Curb Replacement):**

The intersection of Berry Oaks Dr and N Berry Rd was repaved, and the inlets were not raised up to be in line with the new grade of the roadway. The inlets should be raised to operate optimally. The yard of 1201 N Berry Rd becomes flooded during rain events. Berry Oaks Dr drains to this back yard. A curb should be built up on the west side of 1201 N Berry Rd to help direct water to the inlet in the street, instead of into the yard of 1201 N Berry Rd.

The expenditure for this project is expected to be \$15,000 in 2028.

**Project #P017 (Clif Side Dr Storm Sewer):**

MSD developed a project to address flooding at 431 Clif Side Dr. The culvert that connects Shady Grove Creek across Elmwood Ave is undersized to convey the 15 year 20 min rain event. This is causing water to overtop the banks and flow into the property at 431 Clif Side Dr. The project developed by MSD involved constructing a second culvert next to the existing. The existing culvert is a 54 inch pipe and MSD recommends constructing a 60 inch culvert parallel to this. This would allow the existing culvert to remain in use while the new adjacent culvert is constructed. After an evaluation, this is the best approach for this situation.

On the west side of Elmwood Ave, Shady Grove Creek is constructed of concrete and stone and on the east side of Elmwood Ave, Shady Grove is a natural creek. One consideration that should be made is to make sure this additional culvert has proper outlet protection and does not cause erosion to the natural creek. Bank stabilization and rock lining are recommended for the connection back into the creek.

The new culvert should also avoid the existing headwall for the 54-inch culvert. To mitigate overtopping of the existing channel, the right bank wall may need to be elevated and the channel cross section may require modification to convey the design storm to the desired level of service.

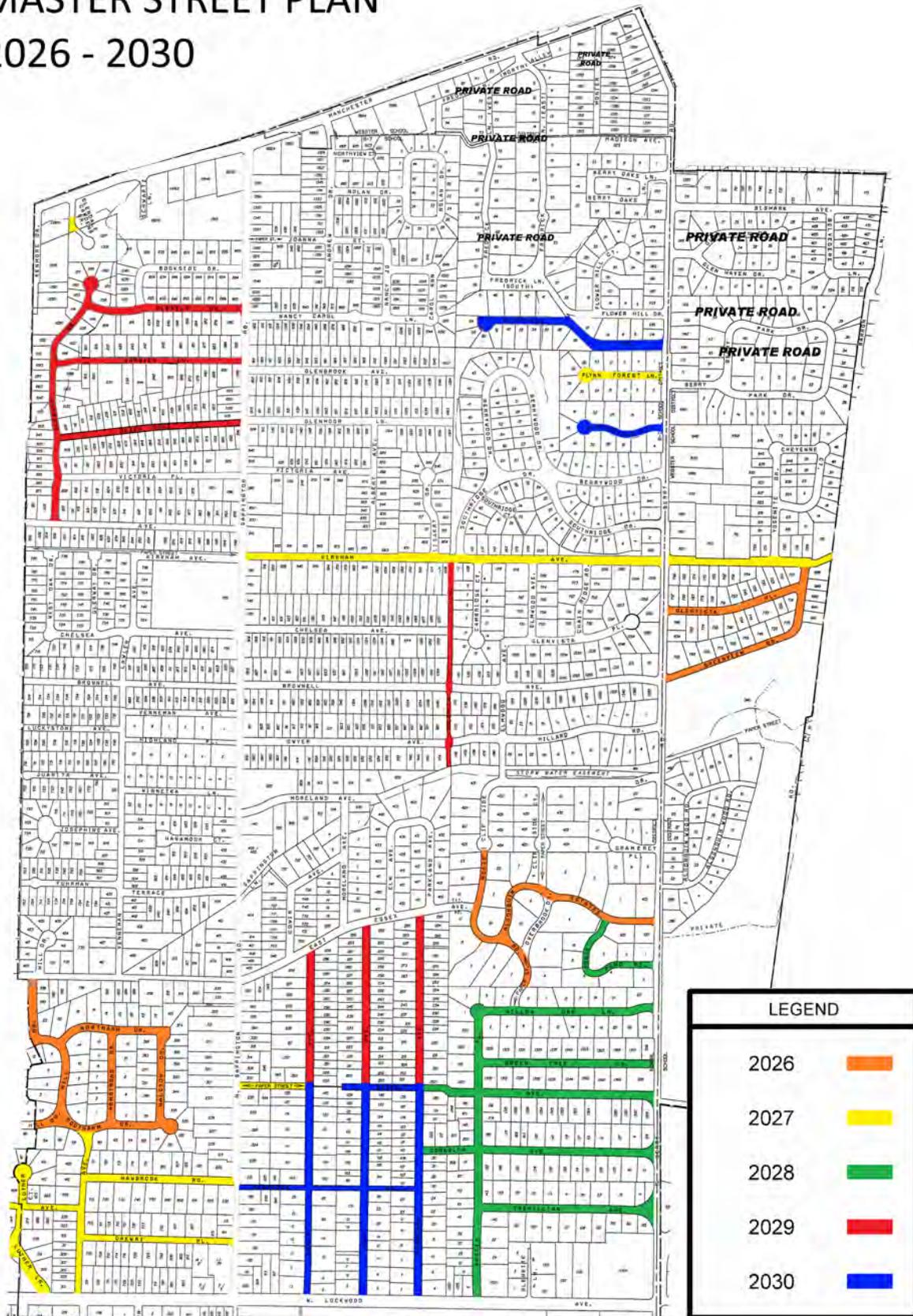
The expenditure for this project is expected to be \$219,000 in 2027.

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# Appendix A

## Five Year Plan

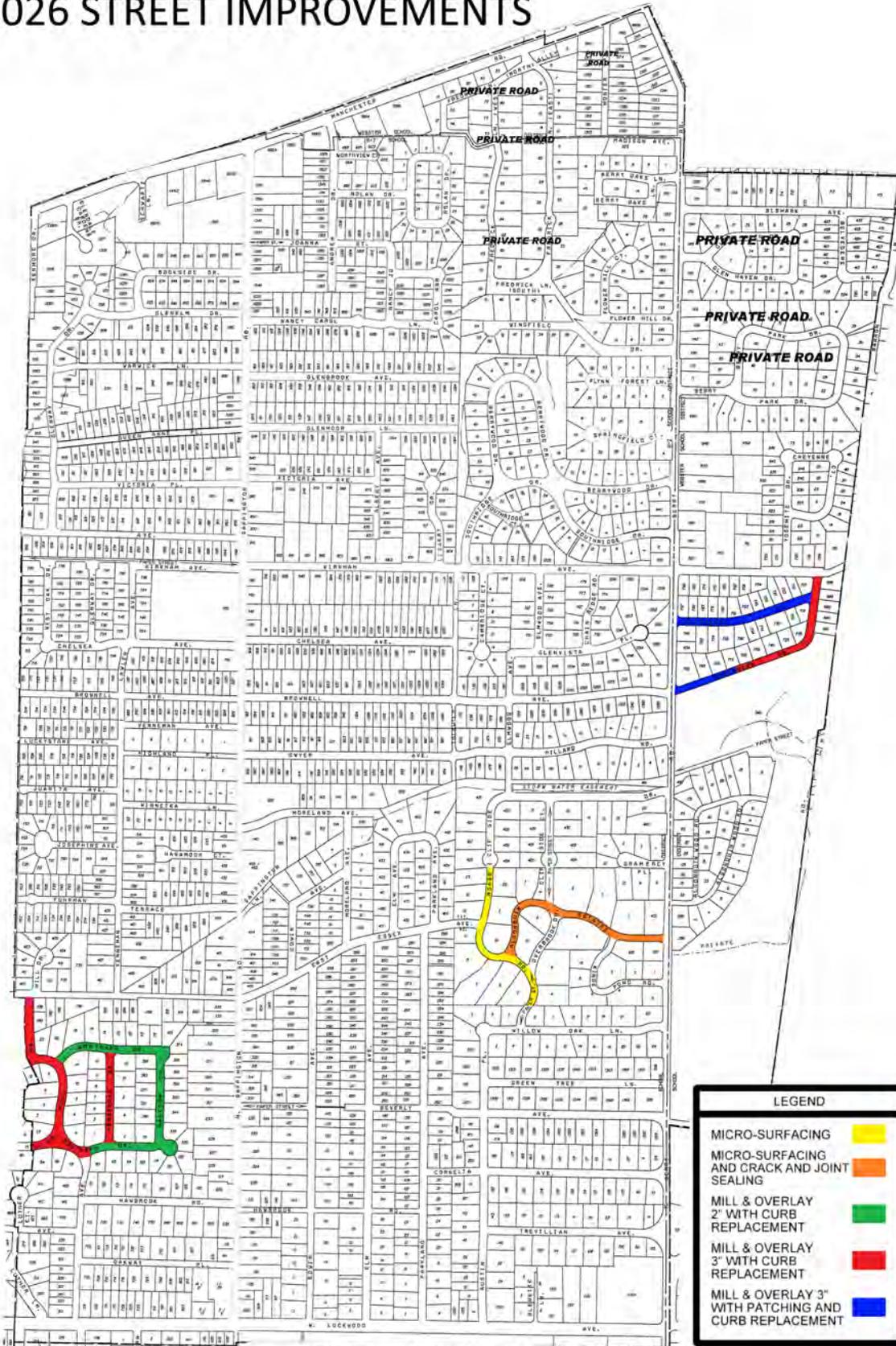
# MASTER STREET PLAN 2026 - 2030



LEGEND	
2026	Orange
2027	Yellow
2028	Green
2029	Red
2030	Blue

STREET ADDRESS MAP OF THE  
CITY OF GLENDALE  
MISSOURI

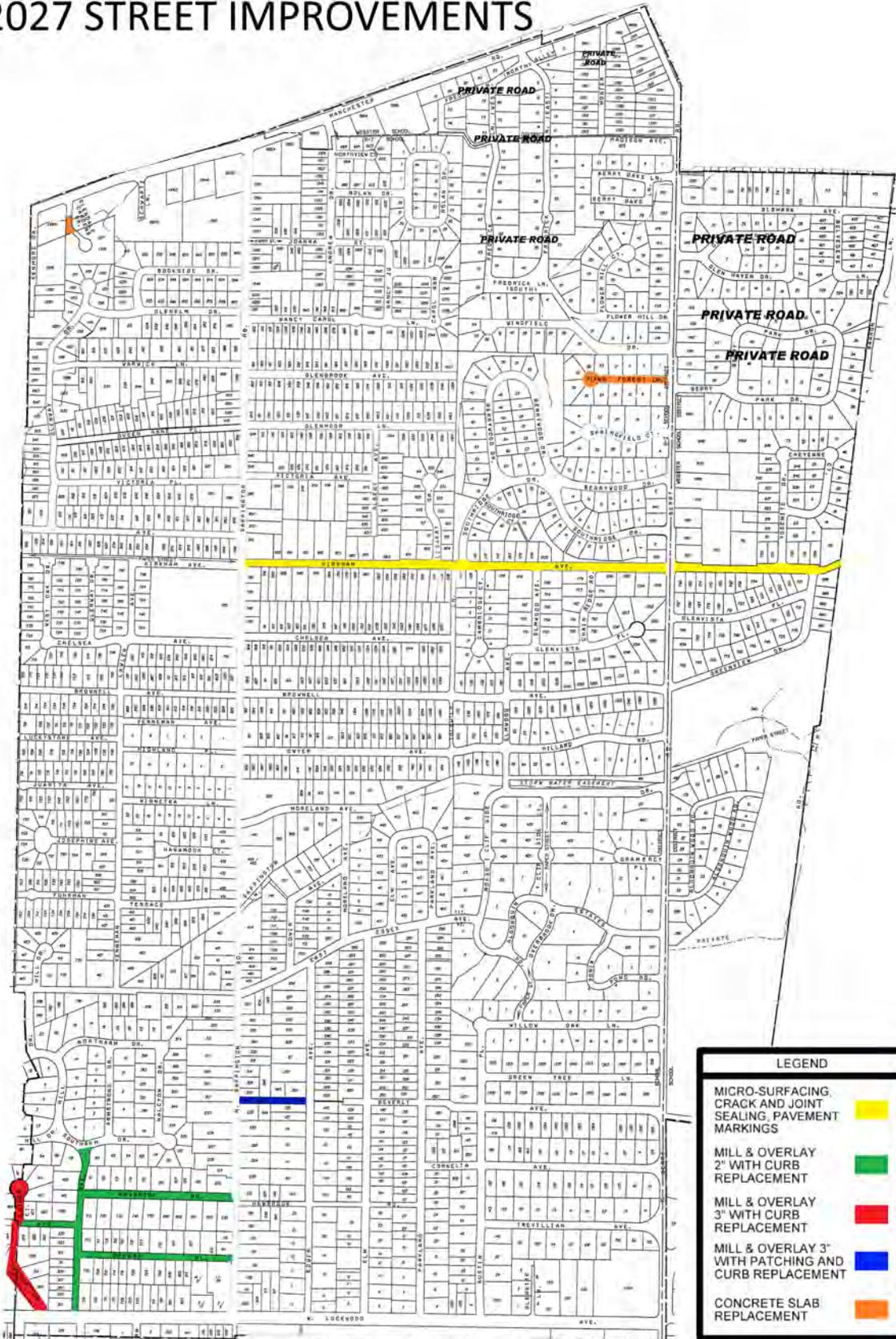
# 2026 STREET IMPROVEMENTS



LEGEND	
MICRO-SURFACING	Yellow
MICRO-SURFACING AND CRACK AND JOINT SEALING	Orange
MILL & OVERLAY 2" WITH CURB REPLACEMENT	Green
MILL & OVERLAY 3" WITH CURB REPLACEMENT	Red
MILL & OVERLAY 3" WITH PATCHING AND CURB REPLACEMENT	Blue

STREET ADDRESS MAP OF THE  
**CITY OF GLENDALE**  
 MISSOURI

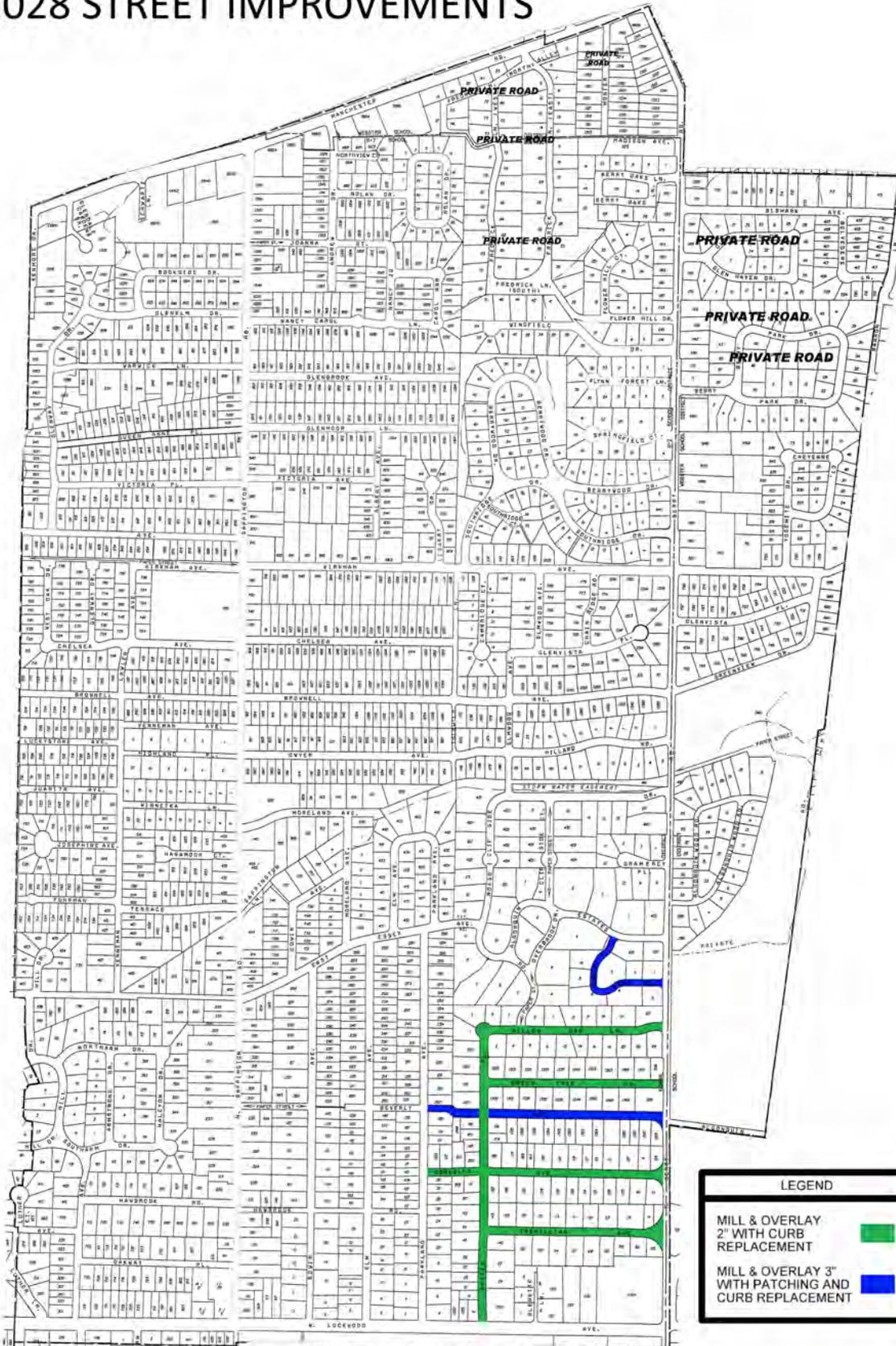
# 2027 STREET IMPROVEMENTS



LEGEND	
MICRO-SURFACING, CRACK AND JOINT SEALING, PAVEMENT MARKINGS	
MILL & OVERLAY 2" WITH CURB REPLACEMENT	
MILL & OVERLAY 3" WITH CURB REPLACEMENT	
MILL & OVERLAY 3" WITH PATCHING AND CURB REPLACEMENT	
CONCRETE SLAB REPLACEMENT	

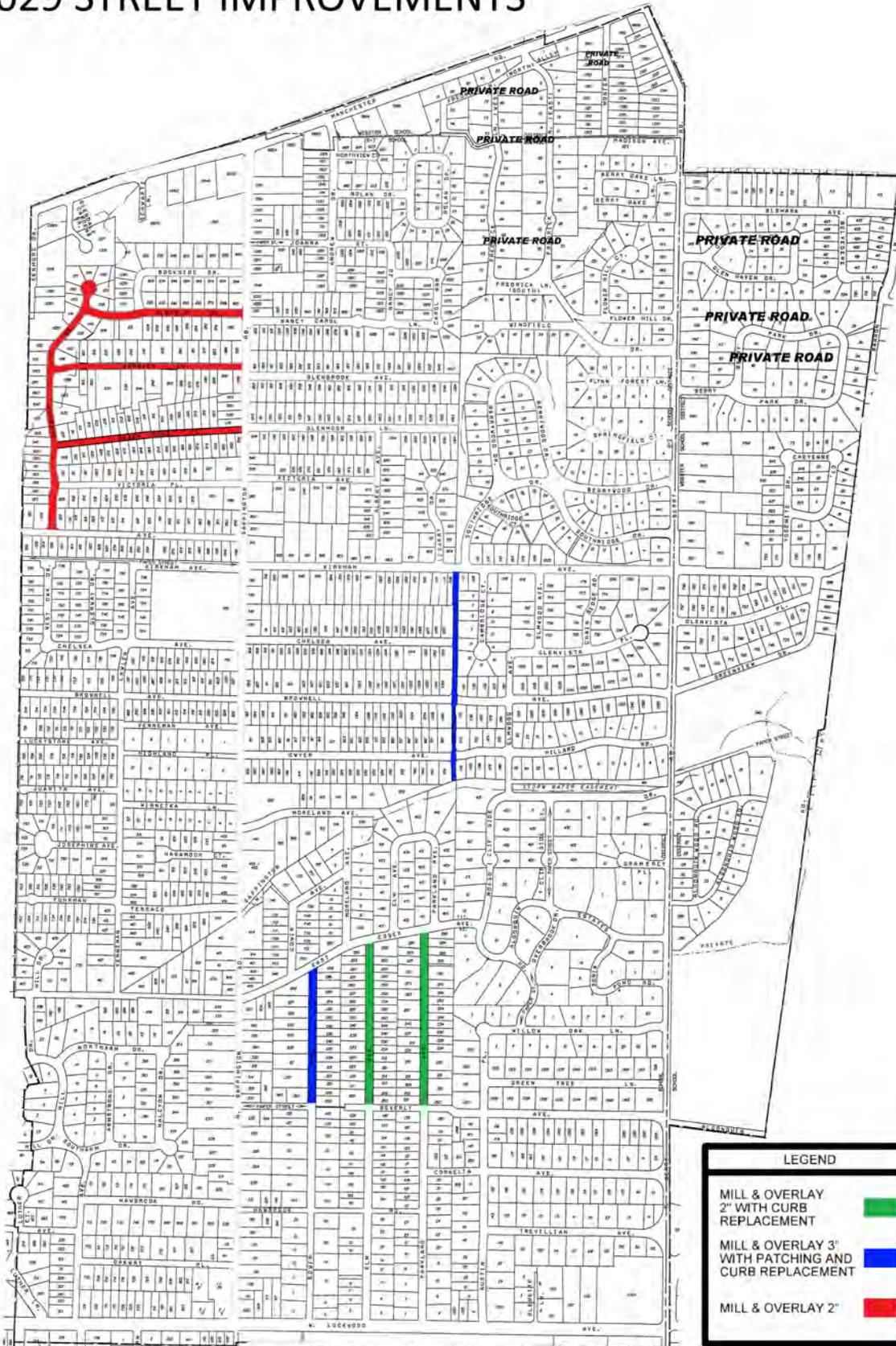
STREET ADDRESS MAP OF THE  
**CITY OF GLENDALE**  
 MISSOURI

# 2028 STREET IMPROVEMENTS



STREET ADDRESS MAP OF THE  
CITY OF GLENDALE  
MISSOURI

# 2029 STREET IMPROVEMENTS

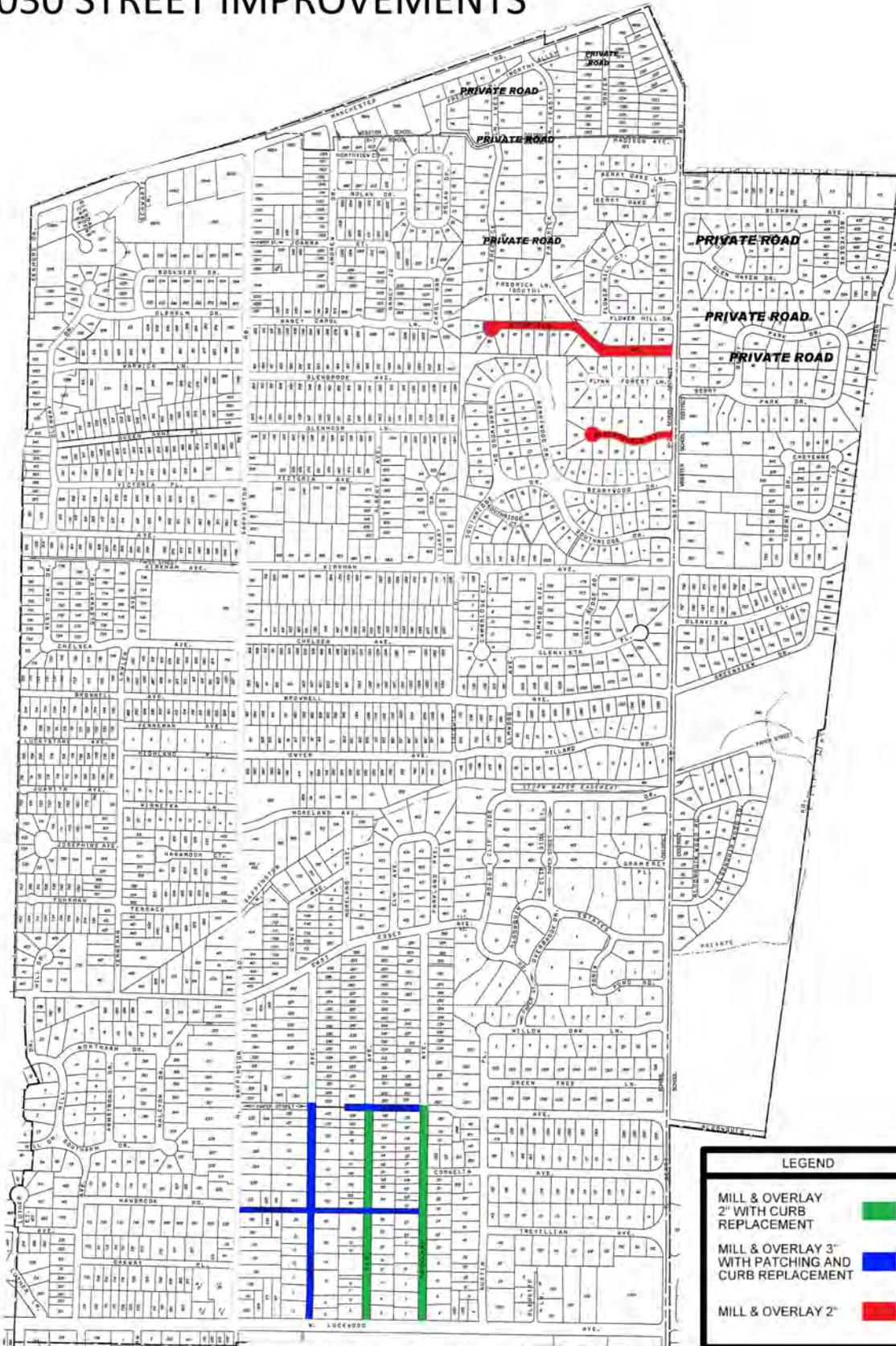


**LEGEND**

- MILL & OVERLAY 2" WITH CURB REPLACEMENT ■
- MILL & OVERLAY 3" WITH PATCHING AND CURB REPLACEMENT ■
- MILL & OVERLAY 2" ■

STREET ADDRESS MAP OF THE  
**CITY OF GLENDALE**  
 MISSOURI

# 2030 STREET IMPROVEMENTS



STREET ADDRESS MAP OF THE  
CITY OF GLENDALE  
MISSOURI

**CITY OF GLENDALE, MISSOURI  
2024 PAVEMENT SURVEY AND FIVE-YEAR MAINTENANCE PLAN**

**ROADWAYS NOT INCLUDED IN FIVE YEAR MAINTENANCE PLAN**

STREET NAME	FROM	TO	PAVEMENT	SHOULDER TYPE	NUMBER OF LANES	STREET WIDTH (FT)	STREET (MILES)	ROADWAY CLASSIFICATION	CURRENT PASER RATING	PROPOSED IMPROVEMENT	PROGRAMMED CONSTRUCTION YEAR				
											YEAR 1 - 2026 (2026 DOLLARS)	YEAR 2 - 2027 (2027 DOLLARS)	YEAR 3 - 2028 (2028 DOLLARS)	YEAR 4 - 2029 (2029 DOLLARS)	YEAR 5 - 2030 (2030 DOLLARS)
N SAPPINGTON RD N SAPPINGTON RD	MANCHESTER RD	LOCKWOOD AVE	Asphalt Asphalt	Curb Curb	2 2	22 22	0.144 0.053	Major Collector	6 7	No action at this time. Federal resurfacing project currently underway.					
BROWNELL AVE BROWNELL AVE	BROWNELL AVE	N BERRY RD	Asphalt Asphalt	Curb Curb	2 2	24 24	0.150 0.244	Local	10 10	No action at this time.					
E ESSEX AVE E ESSEX AVE	E ESSEX AVE	PARKLAND AVE	Asphalt Asphalt	Curb Curb	2 2	24 24	0.021 0.036	Major Collector	10 3	No action at this time. Federal resurfacing project currently underway.					
MORELAND AVE MORELAND AVE	N SAPPINGTON	END	Asphalt Asphalt	Curb Curb	2 2	20 20	0.166 0.047	Local	2 2	No action at this time. Resurfacing currently underway.					
S MORELAND AVE S MORELAND AVE	MORELAND AVE	E ESSEX AVE	Asphalt Asphalt	Curb Curb	2 2	22 22	0.085 0.112	Local	2 2	No action at this time. Resurfacing currently underway.					
EDWIN AVE	S MORELAND AVE	E ESSEX AVE	Asphalt	Curb	2	22	0.200	Local	2	No action at this time. Resurfacing currently underway.					
VENNEMAN AVE VENNEMAN AVE VENNEMAN AVE VENNEMAN AVE VENNEMAN AVE VENNEMAN AVE VENNEMAN AVE VENNEMAN AVE VENNEMAN AVE	BROWNELL AVE  JUANITA AVE	JUANITA AVE  E ESSEX AVE	Asphalt Asphalt Asphalt Asphalt Asphalt Asphalt Asphalt Asphalt Asphalt	Curb Curb Curb Curb Curb Curb Curb Curb Curb	2 2 2 2 2 2 2 2 2	24 24 24 24 24 24 24 24 24	0.043 0.027 0.015 0.056 0.020 0.061 0.082 0.011 0.129	Local	3 2 2 2 4 4 3 3 3	No action at this time. Resurfacing currently underway.					
HILLARD RD HILLARD RD	IDLEWILD LN	N BERRY RD	Asphalt Asphalt	Curb Curb	2 2	24 24	0.082 0.246	Local	6 3	No action at this time. Resurfacing currently underway.					
DWYER AVE	N SAPPINGTON	IDLEWILD LN	Asphalt	Curb	2	22	0.320	Local	4	No action at this time. Resurfacing currently underway.					
ELM AVE ELM AVE	PARKLAND AVE E ESSEX AVE	E ESSEX AVE	Asphalt Asphalt	Curb Curb	2 2	22 22	0.158 0.163	Local	10 10	No action at this time. Resurfaced in 2023.					
PARKLAND AVE	ELM AVE	E ESSEX AVE	Asphalt	Curb	3	24	0.163	Local	10	No action at this time. Resurfaced in 2023.					
WINNETKA LN	VENNEMAN AVE	N SAPPINGTON	Asphalt	Curb	2	24	0.179	Local	3	No action at this time. Resurfacing planned in 2025.					
JOSEPHINE AVE	END	VENNEMAN AVE	Asphalt	Curb	2	24	0.098	Local	4	No action at this time. Resurfacing planned in 2025.					
HILL DR	END		Asphalt	Curb	2	24	0.063	Local	4	No action at this time. Resurfacing planned in 2025.					
LUCKYSTONE AVE	END	VENNEMAN AVE	Asphalt	Curb	2	24	0.150	Local	4	No action at this time. Resurfacing planned in 2025.					
HANAMOOR CT	END	N SAPPINGTON	Asphalt	Curb	2	24	0.113	Local	5	No action at this time. Resurfacing planned in 2025.					
FUHRMANN TER FUHRMANN TER	VENNEMAN AVE END	N SAPPINGTON VENNEMAN AVE	Asphalt Asphalt	Curb Curb	2 2	24 24	0.180 0.149	Local	4 5	No action at this time. Resurfacing planned in 2025.					
JUANITA AVE	END	VENNEMAN AVE	Asphalt	Curb	2	24	0.152	Local	5	No action at this time. Resurfacing planned in 2025.					
BISMARCK AVE BISMARCK AVE BISMARCK AVE BISMARCK AVE	N BERRY RD	BISMARCK AVE	Asphalt Asphalt Asphalt Asphalt	Curb Curb Curb Curb	3 3 3 3	24 24 24 24	0.244 0.073 0.090 0.061	Minor Collector	3 5 5 5	No action at this time. Resurfacing currently underway.					
SOUTHRIDGE DR SOUTHRIDGE DR SOUTHRIDGE DR SOUTHRIDGE DR	KIRKHAM	N BERRY RD	Asphalt Asphalt Asphalt Asphalt	Curb Curb Curb Curb	3 3 3 2	24 24 24 24	0.103 0.029 0.087 0.229	Local	6 5 5 5	No action at this time. Crackseal and Sealcoat planned in 2025.					
SOUTHRIDGE CT	SOUTHRIDGE DR	END	Asphalt	Curb	2	24	0.049	Local	5						
BERRY WOOD DR BERRY WOOD DR BERRY WOOD DR BERRY WOOD DR	SOUTHRIDGE DR	N BERRY RD	Asphalt Asphalt Asphalt Asphalt	Curb Curb Curb Curb	3 3 3 3	24 24 24 24	0.192 0.157 0.027 0.181	Local	4 6 7 5	No action at this time. Crackseal and Sealcoat planned in 2025.					

2026 IMPROVEMENTS

Note: Assumed Inflation Rate is 3%

STREET NAME	FROM	TO	PAVEMENT	SHOULDER TYPE	NUMBER OF LANES	STREET WIDTH (FT)	STREET (MILES)	ROADWAY CLASSIFICATION	CURRENT PASER RATING	PROPOSED IMPROVEMENT	PROGRAMMED CONSTRUCTION YEAR				
											YEAR 1 - 2026 (2026 DOLLARS)	YEAR 2 - 2027 (2027 DOLLARS)	YEAR 3 - 2028 (2028 DOLLARS)	YEAR 4 - 2029 (2029 DOLLARS)	YEAR 5 - 2030 (2030 DOLLARS)
GLENVISTA PL	N BERRY DR		Asphalt	Curb	2	24	0.125		2	Mill & Overlay (3") w/ Patching and Curb Repl	\$264,323				
GLENVISTA PL		GREENVIEW DR	Asphalt	Curb	2	24	0.093	Local	3	Mill & Overlay (3") w/ Patching and Curb Repl	\$196,228				
GREENVIEW DR	KIRKHAM AVE		Asphalt	Curb	3	22	0.036		3	Mill & Overlay (3") w/ Curb Repl	\$48,631				
GREENVIEW DR			Asphalt	Curb	3	22	0.057		4	Mill & Overlay (3") w/ Curb Repl	\$78,255				
GREENVIEW DR			Asphalt	Curb	2	22	0.103	Local	3	Mill & Overlay (3") w/ Curb Repl	\$141,424				
GREENVIEW DR			Asphalt	Curb	2	22	0.125		3	Mill & Overlay (3") w/ Curb Repl	\$170,964				
GREENVIEW DR			Asphalt	Curb	3	22	0.093		3	Mill & Overlay (3") w/ Curb Repl	\$126,920				
GREENVIEW DR		N BERRY RD	Asphalt	Curb	3	22	0.125		2	Mill & Overlay (3") w/ Patching and Curb Repl	\$251,195				
ALGONQUIN ESTATES RD	DEVON RD		Asphalt	Curb	2	24	0.083		3	Micro-Surfacing, Crack and Joint Seal	\$17,597				
ALGONQUIN ESTATES RD			Asphalt	Curb	2	24	0.030		5	Micro-Surfacing, Crack and Joint Seal	\$7,158				
ALGONQUIN ESTATES RD			Asphalt	Curb	2	24	0.098		7	Micro-Surfacing, Crack and Joint Seal	\$20,556				
ALGONQUIN ESTATES RD			Asphalt	Curb	3	24	0.021	Minor Collector	2	Micro-Surfacing, Crack and Joint Seal	\$5,435				
ALGONQUIN ESTATES RD			Asphalt	Curb	2	24	0.024		3	Micro-Surfacing, Crack and Joint Seal	\$5,984				
ALGONQUIN ESTATES RD			Asphalt	Curb	3	24	0.019		3	Micro-Surfacing, Crack and Joint Seal	\$5,107				
ALGONQUIN ESTATES RD		N BERRY RD	Asphalt	Curb	2	24	0.017		3	Micro-Surfacing, Crack and Joint Seal	\$4,703				
DEVON RD	END		Asphalt	Curb	2	22	0.079		2	Micro-Surfacing	\$13,499				
DEVON RD		ALGONQUIN EST	Asphalt	Curb	2	22	0.078	Local	3	Micro-Surfacing	\$13,417				
DEVON RD			Asphalt	Curb	2	22	0.045		3	Micro-Surfacing	\$7,702				
DEVON RD		END	Asphalt	Curb	2	22	0.041		2	Micro-Surfacing	\$6,953				
HILL DR	ESSEX AVE		Asphalt	Curb	2	24	0.101		3	Mill & Overlay (3") w/ Curb Repl	\$142,179				
HILL DR		HILL DR	Asphalt	none	2	20	0.039	Local	2	Mill & Overlay (3") w/ Curb Repl	\$50,952				
HILL DR	ARMSTRONG DR		Asphalt	none	2	20	0.113		6	Mill & Overlay (3") w/ Curb Repl	\$149,477				
HILL DR			Asphalt	none	2	20	0.039	Local	4	Mill & Overlay (3") w/ Curb Repl	\$51,095				
HILL DR		PARK AVE	Asphalt	Curb	2	22	0.051		5	Mill & Overlay (3") w/ Curb Repl	\$69,196				
ARMSTRONG DR	HILL DR		Asphalt	Curb	2	24	0.090		3	Mill & Overlay (3") w/ Curb Repl	\$127,818				
ARMSTRONG DR			Asphalt	Curb	2	24	0.143	Local	3	Mill & Overlay (3") w/ Curb Repl	\$202,941				
ARMSTRONG DR		PARK AVE	Asphalt	none	2	24	0.042		3	Mill & Overlay (3") w/ Curb Repl	\$59,434				
NORTHARM DR	ARMSTRONG DR	HALCYON DR	Asphalt	Curb	2	24	0.073	Local	4	Mill & Overlay (2") w/ Curb Repl	\$95,882				
SOUTHARM DR	ARMSTRONG DR	HALCYON DR	Asphalt	none	2	24	0.077	Local	5	Mill & Overlay (2") w/ Curb Repl	\$102,147				
HALCYON DR	NORTHARM DR	SOUTHARM DR	Asphalt	Curb	2	22	0.135	Local	4	Mill & Overlay (2") w/ Curb Repl	\$173,671				
Annual Expenditure =											\$2,610,843				

2027 IMPROVEMENTS

Note: Assumed Inflation Rate is 3%

STREET NAME	FROM	TO	PAVEMENT	SHOULDER TYPE	NUMBER OF LANES	STREET WIDTH (FT)	STREET (MILES)	ROADWAY CLASSIFICATION	CURRENT PASER RATING	PROPOSED IMPROVEMENT	PROGRAMMED CONSTRUCTION YEAR				
											YEAR 1 - 2026 (2026 DOLLARS)	YEAR 2 - 2027 (2027 DOLLARS)	YEAR 3 - 2028 (2028 DOLLARS)	YEAR 4 - 2029 (2029 DOLLARS)	YEAR 5 - 2030 (2030 DOLLARS)
FLYNN FOREST LN	NO CONNECTION	N BERRY RD	Concrete	Curb	3	22	0.125	Local	5	Slab Replacement		\$68,295			
GLENDAL GARDENS DR	MANCHESTER RD	END	Concrete	Curb	2	24	0.083	Local	2	Slab Replacement		\$49,173			
KIRKHAM AVE	N SAPPINGTON		Asphalt	Curb	2	24	0.293	Major Collector	5	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$60,617			
KIRKHAM AVE			Asphalt	Curb	2	24	0.025		4	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$6,529			
KIRKHAM AVE			Asphalt	Curb	2	24	0.015		4	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$4,335			
KIRKHAM AVE			Asphalt	Curb	2	24	0.027		4	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$6,823			
KIRKHAM AVE			Asphalt	Curb	2	24	0.084		7	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$18,311			
KIRKHAM AVE			Asphalt	Curb	2	24	0.082		6	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$18,023			
KIRKHAM AVE			Asphalt	Curb	2	24	0.119		6	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$25,374			
KIRKHAM AVE			Asphalt	Curb	2	24	0.167		4	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$35,112			
KIRKHAM AVE			Asphalt	Curb	2	24	0.049		6	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$11,209			
KIRKHAM AVE			Asphalt	Curb	2	24	0.039		6	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$9,205			
KIRKHAM AVE	KIRKHAM AVE		Asphalt	Curb	2	24	0.041	7	Micro-Surfacing, Crack and Joint Seal, Pavt Marks		\$9,750				
OAKWAY PL	PARK AVE	N SAPPINGTON	Asphalt	Curb	2	24	0.125	Local	6	Mill & Overlay (2") w/ Curb Repl		\$170,083			
OAKWAY PL			Asphalt	Curb	2	24	0.109	5	Mill & Overlay (2") w/ Curb Repl		\$148,132				
LUTHER CT	END	LOCKWOOD AVE	Asphalt	Curb	2	24	0.062	Local	3	Mill & Overlay (3") w/ Curb Repl		\$90,585			
LUTHER CT			Asphalt	Curb	2	24	0.072		4	Mill & Overlay (3") w/ Curb Repl		\$104,960			
LUTHER CT			Asphalt	Curb	2	24	0.088		2	Mill & Overlay (3") w/ Curb Repl		\$128,283			
BEVERLY AV E	N SAPPINGTON	END	Asphalt	Curb	2	24	0.064	Local	2	Mill & Overlay (3") w/ Patching and Curb Repl		\$139,142			
PARK AVE	HILL DR	PARK AVE	Asphalt	none	2	26	0.071	Local	3	Mill & Overlay (2") w/ Curb Repl		\$98,767			
PARK AVE			Asphalt	none	2	22	0.046		3	Mill & Overlay (2") w/ Curb Repl		\$60,975			
PARK AVE	HAWBROOK RD		Asphalt	Curb	2	22	0.045		5	Mill & Overlay (2") w/ Curb Repl		\$58,952			
PARK AVE			Asphalt	Curb	2	22	0.096		5	Mill & Overlay (2") w/ Curb Repl		\$127,122			
HAWBROOK RD	PARK AVE	N SAPPINGTON	Asphalt	Curb	2	22	0.125	Local	5	Mill & Overlay (2") w/ Curb Repl		\$165,075			
HAWBROOK RD			Asphalt	Curb	2	22	0.108	4	Mill & Overlay (2") w/ Curb Repl		\$142,359				
HAWBROOK RD	LUTHER AVE		PARK AVE	Asphalt	Curb	2	18	0.093	3	Mill & Overlay (2") w/ Curb Repl		\$115,859			
Annual Expenditure =												\$1,873,052			

2028 IMPROVEMENTS

Note: Assumed Inflation Rate is 3%

STREET NAME	FROM	TO	PAVEMENT	SHOULDER TYPE	NUMBER OF LANES	STREET WIDTH (FT)	STREET (MILES)	ROADWAY CLASSIFICATION	CURRENT PASER RATING	PROPOSED IMPROVEMENT	PROGRAMMED CONSTRUCTION YEAR				
											YEAR 1 - 2026 (2026 DOLLARS)	YEAR 2 - 2027 (2027 DOLLARS)	YEAR 3 - 2028 (2028 DOLLARS)	YEAR 4 - 2029 (2029 DOLLARS)	YEAR 5 - 2030 (2030 DOLLARS)
AUSTIN PL	WILLOW OAK LN		Asphalt	Curb	2	20	0.042		3	Mill & Overlay (2") w/ Curb Repl			\$55,346		
AUSTIN PL			Asphalt	Curb	2	20	0.045		3	Mill & Overlay (2") w/ Curb Repl			\$59,812		
AUSTIN PL			Asphalt	Curb	2	20	0.087	Local	4	Mill & Overlay (2") w/ Curb Repl			\$114,516		
AUSTIN PL			Asphalt	Curb	2	20	0.088		3	Mill & Overlay (2") w/ Curb Repl			\$115,558		
AUSTIN PL		LOCKWOOD AVE	Asphalt	Curb	2	20	0.146		3	Mill & Overlay (2") w/ Curb Repl			\$192,771		
CORNELIA AVE	PARKLAND AVE		Asphalt	Curb	3	20	0.091		4	Mill & Overlay (2") w/ Curb Repl			\$119,647		
CORNELIA AVE		N BERRY RD	Asphalt	Curb	2	20	0.273	Local	3	Mill & Overlay (2") w/ Curb Repl			\$359,713		
WILLOW OAK LN	AUSTIN PL		Asphalt	Curb	2	24	0.085		3	Mill & Overlay (2") w/ Curb Repl			\$118,720		
WILLOW OAK LN		N BERRY RD	Asphalt	Curb	2	24	0.221	Local	3	Mill & Overlay (2") w/ Curb Repl			\$309,316		
BEVERLY AV E	PARKLAND AVE		Asphalt	Curb	2	24	0.092		3	Mill & Overlay (3") w/ Patching and Curb Repl			\$206,071		
BEVERLY AV E		N BERRY RD	Asphalt	Curb	3	24	0.273	Local	2	Mill & Overlay (3") w/ Patching and Curb Repl			\$612,082		
GREEN TREE LN	AUSTIN PL		Asphalt	Curb	2	20	0.273	Local	3	Mill & Overlay (2") w/ Curb Repl			\$360,292		
TREVILLIAN AVE	AUSTIN PL		Asphalt	Curb	2	20	0.273	Local	3	Mill & Overlay (2") w/ Curb Repl			\$359,745		
KINGS POND DR	ALGONQUIN EST		Asphalt	Curb	2	20	0.203	Local	3	Mill & Overlay (3") w/ Patching and Curb Repl			\$410,252		
Annual Expenditure =													\$3,393,840		

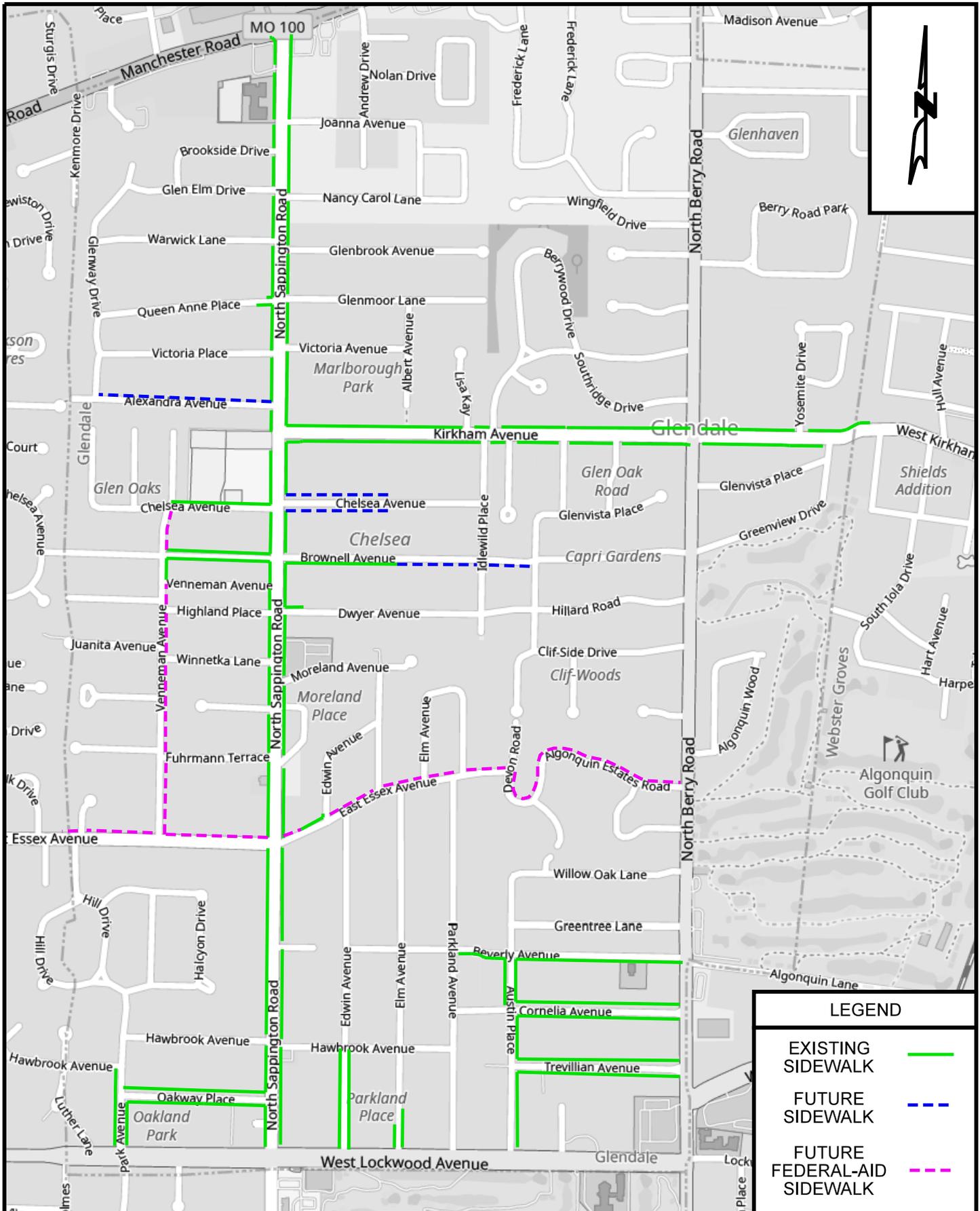
2029 IMPROVEMENTS

STREET NAME	FROM	TO	PAVEMENT	SHOULDER TYPE	NUMBER OF LANES	STREET WIDTH (FT)	STREET (MILES)	ROADWAY CLASSIFICATION	CURRENT PASER RATING	PROPOSED IMPROVEMENT	PROGRAMMED CONSTRUCTION YEAR				
											YEAR 1 - 2026 (2026 DOLLARS)	YEAR 2 - 2027 (2027 DOLLARS)	YEAR 3 - 2028 (2028 DOLLARS)	YEAR 4 - 2029 (2029 DOLLARS)	YEAR 5 - 2030 (2030 DOLLARS)
GLENWAY DR	END		Asphalt	Curb	2	26	0.026		6	Mill & Overlay (2")				\$14,632	
GLENWAY DR			Asphalt	Curb	2	24	0.108		6	Mill & Overlay (2")				\$55,195	
GLENWAY DR			Asphalt	Curb	2	24	0.114	Local	6	Mill & Overlay (2")				\$57,915	
GLENWAY DR			Asphalt	Curb	2	24	0.060		7	Mill & Overlay (2")				\$30,364	
GLENWAY DR		ALEXANDRA AVE	Asphalt	Curb	2	24	0.070		7	Mill & Overlay (2")				\$35,941	
GLEN ELM DR	GLENWAY DR		Asphalt	Curb	2	25	0.158		4	Mill & Overlay (2")				\$84,136	
GLEN ELM DR		GLENBROOK AVE	Asphalt	Curb	2	25	0.086	Local	3	Mill & Overlay (2")				\$45,780	
QUEEN ANNE PL	GLENWAY DR		Asphalt	Curb	2	26	0.143		5	Mill & Overlay (2")				\$79,114	
QUEEN ANNE PL		GLENBROOK AVE	Asphalt	Curb	2	26	0.143	Local	4	Mill & Overlay (2")				\$79,114	
EDWIN AVE	E ESSEX AVE		Asphalt	Curb	3	26	0.106		3	Mill & Overlay (3") w/ Patching and Curb Repl				\$257,477	
EDWIN AVE		BEVERLY AVE	Asphalt	Curb	3	26	0.106	Local	3	Mill & Overlay (3") w/ Patching and Curb Repl				\$257,477	
ELM AVE	E ESSEX AVE		Asphalt	Curb	3	22	0.125		3	Mill & Overlay (2") w/ Curb Repl				\$175,725	
ELM AVE		BEVERLY AVE	Asphalt	Curb	3	22	0.125	Local	3	Mill & Overlay (2") w/ Curb Repl				\$175,725	
WARWICK LN	GLENWAY DR		Asphalt	Curb	2	22	0.147		5	Mill & Overlay (2")				\$68,519	
WARWICK LN		GLENBROOK AVE	Asphalt	Curb	2	22	0.147	Local	6	Mill & Overlay (2")				\$68,519	
PARKLAND AVE	E ESSEX AVE		Asphalt	Curb	3	24	0.142		3	Mill & Overlay (2") w/ Curb Repl				\$204,472	
PARKLAND AVE		BEVERLY AVE	Asphalt	Curb	3	24	0.125	Local	2	Mill & Overlay (2") w/ Curb Repl				\$180,441	
IDLEWILD LN	KIRKHAM AVE		Asphalt	Curb	1	16	0.111	Local	4	Mill & Overlay (3") w/ Patching and Curb Repl				\$205,755	
IDLEWILD LN			Asphalt	Curb	1	16	0.085	Local	8	Mill & Overlay (3") w/ Patching and Curb Repl				\$157,561	
IDLEWILD LN			Asphalt	Curb	1	16	0.085	Local	7	Mill & Overlay (3") w/ Patching and Curb Repl				\$156,652	
IDLEWILD LN		END	Asphalt	Curb	1	16	0.037	Local	6	Mill & Overlay (3") w/ Patching and Curb Repl				\$67,836	
Annual Expenditure =														\$2,458,351	

2030 IMPROVEMENTS

Note: Assumed Inflation Rate is 3%

STREET NAME	FROM	TO	PAVEMENT	SHOULDER TYPE	NUMBER OF LANES	STREET WIDTH (FT)	STREET (MILES)	ROADWAY CLASSIFICATION	CURRENT PASER RATING	PROPOSED IMPROVEMENT	PROGRAMMED CONSTRUCTION YEAR				
											YEAR 1 - 2026 (2026 DOLLARS)	YEAR 2 - 2027 (2027 DOLLARS)	YEAR 3 - 2028 (2028 DOLLARS)	YEAR 4 - 2029 (2029 DOLLARS)	YEAR 5 - 2030 (2030 DOLLARS)
HAWBROOKS RD	N SAPPINGTON		Asphalt	Curb	2	20	0.113		2	Mill & Overlay (3") w/ Patching and Curb Repl					\$241,938
HAWBROOKS RD		PARKLAND AVE	Asphalt	Curb	2	20	0.085	Local	2	Mill & Overlay (3") w/ Patching and Curb Repl					\$182,109
HAWBROOKS RD			Asphalt	Curb	2	20	0.083		3	Mill & Overlay (3") w/ Patching and Curb Repl					\$178,021
SPRINGFIELD CT	N BERRY RD	END	Asphalt	Curb	2	24	0.128	Local	5	Mill & Overlay (2")					\$67,237
EDWIN AVE	Beverly Ave		Asphalt	Curb	3	26	0.154		2	Mill & Overlay (3") w/ Patching and Curb Repl					\$384,741
EDWIN AVE		W LOCKWOOD AVE	Asphalt	Curb	2	26	0.086		2	Mill & Overlay (3") w/ Patching and Curb Repl					\$215,398
EDWIN AVE			Asphalt	Curb	2	26	0.086		3	Mill & Overlay (3") w/ Patching and Curb Repl					\$215,398
ELM AVE	BEVERLY AVE		Asphalt	Curb	3	22	0.154	Local	3	Mill & Overlay (2") w/ Curb Repl					\$221,842
ELM AVE		LOCKWOOD AVE	Asphalt	Curb	2	22	0.086		2	Mill & Overlay (2") w/ Curb Repl					\$124,458
BEVERLY AV E	PARKLAND AVE	EDWIN AVE	Asphalt	Curb	2	24	0.131	Local	3	Mill & Overlay (3") w/ Patching and Curb Repl					\$312,418
PARKLAND AVE	BEVERLY AVE		Asphalt	Curb	3	24	0.095		4	Mill & Overlay (2") w/ Curb Repl					\$141,401
PARKLAND AVE			Asphalt	Curb	3	24	0.058	Local	4	Mill & Overlay (2") w/ Curb Repl					\$86,462
PARKLAND AVE		LOCKWOOD AVE	Asphalt	Curb	3	24	0.086		4	Mill & Overlay (2") w/ Curb Repl					\$128,330
WINGFIELD	END		Asphalt	Curb	3	22	0.125	Local	4	Mill & Overlay (2")					\$60,200
WINGFIELD		N BERRY RD	Asphalt	Curb	3	22	0.172		4	Mill & Overlay (2")					\$82,725
Annual Expenditure =															\$2,642,680



# SIDEWALK LOCATION MAP

**CITY OF GLENDALE, MISSOURI  
2024 SIDEWALK SURVEY AND FIVE-YEAR MAINTENANCE PLAN**

Note: Assumed Inflation Rate is 3%

STREET NAME	FROM	TO	LENGTH (FT)	PASER RATING	PROPOSED IMPROVEMENT	PROGRAMMED CONSTRUCTION YEAR					
						YEAR 1 - 2026	YEAR 2 - 2027	YEAR 3 - 2028	YEAR 4 - 2029	YEAR 5 - 2030	
						(2026 DOLLARS)	(2027 DOLLARS)	(2028 DOLLARS)	(2029 DOLLARS)	(2030 DOLLARS)	
AUSTIN PL (East)	CORNELIA AVE	BEVERLY AVE	308	2	Reconstruction			\$39,000			
AUSTIN PL (East)	TREVILLIAN AVE	CORNELIA AVE	318	5	Reconstruction			\$40,000			
AUSTIN PL (East)	W LOCKWOOD AVE	TREVILLIAN AVE	509	3	Reconstruction			\$64,000			
AUSTIN PL (West)	CORNELIA AVE	BEVERLY AVE	318	2	Reconstruction			\$40,000			
BEVERLY AVE (South)	AUSTIN PL	N BERRY RD	1068	4	Patching of distressed sidewalk panels			\$17,000			
BEVERLY AVE (South)	PARKLAND AVE	AUSTIN PL	336	4				\$10,000			
BROWNELL AVE (South)	N SAPPINGTON RD	1004 BROWNELL AVE	735	6	No action at this time.						
BROWNELL AVE (South)	VENNEMAN AVE	N SAPPINGTON RD	708	6							
BROWNELL AVE (North)	VENNEMAN AVE	N SAPPINGTON RD	698	5							
CHELSEA AVE (North)	VENNEMAN AVE	N SAPPINGTON RD	631	8	No action at this time.						
CORNELIA AVE (North)	AUSTIN PL	N BERRY RD	1082	3	Reconstruction			\$135,000			
CORNELIA AVE (South)	AUSTIN PL	N BERRY RD	1087	2				\$136,000			
DWYER AVE (North)	N SAPPINGTON RD	903 DWYER AVE	136	6	No action at this time.						
EDWIN AVE (East)	W LOCKWOOD AVE	HAWBROOK RD	646	2	Reconstruction					\$86,000	
EDWIN AVE (West)	W LOCKWOOD AVE	HAWBROOK RD	646	3						\$86,000	
ELM AVE (East)	W LOCKWOOD AVE	12 ELM AVE	249	4	Patching of distressed sidewalk panels					\$10,000	
ELM AVE (West)	W LOCKWOOD AVE	7 ELM AVE	150	5	No action at this time.						
KIRKHAM AVE (North)	ELMWOOD AVE	N BERRY RD	796	5	No action at this time.						
KIRKHAM AVE (North)	LISAKAY DR	SOUTHRIDGE DR	98	5							
KIRKHAM AVE (North)	N BERRY RD	YOSEMITE DR	602	6							
KIRKHAM AVE (North)	N SAPPINGTON RD	LISAKAY DR	1153	7							
KIRKHAM AVE (North)	SOUTHRIDGE DR	ELMWOOD AVE	412	8							
KIRKHAM AVE (North)	YOSEMITE DR	659 W KIRKHAM AVE (HAMMEL AVE)	411	7							
KIRKHAM AVE (South)	CAMBRIDGE CT	ELMWOOD AVE	255	9							
KIRKHAM AVE (South)	CHAIN RIDGE RD	N BERRY RD	441	7							
KIRKHAM AVE (South)	ELMWOOD AVE	CHAIN RIDGE RD	281	7							
KIRKHAM AVE (South)	IDLEWILD PL	CAMBRIDGE CT	97	7							
KIRKHAM AVE (South)	N BERRY RD	GREENVIEW DR	778	5		Reconstruction		\$94,000			
KIRKHAM AVE (South)	N SAPPINGTON RD	IDLEWILD PL	1259	7		No action at this time.					
N. ESSEX AVE (North)	406 N SAPPINGTON RD	EDWIN AVE	185	2		Sidewalk improvements included in Essex Avenue Improvements					
N. SAPPINGTON RD (East)	W LOCKWOOD AVE	HAWBROOK RD	629	9		No action at this time.					
N. SAPPINGTON RD (East)	HAWBROOK RD	BEVERLY AVE	579	8							
N. SAPPINGTON RD (East)	BEVERLY AVE	E ESSEX AVE	600	8							
N. SAPPINGTON RD (East)	E ESSEX AVE	SAPPINGTON CT	449	8							
N. SAPPINGTON RD (East)	FUHRMANN TER	MORELAND AVE	448	8							
N. SAPPINGTON RD (East)	MORELAND AVE	DWYER AVE	395	7							
N. SAPPINGTON RD (East)	DWYER AVE	BROWNELL AVE	299	6							
N. SAPPINGTON RD (East)	BROWNELL AVE	CHELSEA AVE	296	7							
N. SAPPINGTON RD (East)	CHELSEA AVE	KIRKHAM AVE	396	7							
N. SAPPINGTON RD (East)	KIRKHAM AVE	VICTORIA PL	486	6							
N. SAPPINGTON RD (East)	VICTORIA PL	GLENMOOR AVE	265	7							
N. SAPPINGTON RD (East)	GLENMOOR AVE	GLENBROOK AVE	259	7							
N. SAPPINGTON RD (East)	WARWICK LN	NANCY CAROL LN	285	7							
N. SAPPINGTON RD (East)	NANCY CAROL LN	JOANNA AVE	438	6							
N. SAPPINGTON RD (East)	JOANNA AVE	MANCHESTER RD	548	7							

						PROGRAMMED CONSTRUCTION YEAR				
STREET NAME	FROM	TO	LENGTH (FT)	PASER RATING	PROPOSED IMPROVEMENT	YEAR 1 - 2026	YEAR 2 - 2027	YEAR 3 - 2028	YEAR 4 - 2029	YEAR 5 - 2030
N. SAPPINGTON RD (West)	W LOCKWOOD AVE	OAKWAY PL	280	9						
N. SAPPINGTON RD (West)	OAKWAY PL	HAWBROOK RD	306	8						
N. SAPPINGTON RD (West)	HAWBROOK RD	E ESSEX AVE	1198	8						
N. SAPPINGTON RD (West)	E ESSEX AVE	FUHRMANN TER	488	8						
N. SAPPINGTON RD (West)	FUHRMANN TER	HANAMOOR CT	247	8						
N. SAPPINGTON RD (West)	HANAMOOR CT	WINNETKA LN	249	6						
N. SAPPINGTON RD (West)	WINNETKA LN	HIGHLAND PL	268	7						
N. SAPPINGTON RD (West)	HIGHLAND PL	VENNEMAN ALLEY	135	6						
N. SAPPINGTON RD (West)	VENNEMAN ALLEY	BROWNELL AVE	131	8						
N. SAPPINGTON RD (West)	BROWNELL AVE	CHELSEA AVE	262	7						
N. SAPPINGTON RD (West)	CHELSEA AVE	KIRKHAM AVE (765 N SAPPINGTON RD)	346	7	No action at this time.					
N. SAPPINGTON RD (West)	KIRKHAM AVE	ALEXANDRA AVE	140	8						
N. SAPPINGTON RD (West)	ALEXANDRA AVE	VICTORIA PL	283	6						
N. SAPPINGTON RD (West)	VICTORIA PL	GLENMOOR AVE	287	7						
N. SAPPINGTON RD (West)	QUEEN ANNE PL	WARWICK LN	335	7						
N. SAPPINGTON RD (West)	WARWICK LN	GLEN ELM DR	273	7						
N. SAPPINGTON RD (West)	GLEN ELM DR	BROOKSIDE DR	193	7						
N. SAPPINGTON RD (West)	BROOKSIDE DR	JOANNA AVE	153	7						
N. SAPPINGTON RD (West)	JOANNA AVE	FIT AND FINISH ALTERATIONS	303	6						
N. SAPPINGTON RD (West)	FIT AND FINISH ALTERATIONS	MANCHESTER RD	198	7						
OAKWAY PL (North)	PARK AVE	N SAPPINGTON RD	925	4	Reconstruction		\$112,000			
OAKWAY PL (South)	PARK AVE	N SAPPINGTON RD	925	5			\$112,000			
PARK AVE (East)	E ADAMS AVE	OAKWAY PL	318	5	No action at this time.					
PARK AVE (West)	E ADAMS AVE	OAKWAY PL	334	4	Patching of distressed sidewalk panels		\$9,000			
PARK AVE (West)	OAKWAY PL	HAWBROOK AVE	166	7	No action at this time.					
QUEEN ANNE PL (North)	1015 N SAPPINGTON RD	N SAPPINGTON RD	25	9	No action at this time.					
QUEEN ANNE PL (South)	886 QUEEN ANNE PL	N SAPPINGTON RD	92	6						
TREVILLIAN AVE (North)	AUSTIN PL	N BERRY RD	1079	4	Patching of distressed sidewalk panels			\$23,000		
TREVILLIAN AVE (South)	AUSTIN PL	N BERRY RD	1080	4				\$23,000		
VENNEMAN AVE (East)	VENNEMAN ALLEY	BROWNELL AVE	137	5	No action at this time.					
EAST ESSEX AVE	SAPPINGTON RD	DEVON RD	1500	N/A	Construct new sidewalk		\$1,025,000			
ALGONQUIN ESTATES RD	DEVON RD	BERRY RD	1650	N/A	Construct new sidewalk			\$1,161,000		
VENNEMAN AVE	VENNEMAN ALLEY	EAST ESSEX AVE	1450	N/A	Construct new sidewalk				\$1,051,000	
VENNEMAN AVE	BROWNELL AVE	CHELSEA AVE	300	N/A	Construct new sidewalk				\$218,000	
ALEXANDRA AVE	SAPPINGTON RD	805 ALEXANDRA AVE	1150	N/A	Construct new sidewalk				\$834,000	
CHELSEA AVE (North)	SAPPINGTON RD	1013 CHELSEA AVE	730	N/A	Construct new sidewalk					\$545,000
CHELSEA AVE (South)	SAPPINGTON RD	1014 CHELSEA AVE	730	N/A	Construct new sidewalk					\$545,000
BROWNELL AVE	~700 FT EAST OF SAPPINGTON RD	ELMWOOD AVE	790	N/A	Construct new sidewalk					\$590,000
<b>TOTALS</b>						<b>\$0</b>	<b>\$1,352,000</b>	<b>\$1,688,000</b>	<b>\$2,103,000</b>	<b>\$1,862,000</b>

**CITY OF GLENDALE, MISSOURI  
2024 SIDEWALK RAMP SURVEY AND FIVE-YEAR MAINTENANCE PLAN**

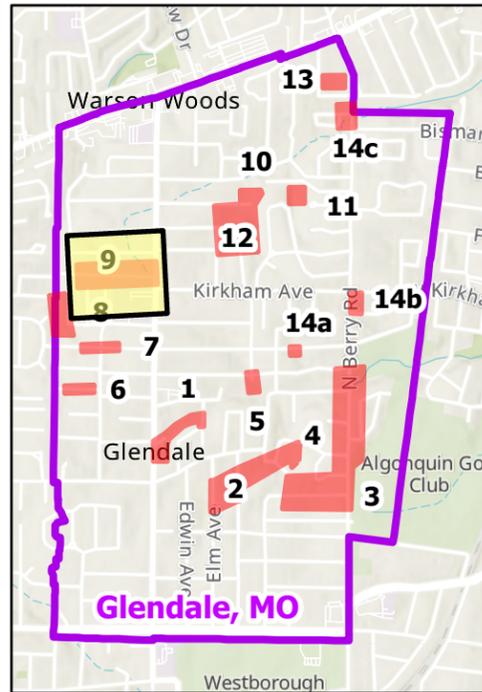
Note: Assumed Inflation Rate is 3%

INTERSECTION	RATING	5 YEAR RESURFACING STREET 1	5 YEAR RESURFACING STREET 2	EARLIEST CONSTRUCTION YEAR	COMMENT	PROGRAMMED CONSTRUCTION YEAR				
						YEAR 1 - 2026 (2026 DOLLARS)	YEAR 2 - 2027 (2027 DOLLARS)	YEAR 3 - 2028 (2028 DOLLARS)	YEAR 4 - 2029 (2029 DOLLARS)	YEAR 5 - 2030 (2030 DOLLARS)
(NE) OAKWAY PL & PARK AVE	ADA Compliant									
(SE) OAKWAY PL & PARK AVE	ADA Compliant									
(SW) HAWBROOK AVE & PARK AVE	ADA Compliant									
(SE) CORNELIA AVE & AUSTIN PL	Non-Compliant, But Navigable	Yes	Yes	3	Reconstruct in Year 3			\$13,300.00		
(NE) CORNELIA AVE & AUSTIN PL	Non-Compliant, But Navigable	Yes	Yes	3	Reconstruct in Year 3			\$13,300.00		
(NW) CORNELIA AVE & AUSTIN PL	Non-Compliant, But Navigable	Yes	Yes	3	Reconstruct in Year 3			\$13,300.00		
(NW) KIRKHAM AVE & LISAKAY DR	Non-Compliant, But Navigable	Yes	No	2	Reconstruct in Year 2		\$12,900.00			
(SW) KIRKHAM AVE & IDLEWILD PL	Non-Compliant, But Navigable	Yes	No	2	Reconstruct in Year 2		\$12,900.00			
(SE) KIRKHAM AVE & CHAIN RIDGE RD	Non-Compliant, But Navigable	Yes	No	2	Reconstruct in Year 2		\$12,900.00			
(N) KIRKHAM AVE & ELMWOOD AVE	ADA Compliant									
(S) KIRKHAM AVE & ELMWOOD AVE	ADA Compliant									
(SW) KIRKHAM AVE & CHAIN RIDGE RD	Non-Compliant, But Navigable	Yes	No	2	Reconstruct in Year 2		\$12,900.00			
(NE) KIRKHAM AVE & YOSEMITE DR	ADA Compliant									
(N) KIRKHAM AVE & GREENVIEW DR (CROSSWALK)	ADA Compliant									
(S) KIRKHAM AVE & GREENVIEW DR (CROSSWALK)	ADA Compliant									
(NW) KIRKHAM AVE & YOSEMITE DR	ADA Compliant									
(S) 1178 KIRKHAM AVE (DRIVE)	Non-Compliant, But Navigable	Yes		2	Reconstruct in Year 2		\$12,900.00			
(SE) KIRKHAM AVE & CAMBRIDGE CT	Non-Compliant, But Navigable	Yes	No	2	Reconstruct in Year 2		\$12,900.00			
(SE) KIRKHAM AVE & IDLEWILD PL	ADA Compliant									
(NE) KIRKHAM AVE & SOUTHRIDGE DR	Non-Compliant, But Navigable	Yes	No	2	Reconstruct in Year 2		\$12,900.00			
(NW) KIRKHAM AVE & SOUTHRIDGE DR	ADA Compliant									
(NE) KIRKHAM AVE & LISAKAY DR	Non-Compliant, But Navigable	Yes	No	2	Reconstruct in Year 2		\$12,900.00			
(N) KIRKHAM AVE & ALBERT AVE (EXTENDED)	ADA Compliant									
(S) KIRKHAM AVE & ALBERT AVE (EXTENDED)	ADA Compliant									
(SW) KIRKHAM AVE & CAMBRIDGE CT	Non-Compliant, But Navigable	Yes	No	2	Reconstruct in Year 2		\$12,900.00			
(SW) BEVERLY AVE & AUSTIN PL	Non-Compliant, But Navigable	Yes	Yes	2	Reconstruct in Year 2		\$12,900.00			
(SE) BEVERLY AVE & AUSTIN PL	Non-Compliant, But Navigable	Yes	Yes	2	Reconstruct in Year 2		\$12,900.00			
(SE) BEVERLY AVE & PARKLAND AVE	Non-Compliant, But Navigable	Yes	Yes	2	Reconstruct in Year 2		\$12,900.00			
(SE) TREVILLIAN AVE & AUSTIN PL	ADA Compliant									
(NE) TREVILLIAN AVE & AUSTIN PL	ADA Compliant									
(SW) HAWBROOK RD & EDWIN AVE	Non-Compliant, But Navigable	Yes	Yes	5	Reconstruct in Year 5					\$14,100.00
(SE) HAWBROOK RD & EDWIN AVE	Non-Compliant, But Navigable	Yes	Yes	5	Reconstruct in Year 5					\$14,100.00
(NE) BROWNELL AVE & VENNEMAN AVE	Non-Compliant, But Navigable	No	No	6+	Reconstruct in Year 2 to conform to SE Quadrant		\$12,900.00			
(SE) BROWNELL AVE & VENNEMAN AVE	Non-Compliant, But Navigable	No	Yes	2	Reconstruct in Year 2		\$12,900.00			
(NE) CHELSEA AVE & VENNEMAN AVE	Non-Compliant, But Navigable	No	No	6+	Street in good condition. Routine maintenance.					
<b>Annual Expenditure =</b>						<b>\$0.00</b>	<b>\$180,600.00</b>	<b>\$39,900.00</b>	<b>\$0.00</b>	<b>\$28,200.00</b>

## Project # P009 Alexandra Ave Storm Sewer (From Sappington Road to Glenway Drive)

Construct 1,000 LF of 24-inch storm sewer and inlets.  
The project will benefit 35 properties and no permanent easement will be required.

Storm Water Project Summary of Quantities and Engineer's Cost Estimate					
Project Name: Alexandra Ave Storm Sewer (From Sappington Road to Glenway Drive)					
Project Number: P009					
Pay Item	Item Description	Unit	Unit Cost	Quantity	Extended Cost
418000000000ST	Inlet - Street	EA	\$2,050	5	\$10,250
412000240000ST	Pipe Sewer 24" (Storm)	LF	\$105	1005	\$105,517
3H500000000000C	Excavation	CY	\$28	933	\$26,113
411300000000000	Granular Backfill	CY	\$55	911	\$50,107
9D4000000000000	Street Pavement - Asphaltic Concrete Rem. and Rep.	SY	\$85	1442	\$122,575
				<b>Subtotal:</b>	<b>\$314,562</b>
1G6a00000000MOBX	Mobilization	LS	3.5%	1	\$11,010
8H0000000000000	Protection and Restoration	LS	14%	1	\$44,039
				<b>Subtotal:</b>	<b>\$55,048</b>
				<b>Construction Costs:</b>	<b>\$369,611</b>
	Engineering	LS	20%	1	\$73,922
	Contingency	LS	10%	1	\$44,353
				<b>Total Costs:</b>	<b>\$487,886</b>

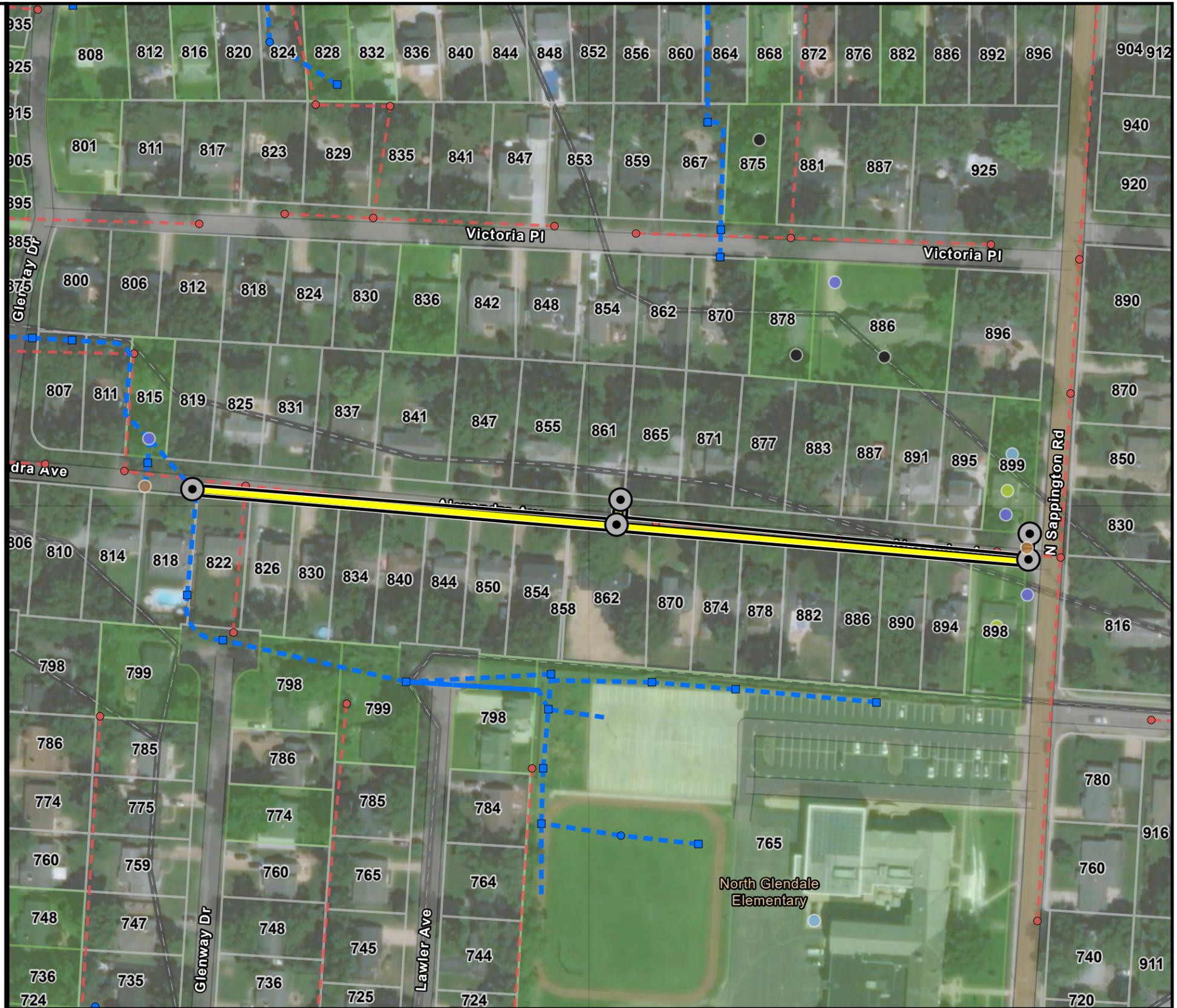


### Legend

- Inlet-Street
- Street Pavement
- Pipe Sewer 24" (Storm)
- Existing Storm Water Manhole
- Existing Storm Water Inlet
- Existing Stormwater Network
- Existing Sewer Manhole
- Existing Sanitary Sewer Network

**Problem Identification (PID)**

- Backyard Flooding
- Basement Backups
- Driveway or Private Roadway Flooding
- Main Structure Building Flooding
- Public Roadway Flooding
- Storm Survey Parcels, House #
- Drainage Areas and Subwatersheds



7/6/2022



## Stormwater Master Plan Project # P009 Alexandra Ave Storm Sewer (From Sappington Road to Glenway Drive) Glendale, Missouri



411 N 10th Street, Suite 200  
St. Louis, MO 63101

**Project # P014**

**Inlet & Curb Replacement (Brownell, Glenvista, Berry Oaks)**

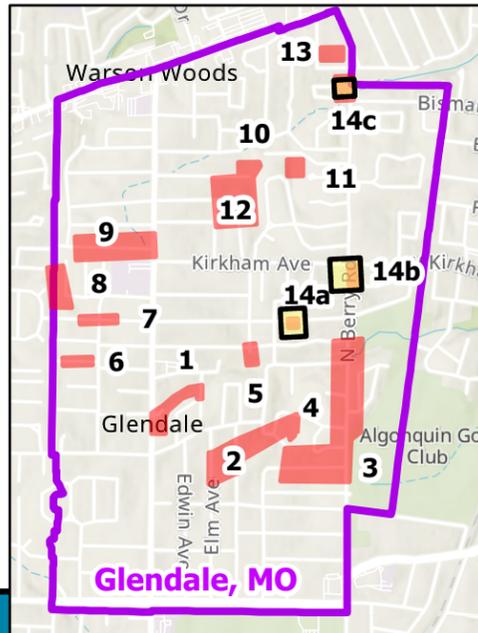
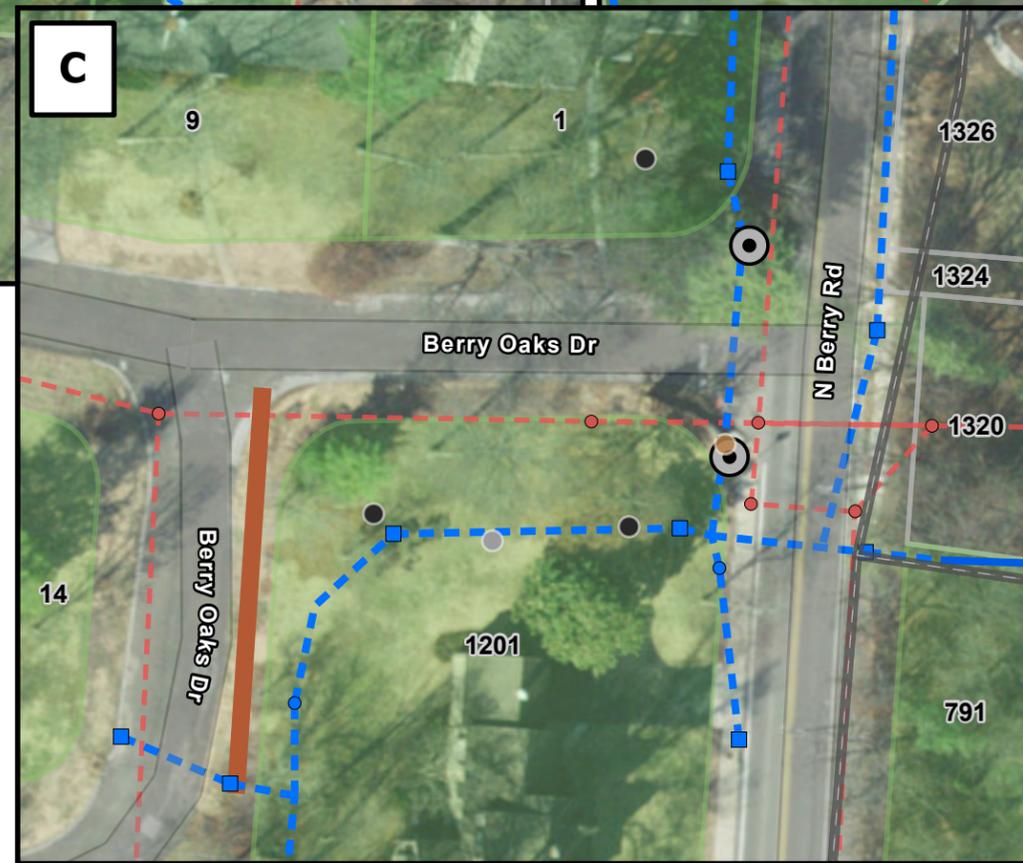
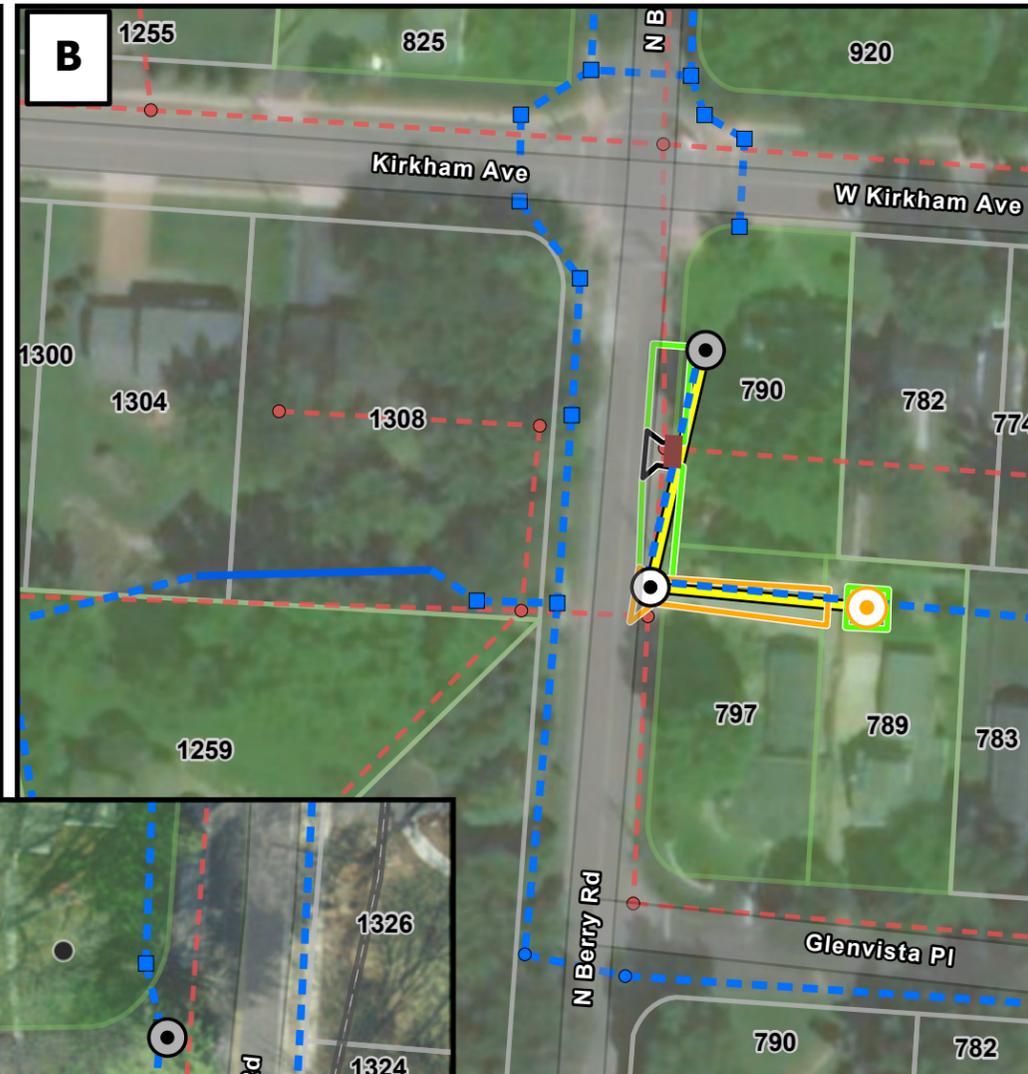
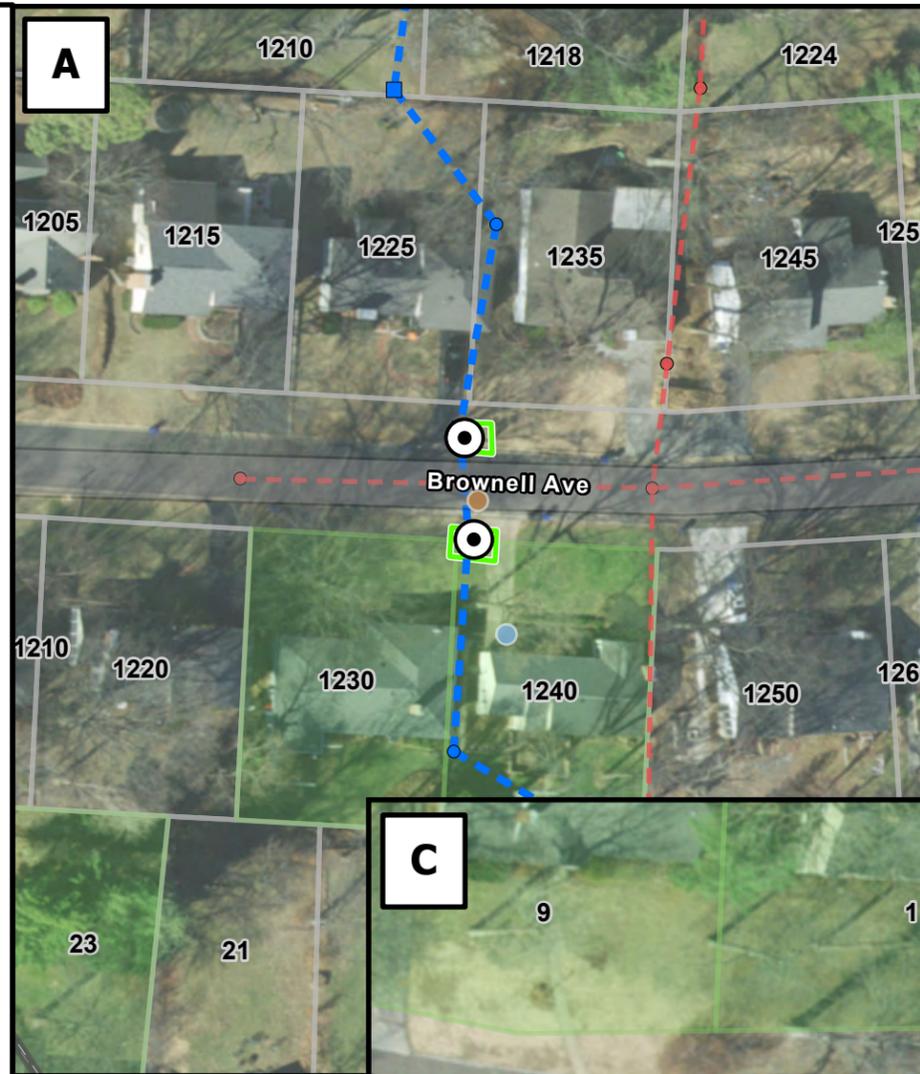
Replace 6 inlets, storm sewer improvements and adding curbs to help direct stormwater to inlets. The project will benefit 45 properties and 3 permanent easement will be required.

**Storm Water Project Summary of Quantities and Engineer's Cost Estimate**

Project Name: Inlet Replacements

Project Number: P014

Pay Item	Item Description	Unit	Unit Cost	Quantity	Extended Cost
418000000000AI	Inlet - Area	EA	\$2,050	1	\$2,050
418000000000D	Inlet - Double	EA	\$3,100	3	\$9,300
418000000000ST	Inlet - Street	EA	\$2,050	3	\$6,150
412000180000ST	Pipe Sewer 18" (storm)	LF	\$100	188	\$18,835
9D7000000000AC	Curb - Asphaltic Concrete	LF	\$33	111	\$3,652
9D7000000000CNEW	Curb - Concrete	LF	\$42	13	\$560
3H50000000000C	Excavation	CY	\$28	176	\$4,915
41130000000000	Granular Backfill	CY	\$55	39	\$2,139
9D6b0000000000	Sidewalks & Driveways - Concrete	SY	\$100	113	\$11,286
9D6c0000000000	Sidewalks & Driveways - Asphaltic Concrete	SY	\$162	21	\$3,331
9D400000000000	Street Pavement - Concrete	SY	\$85	15	\$1,232
8H4000000000BG	Sodding - Bluegrass	SY	\$13	201	\$2,619
				<b>Subtotal:</b>	<b>\$66,069</b>
1G6a00000000MOBX	Mobilization	LS	3.5%	1	\$2,312
8H000000000000	Protection and Restoration	LS	14%	1	\$9,250
				<b>Subtotal:</b>	<b>\$11,562</b>
				<b>Construction Costs:</b>	<b>\$77,631</b>
	Engineering	LS	20%	1	\$15,526
	Easements and Land Acquisition	LS		1	\$36,470
	Contingency	LS	10%	1	\$12,963
				<b>Total Costs:</b>	<b>\$142,589</b>

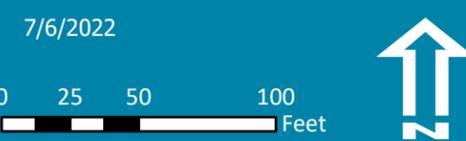


**Legend**

- Inlet - Double
- Inlet-Area
- Inlet-Street
- Sodding Bluegrass
- PIPE SEWER 18 INCH (STORM)
- Curb
- Existing Storm Water Inlet
- Existing Storm Water Manhole
- Existing Stormwater Network
- Stormwater Channel
- Existing Sewer Manhole
- Existing Sanitary Sewer Network

**Problem Identification (PID)**

- Backyard Flooding
- Basement Backups
- Public Roadway Flooding
- Sink Holes
- Storm Survey Parcels, House #
- Drainage Areas and Subwatersheds

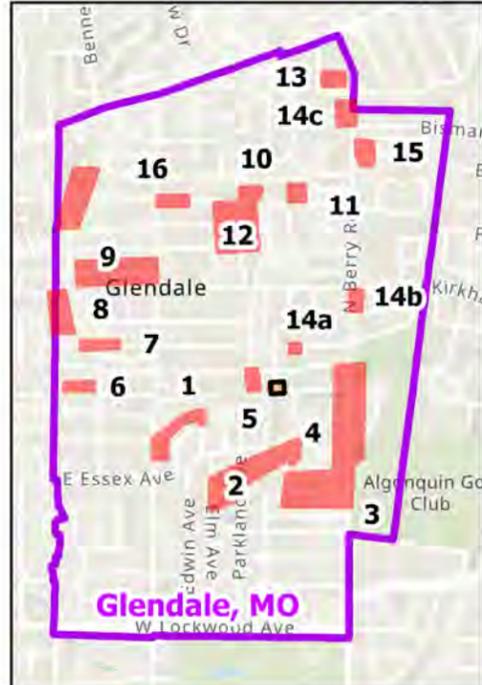
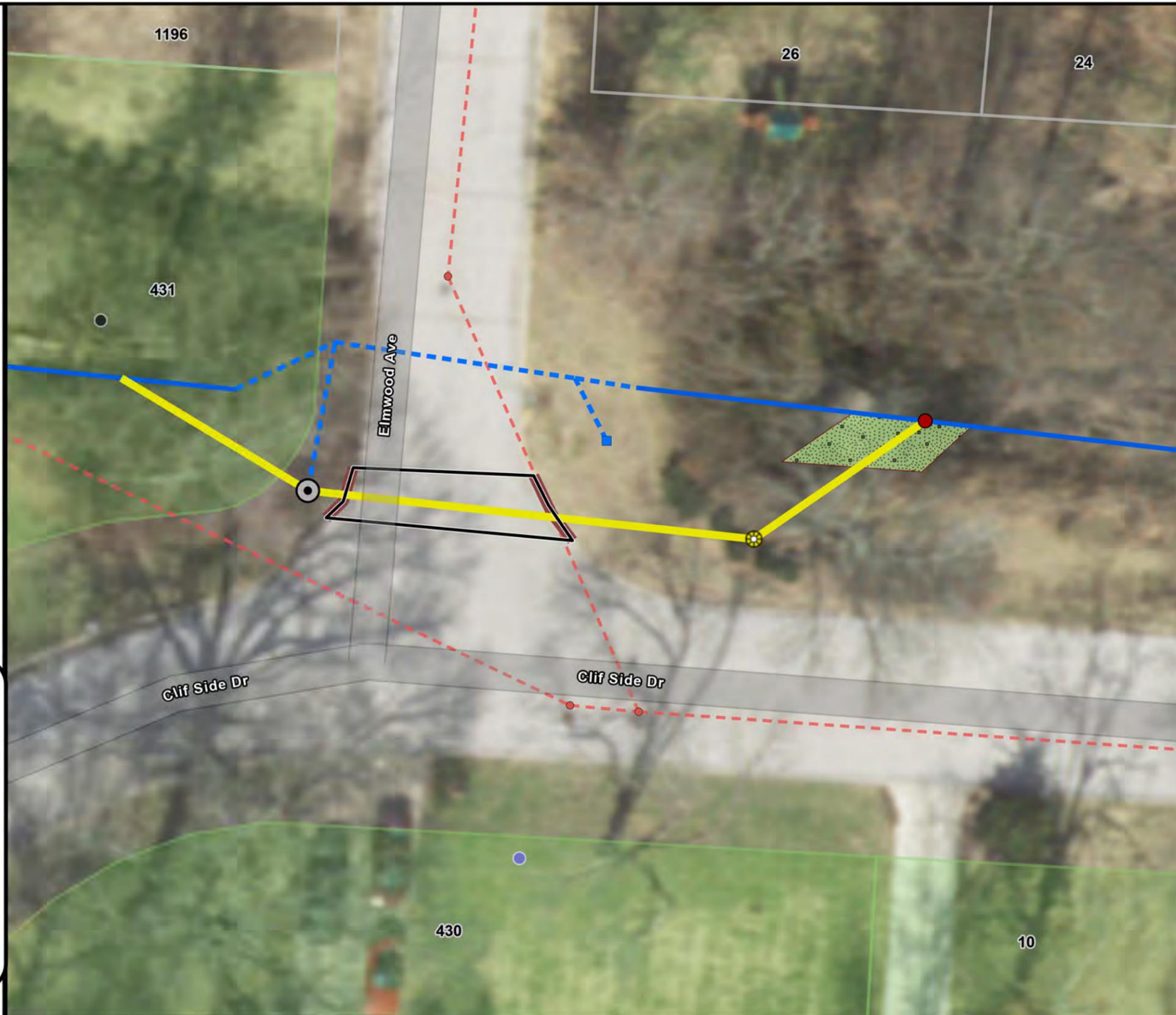


**Stormwater Master Plan  
Project # P014  
Inlet & Curb Replacement  
(Brownell, Glenvista, Berry Oaks)  
Glendale, Missouri**

# Project # P017 Clif Side Dr Storm Sewer

Install 135 LF of 60 in storm sewer parallel to existing 54 in storm sewer. The project will benefit one property and one permanent easement will be required.

Storm Water Project Summary of Quantities and Engineer's Cost Estimate					
Project Name: Clif Side Dr Storm Sewer					
Project Number: P017					
Pay Item	Item Description	Unit	Unit Cost	Quantity	Extended Cost
4160000000000	Manhole	LF	\$335	10	\$3,350
4180000000000D	Inlet - Street	EA	\$2,050	1	\$2,050
412000300000ST	Pipe Sewer 60" (storm)	LF	\$300	135	\$40,500
6J800060000000	Connection to Channel 60 Inch Pipe	PLC	\$9,000	1	\$9,000
3H500000000000C	Excavation	CY	\$28	420	\$11,760
41130000000000	Granular Backfill	CY	\$55	78	\$4,278
9D5c0000000000	Street Pvmnt - Asphl Conc Surf & Righd Base - Rem & Rep	SY	\$95	300	\$28,500
6J6000000000RLX	Rock Lining	SY	\$78	200	\$15,600
6F5000000000BIOX	Bank Protection - Biostabilization	SY	\$60	200	\$12,000
9D700000000000C	Curb - Concrete Rem. and Rep.	LF	\$50	14	\$700
8H400000000000BG	Sodding - Bluegrass	SY	\$13	233	\$1,370
				<b>Subtotal:</b>	<b>\$129,107</b>
1G6a00000000MOBX	Mobilization	LS	3.5%	1	\$4,519
8H0000000000000	Protection and Restoration	LS	14%	1	\$18,075
				<b>Subtotal:</b>	<b>\$22,594</b>
				<b>Construction Costs:</b>	<b>\$151,701</b>
	Engineering	LS	20%	1	\$30,340
	Easements and Land Acquisition	LS		1	\$18,120
	Contingency	LS	10%	1	\$18,204
				<b>Total Costs:</b>	<b>\$219,000</b>



### Legend

- MANHOLE - STANDARD CONSTRUCTION
- Inlet-Street
- CONNECTION TO CHANNEL 60 INCH PIPE
- Street Pavement
- PIPE SEWER 60 INCH (STORM)
- BANK PROTECTION - BIOSTABILIZATION
- CURB - CONCRETE
- Existing Storm Water Inlet
- Existing Stormwater Network
- Stormwater Channel
- Existing Sewer Manhole
- Existing Sanitary Sewer Network

8/29/2024



Stormwater Master Plan  
Project # P017  
Clif Side Dr Storm Sewer  
Glendale, Missouri



411 N 10th Street, Suite 200  
St. Louis, MO 63101

**CITY OF GLENDALE, MISSOURI**  
**STORMWATER MASTER PLAN PROJECTS INCLUDED IN FIVE-YEAR MAINTENANCE PLAN**

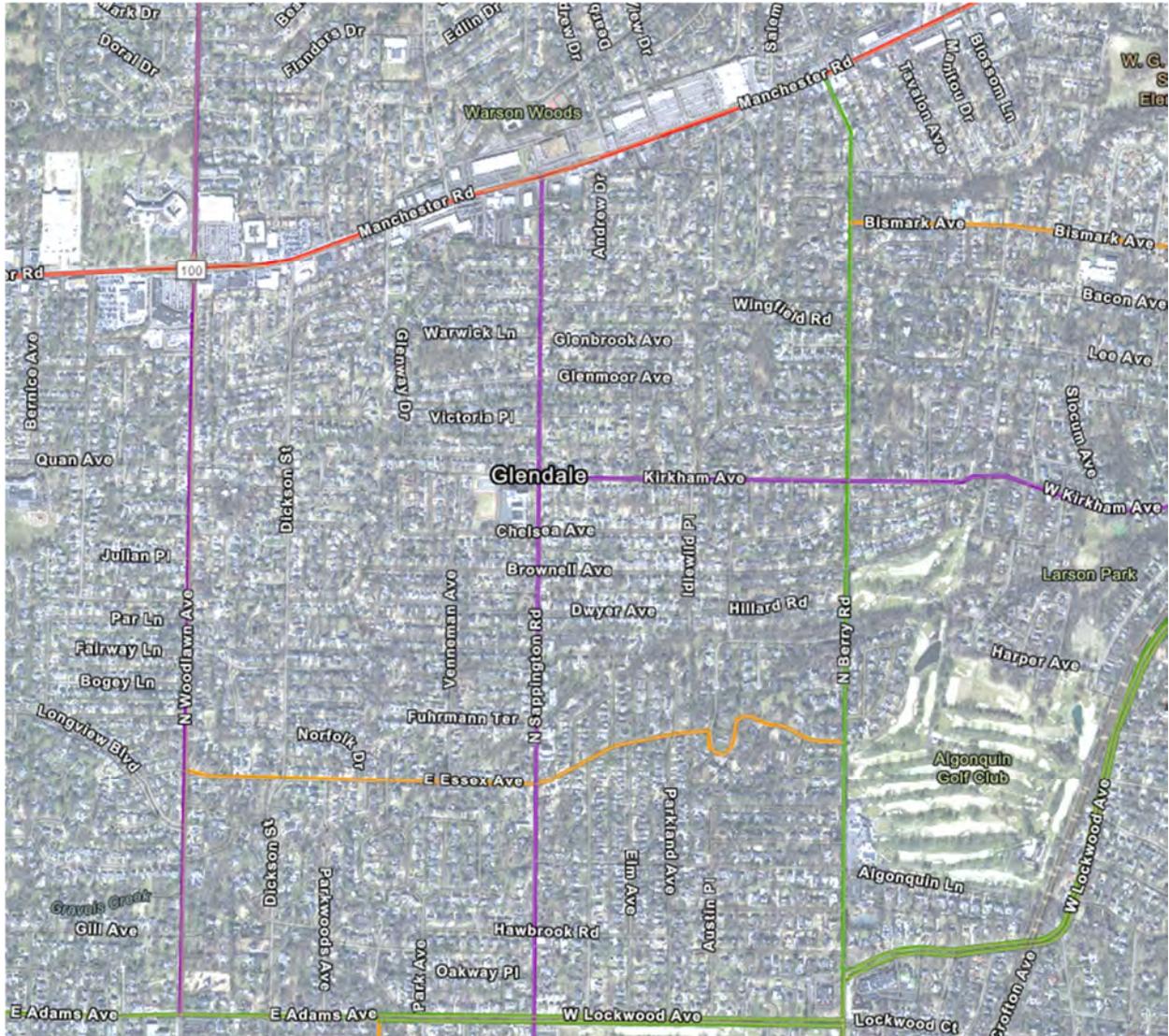
PROGRAMMED CONSTRUCTION YEAR

STORMWATER MASTER PLAN PROJECT NUMBER	PROJECT DESCRIPTION	YEAR 1 - 2026 (2026 DOLLARS)	YEAR 2 - 2027 (2027 DOLLARS)	YEAR 3 - 2028 (2028 DOLLARS)	YEAR 4 - 2029 (2029 DOLLARS)	YEAR 5 - 2030 (2030 DOLLARS)
PROJECT #P009	ALEXANDRA AVE STORM SEWER	\$487,886				
PROJECT #P014 C	BERRY OAKS DR INLET AND CURB REPLACEMENT			\$15,000		
PROJECT #P017	CLIF SIDE DR STORM SEWER		\$219,000			
	<b>TOTALS</b>	<b>\$487,886</b>	<b>\$219,000</b>	<b>\$15,000</b>	<b>\$0</b>	<b>\$0</b>

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# Appendix B

## Functional Classifications Map



Functional Class, 02/20/2024

Symbolize\_

- INTERSTATE
- FREEWAY
- PRINCIPAL ARTERIAL
- MINOR ARTERIAL
- MAJOR COLLECTOR
- MINOR COLLECTOR
- LOCAL
- NON-EXISTENT
- - PLANNED MAJOR COLLECTOR
- - PLANNED MINOR ARTERIAL

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# Appendix C

## Strategy Unit Prices

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## City of Glendale, Missouri Maintenance Strategy Unit Prices for Year 2025

**Note:** Estimated cost will vary by roadway width

CLEAN/SEAL JOINT – Asphalt (\$/MILE)

- **Assumption:** Roadway width of 24 feet and 1 crack every 10 feet.
- **Use:** \$7,500/MILE

MICROSURFACE (\$/SY)

- **Assumption:** 24' roadway for a length of 1 mile (DOUBLE COAT)
- **Use:** \$10/SY

MILL & OVERLAY – Asphalt 2" (\$/SY)

- **Assumption:** 24' roadway for a length of 1 mile
- **Use:** \$25/SY

MILL & OVERLAY – Asphalt 3" (\$/SY)

- **Assumption:** 24' roadway for a length of 1 mile
- **Use:** \$30.00/SY

MILL & OVERLAY – Asphalt 3" with Patching (\$/SY)

- **Assumption:** 24' roadway for a length of 1 mile
- **Use:** \$67.50/SY

REPLACE EXISTING CURB WITH CONCRETE CURB AND GUTTER (\$/LF)

- **Use:** \$61.00/LF

CONSTRUCT NEW SIDEWALK (INCLUDING RIGHT-OF-WAY COSTS)

- **Use:** \$500.00/LF

REMOVE & RECONSTRUCT SIDEWALK (\$/SY)

- **Use:** \$250.00/SY

REMOVE & RECONSTRUCT SIDEWALK RAMP (\$/SY)

- **Use:** \$10,000.00 per ramp

DESIGN ENGINEERING AND CONSTRUCTION INSPECTION/ADMINISTRATION

- **Use:** 25% of construction costs



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