

Draft 6



CITY OF BELTON, MISSOURI

Sidewalk Management Plan

Draft 6

September 12, 2023



Sidewalk Management Plan

Introduction

Sidewalks play a vital role in city life as they provide safety, connectivity, opportunities for exercise, and accessibility. They provide the primary means for pedestrian movement and access, enhance connectivity, and promote walking. Sidewalks are a fundamental and necessary investment for cities and have been found to enhance public health and maximize social capital.

In the past, the City's requirements for sidewalks to be installed at the time a property is developed with single family homes, duplexes, fourplexes, or apartments has varied from no sidewalks, sidewalks on one side, and sidewalks on both sides. As a result, in some locations sidewalks terminate at property lines and do not connect to any adjoining sidewalks, blocks of sidewalks are missing, and some areas have no sidewalks.

In addition to not requiring sidewalks, there are two types of streets that are missing sidewalks, completely improved streets, and unimproved streets. A more definitive description would be the following:



Completely Improved Street: A street with curb and gutter, and storm sewer. The area where sidewalk could be placed is graded properly.



Unimproved Street: A street with some curb or completely without curbs, and without storm sewer.

Each one of these streets will need to be improved to have sidewalks. The cost to install sidewalks varies depending on the type of street being improved. Additionally, the classification of the street also has an impact on the cost and need. The four street classifications are arterials, minor arterial, collectors, and residential streets. Table 1 defines each street classification.

Table 1: Roadway Classification Definitions	
Classification	Primary Use/Definition
Arterial	Emphasizes motor vehicle travel, and connects cities and major activity centers. Typically has shopping centers, apartments, and other community areas along the roadway.
Minor Arterial	A road that connects major arterials and provides access to collector roads. Also typically has shopping centers, apartments, and other community areas along the roadway.
Collector	A local road that provides connections from residential local streets to minor arterials and sometimes arterials.
Residential	A smaller-scale street whose primary function is to provide access to individual dwellings rather than serve through traffic.

Table 2 shows the cost to add sidewalks per mile of roadway. The table takes the roadway classification and street type into account to arrive at the cost per mile.

Table 2: Construction Cost Estimate			
Classification	Assumed Width (FT)	Construction Cost Per Mile	
		Completely Improved	Unimproved
Arterial	60	\$1,043,000.00	\$5,714,000.00
Minor Arterial	48	\$1,043,000.00	\$4,951,000.00
Collector	36	\$582,000.00	\$3,692,000.00
Residential	24	\$582,000.00	\$3,103,000.00

* Mobilization is included in the estimate and is computed as 4% of the total cost.

** Creek/stream crossings are not included in this estimate.

***Striping and other improvements that can vary depending on the road are also not included in this estimate.

Another issue is sidewalk maintenance. In the Code of Ordinances, it states that property owners are responsible for the maintenance of the sidewalk. This is found in Section 19-105:

Sec. 19-105. - Requirements for private driveways along certain roads and streets.

(a) Supervision by the department of public works. The public works director, city engineer, or other employee designated by the city manager shall inspect the construction of all driveway approaches, including, but not limited to, the portion of the driveway within the right-of-way to ensure compliance with the latest revision of the City's Design and Construction Manual. Before improvements are commenced within the public right-of-way, a right-of-way permit must be issued by the city engineer.

(b) Maintenance. The owner of the property served by a driveway is responsible for the maintenance and safekeeping of the driveway up to the curb and gutter if applicable or up to the public street within the public right-of-way. Any such driveway, driveway culvert, or driveway pipe that collapses, clogs, or otherwise fails in its purpose shall be repaired or replaced within a reasonable time after such failure by the property owner or other responsible person.

If property owners receive a notification from the City about sidewalk disrepair, they can replace the concrete with a permit and hire a contractor to do the work. The City currently has a 50/50 Cost Share Program in place where the City has an on-call contractor complete the work with the property owner paying 50% prior to the work being completed. This can be an expensive repair if the entire length of the property needs to be repaired or if a tree is the cause of the damage, and needs to be root pruned or removed.

Plan Background

The purpose of this Sidewalk Management Plan (Plan) is to establish a strategy to construct new sidewalk and repair existing sidewalk. This plan prioritizes this work based on a variety of factors including

- School routes
- Access for one car or no-car homes
- High traffic streets
- Local destinations
- Cost

The City of Belton (City) has been working to inventory sidewalks in the City's right-of-way. Staff performed a sidewalk analysis to identify locations where sidewalks are not present to plan for construction of new sidewalks. A sidewalk condition assessment was used to develop a sidewalk asset management plan for short- and long-term maintenance and repair activities. The condition assessment is primarily focused on existing sidewalk infrastructure and public right-of-way accessibility. Public participation will be incorporated as needed to gather feedback from the public regarding conditions of neighborhood sidewalks as well as the reasons for and frequency of sidewalk use and levels of satisfaction. For example, senior citizens and one car or no-car families are more likely to be pedestrians. All these factors are important in determining where to begin a sidewalk program.

The first step in developing a program was to develop an inventory. The first objective in the sidewalk inventory was to identify the missing sidewalks in the inventory. The second objective was to identify common problems. Common problems include, but are not limited to, trip hazards, areas with root damage, cracked sidewalk, and non-compliant Americans with Disabilities Act (ADA) ramps. This inventory also identifies areas that are missing curbs and storm sewer. A detailed inventory of maintenance needs was not compiled, but a general condition assessment was completed. This was done to provide information on how much effort is needed to improve an area to an acceptable level.

A combination of vehicular and pedestrian site reconnaissance and review of available aerial imagery was used to collect and evaluate sidewalk data. The inventory allowed for identification of deficiencies in ADA compliance. ADA compliance assesses sidewalk cross slopes, ramps, and crosswalks to ensure they are constructed properly for pedestrians with disabilities.

The sidewalk inventory also provided an opportunity to identify the corresponding roadway classifications. The roadway classifications are provided in the inventory spreadsheets.

From that inventory, the following table shows the approximate total mileage of streets that need sidewalks.

Table 3: Mileage of Missing Sidewalks		
Classification	Completely Improved	Unimproved
Arterial	0.49	5.71
Minor Arterial	0	2.37
Collector	3.36	13.53
Residential	9.88	20.14

Based on the data in the table above, there is approximately 55.48 miles of roadway that are missing sidewalks. Table 4 below combines Table 2 & Table 3 to arrive at the total cost to resolve the issue of missing sidewalks in Belton.

Table 4: Cost to Add Sidewalk/Complete Streets that are Missing Sidewalk							
Classification	Completely Improved			Unimproved			Grand Total
	Cost per Mile	Mileage	Total Cost	Cost per Mile	Mileage	Total Cost	
Arterial	\$1,043,000.00	0.49	\$ 511,070.00	\$5,714,000.00	5.71	\$32,626,940.00	\$ 33,138,010.00
Minor Arterial	\$1,043,000.00	0.00	\$ -	\$4,951,000.00	2.37	\$11,733,870.00	\$ 11,733,870.00
Collector	\$582,000.00	3.36	\$ 1,955,520.00	\$3,692,000.00	13.53	\$49,952,760.00	\$ 51,908,280.00
Residential	\$582,000.00	9.88	\$ 5,750,160.00	\$3,103,000.00	20.14	\$62,494,420.00	\$ 68,244,580.00
			Grand Total to Add Sidewalk/Complete Streets Missing Sidewalk:				\$ 165,024,740.00

Additionally, there is more than 67 miles existing sidewalks in the City of Belton. Based on a drive-by analysis of the sidewalk approximately 15 miles of this existing sidewalk needs to be repaired or replaced, and about 7.5 miles of those same areas need to be completely reconstructed to be complete streets. On the following page, Table 5 shows the approximate cost to complete the existing streets with existing sidewalk in disrepair combined with the cost to repair & replace existing sidewalk in disrepair.

Table 5: Cost to Repair and Replace Existing Sidewalks and Reconstruct Areas with Sidewalk in Disrepair									
Area	Approx. % in Disrepair	Length in Disrepair	SF in Disrepair	Approx Cost for Replacement Work	Recon. Needed?	Cost per Mile (From Table 4)	Miles	Recon Cost	Mobilization (4% of Construction costs)
1	10.00%	350.00	850.00	\$ 14,400.00	no				
2	8.00%	550.00	2250.00	\$ 27,000.00	no				
3	13.00%	810.00	2290.00	\$ 34,700.00	no				
4	19.00%	2370.00	8860.00	\$ 111,100.00	no				
5	2.00%	90.00	380.00	\$ 4,600.00	no				
6	20.00%	290.00	1160.00	\$ 13,900.00	no				
7	6.00%	150.00	610.00	\$ 7,300.00	no				
8	12.00%	110.00	320.00	\$ 5,600.00	no				
9	2.00%	20.00	100.00	\$ 1,200.00	no				
10	100.00%	10780.00	53970.00		yes	\$ 3,103,000.00	0.90	\$ 2,792,700.00	
11	100.00%	12040.00	41340.00		yes	\$ 3,103,000.00	2.70	\$ 8,378,100.00	
12	100.00%	12640.00	42820.00		yes	\$ 3,103,000.00	2.40	\$ 7,447,200.00	
13									
14	11.00%	260.00	650.00	\$ 10,800.00	no				
15	48.00%	4770.00	16300.00	\$ 220,800.00	some	\$ 3,103,000.00	1.50	\$ 4,654,500.00	
16	23.00%	2900.00	9270.00	\$ 130,400.00	no				
17	44.00%	5890.00	20360.00	\$ 268,300.00	no				
18	4.00%	380.00	1320.00	\$ 20,600.00	no				
19	24.00%	910.00	2110.00	\$ 36,700.00	no				
20	4.00%	100.00	240.00	\$ 4,100.00	no				
21	5.00%	200.00	570.00	\$ 8,600.00	no				
22	25.00%	1140.00	3140.00	\$ 48,500.00	no				
23	5.00%	210.00	540.00	\$ 8,900.00	no				
24	21.00%	740.00	2330.00	\$ 32,800.00	no				
25	53.00%	1730.00	5470.00	\$ 76,400.00	no				
26	1.00%	50.00	200.00	\$ 2,400.00	no				
27	3.00%	980.00	4400.00	\$ 55,200.00	no				
28	9.00%	710.00	2550.00	\$ 33,000.00	no				
29	1.00%	80.00	310.00	\$ 3,700.00	no				
30	21.00%	1250.00	3900.00	\$ 55,200.00	no				
31	8.00%	1140.00	2960.00	\$ 47,500.00	no				
32	9.00%	390.00	950.00	\$ 16,200.00	no				
33	11.00%	1330.00	3640.00	\$ 56,300.00	no				
34	11.00%	500.00	2000.00	\$ 24,000.00	no				
35	41.00%	10150.00	36700.00	\$ 470,400.00	no				
36	1.00%	20.00	80.00	\$ 1,000.00	no				
37	13.00%	680.00	2650.00	\$ 33,600.00	no				
38	54.00%	470.00	1540.00	\$ 20,900.00	no				
39	78.00%	1380.00	5360.00	\$ 65,500.00	no				
Total Miles in Disrepair:		15.00	Total Repair/ Replace Cost:	\$ 1,971,600.00	Total Miles & Cost to be Reconstructed:		7.50	\$ 23,272,500.00	\$ 1,009,800.00
					Grand Total Maintenance + Recon of Streets with Existing Sidewalk:			\$ 26,253,900.00	

In total, the cost to completely repair and replace existing sidewalks, add sidewalks to streets that don't have them, and complete the streets to allow for sidewalk construction is approximately \$191.3 million.





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Residents have done a good job in some areas maintaining their sidewalks. Additional education is needed for residents on the need to maintain sidewalks and remove obstructions to provide accessibility. Moreover, churches, schools, and vulnerable populations may need assistance in maintaining their sidewalks.

A generic rating system was used to help identify existing sidewalk maintenance concerns. Visual inspection was the baseline to identify common deficiencies. Four criteria were used to classify existing sidewalk condition.

1. **Excellent:** New appearance, well maintained
2. **Good:** Visible wear but otherwise good condition
3. **Fair:** Cracks, clearly visible wear, or damage, functional
4. **Poor:** Any presence of deep cracks, misalignment, sagging, or uplifted slabs, slabs covered in obstructions such as: dirt, mud, water, or weeds, surface distortions, deflections, or whether non-ADA compliant.

Table 6 shows examples of the sidewalk condition rating defined above.

Table 6: Sidewalk Condition	
 Excellent	 Good
 Fair	 Poor

Action Plan

The Plan will be implemented within the context of the City's comprehensive plan and the City's annual capital improvement program. Four factors were selected to prioritize improvements.

1. **Identify an annual expenditure** to allocate per year in the annual budget for sidewalk improvements. Potential grant funding opportunities can help offset 80% of the cost of construction and enable Belton to stretch its budget.
2. **Develop a list of key projects** to pursue each year. This plan identifies about 67.4 miles of roadway with existing sidewalks and 55.5 miles of roadway with missing sidewalks. It is not feasible to improve all miles immediately. A best practice is to target improvements around key destinations. We recommend Belton prioritize sidewalk installation and repair by the following factors:
 - School routes
 - Access for one car or no-car homes
 - High traffic streets
 - Local destinations
 - Cost
3. **Work with Mid-America Council (MARC) and federal agencies** to identify and apply for grants to make progress on implementation of priority projects. The City would need to program money to make the local matches for these programs. Most federal programs are a 80/20 split on funding.
4. **Review recommendations** to ensure they are meeting the community's needs. Community preferences and needs change over time. The prioritization approach established by this plan should be periodically reviewed.
5. **Conduct inspections on sidewalks** and educate residents on the need to maintain sidewalks. Promote programs such as the Cost Share Program for residents to make repairs to their sidewalks.

The sidewalk inventories provided valuable information in assessing the status of sidewalks in the City. The initial goal of the Plan is to provide a safe sidewalk option for pedestrians. Currently it is difficult, if not impossible, for persons in certain areas who are physically challenged to access schools, churches, community centers, or other City destinations using existing sidewalks. In addition, the Plan will consider no-car homes integrated throughout the City.

This Plan prioritizes ensuring that pedestrians have access to a consistent safe sidewalk option. This includes completing connections where they're needed and ensuring crosswalks have landings on both sides of the street. Sidewalks are required to have a minimum width of four (4) feet to allow a wheelchair to turn around. ADA compliance will be mandatory in addition to ensuring connectivity.

It is not feasible to address all sidewalk concerns all at once in the City. As such, decision matrices were developed for determining the initial overall priority for constructing new or replacing sidewalks. Those sidewalk locations with **safety concerns, in poor condition**, with gaps, or with no sidewalk are prioritized above other areas. The decision matrices should be reassessed over time to ensure that they are consistent with the community's goals and priorities.

Missing Sidewalks

Each of the prioritization criteria for missing sidewalks were evaluated from 1 (lowest need) to 5 (highest need). Sidewalk locations that provide access to local destinations and high traffic streets were a

consideration in all evaluations; however, supporting safe routes to school and providing access for no-car homes were used as the primary prioritization factors. Prioritization totals were then used to set a ranking score. Overall, prioritization needs ranged from 1 (lowest need) to 5 (highest need) based on the following scale (See Table 3).

Table 3	
Prioritization Total	Prioritization Ranking
0.0-1.9	1
2.0-3.9	2
4.0-5.9	3
6.0-7.9	4
8.0-10.0	5

Each of the prioritization criteria for existing sidewalks were evaluated from 1 (lowest need) to 6 (highest need). Sidewalk locations that provide access to key destinations and access to underserved populations were a consideration in all evaluations; however, non-compliant ADA sidewalk and drive-by visual sidewalk data were used as the primary prioritization factors to support safety. Prioritization totals were then used to set a ranking score. Overall prioritization needs ranged from 1 (lowest need) to 6 (highest need) based on the following scale (See Table 4).

Table 4	
Prioritization Total	Prioritization Ranking
1.5-2.1	1
2.2-2.7	2
2.7-3.2	3
3.3-3.8	4
3.9-4.4	5
4.5-5.0	6

Public participation is largely viewed as a tool intended to facilitate informed decision-making. Public participation may also be used to measure attainable objectives, evaluate potential impacts, and identify lessons learned.

Public participation is not a one-size-fits-all static process. It is a dynamic concept whose elements can differ greatly depending on the scope and needs of a project. Public involvement can become a nightmare if the needs for public involvement are not tailored to the needs of a project.

For this project, a web tool would be constructed to allow the community to show where sidewalks are important to them. They would be able to highlight a single lot, or street, or even a neighborhood. With this information, along with the prioritization ranking and budget; an effective list of streets can be identified for construction.

Conclusion

The City of Belton is going to continue to grow, and it is not feasible to address all sidewalk concerns all at once. The concrete sidewalks, ADA ramps, and curb and gutter are all valuable assets that will accompany growth. There are some sections of the City that do not have sidewalks, or curb and gutter. This Plan prioritizes ensuring that pedestrians have a safe sidewalk option that includes completing sidewalk connections where sidewalks do not exist and maintaining existing sidewalks.