SILOAM SPRINGS STREET/SIDEWALK MAINTENANCE & REPAIR MASTER PLAN

CITY OF Siloam Springs

June 2018

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Executive Summary

The City of Siloam Springs' Public Works Department has developed this street maintenance and repair plan to proactively approach street deterioration in the short-term and improve the integrity of its streets over the long-term. The plan is focused on the principle that preventive and rehabilitative street maintenance is more cost effective than reconstruction. While there are going to be sections of streets that will require reconstruction, the concept is that preventive maintenance is the application of the right treatment on the right street at the right time to save or delay further large expenditures.

There are 114 miles of streets in the City. This plan addresses the condition of each along with a rating matrix. The street ratings range from five being excellent condition, four being good, three being fair, two being critical and one being lost or poor.

This plan also addresses sidewalks. There are approximately 57 miles of sidewalk in the City. They are addressed in this plan as well. For now, the targeted area will be from Dogwood to Hico streets and from Cheri Whitlock to Jefferson Street. This area was assessed in October 2017 by Precision Safe Sidewalks. Due to the number of repairs that are needed in the described area and the cost associated with those repairs, it was decided to focus on this area for the sake of the report. More areas will be added later when more sidewalks are assessed.

Sidewalks are rated low, medium, and high priority. The ratings are based on those provided by our contractor, Precision Safe Sidewalks. Low priority are areas that are passable in a wheelchair and the concrete damage is superficial. Medium priority is defined as a sidewalk that is passable by a wheelchair but with difficulty. The concrete has less than 20 percent damage. High priority is a sidewalk that is impassable or nearly impassable in a wheel chair and the concrete is severely damaged or has sections missing.

The plan is considered a living document. Once adopted, the plan will be reviewed and amended every three years and presented to the City Board of Directors.

Adopted by the City Board of Directors per Resolution 19-18 on July 3, 2018.

Background

In 2015, the City purchased the equipment necessary to provide for milling and overlaying of streets. Major components included a milling machine, paving machine, oil distributor truck, rollers, and a rotary broom. The equipment was to be operated primarily by the Infrastructure Division.

In November 2014, the Infrastructure Division staff began work on the Basin 5 sanitary sewer replacement project. With their focus on the sewer project, there was limited paving work completed during the three-year project period of 2014 to 2017. Exceptions during that time would have been replacing streets that were affected by the sewer project and two new street construction projects; Simon Sager Drive and Broadhurst Drive construction.

Upon completion of the Basin 5 sewer project in November 2017, the Infrastructure staff moved to Kenwood Street between Holly and Carl Streets to finish utility line relocates. The relocated utility lines were necessary to accommodate storm sewer installation and a widened street with new sidewalk and curb and gutter. The Kenwood widening project is the first street project in 2018 that was not a result of a water or sewer line project as in previous years.

Purpose of the Plan

STREETS

The purpose of the maintenance and repair plan is to develop a workable and affordable system of improving the service life of the streets. This plan focuses on the maintenance and repair needs of our streets to ensure long-term sustainability. Day-to-day maintenance activities such as pothole patching, crack sealing, minor curb repairs, and related events are not included as part of this plan. These activities are completed on an as-needed basis and with the possible exception of crack sealing, cannot be planned for the long term.

This plan was built on information gathered by the pavement management assessment that was conducted in 2016 by First Step Pavement Management. The group is a collaborative effort between Ergon Asphalt and Emulsions, Greenberg Farrow Consultants, and the University of Arkansas Technology Transfer Program.

The map in Figure 1, created by First Step Pavement Management, utilizes Google Earth. This provides the ability to view the city holistically or to zoom in on any area of the city. Linked to the map is a video of the street. The video allows staff to “drive” the street and compare live footage with the condition assessment colors on the map. The map has a color code that corresponds to the street condition. The color coding is represented as follows:

Dark Green = Excellent Green = Good Yellow = Fair

Orange = Critical Red = Lost (Poor)

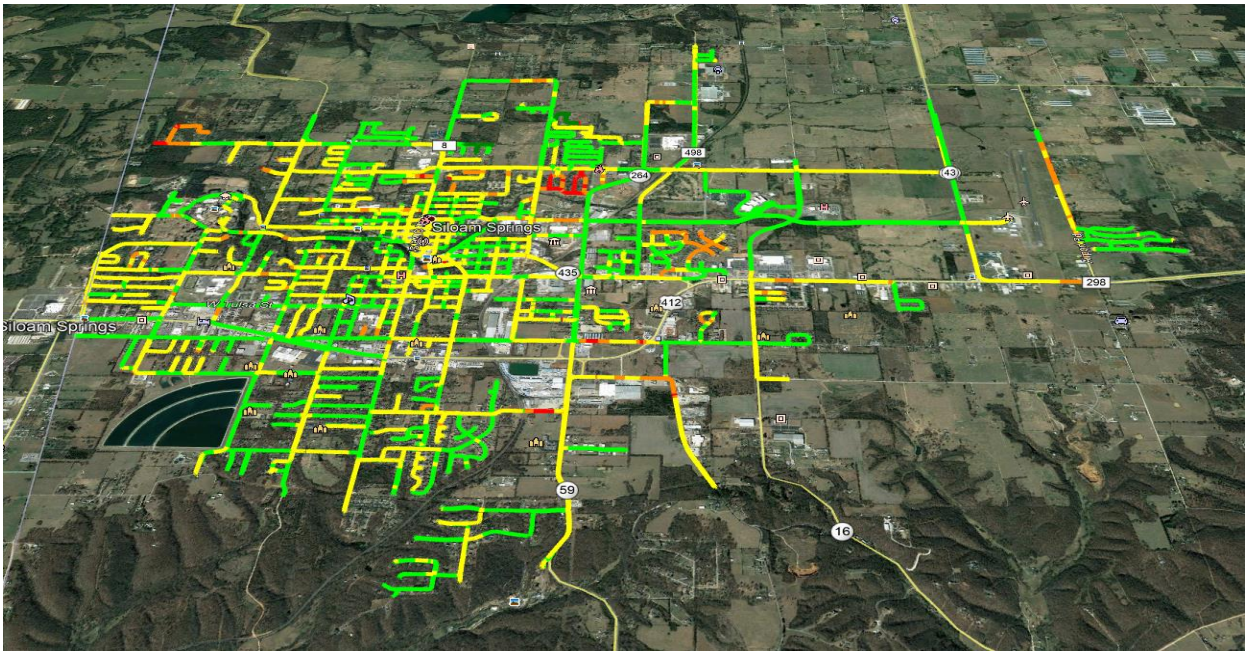

Figure 1

Translating the color coding to a point value, streets are rated as shown in Table 1 below. Included in this table is the rating determination along with treatment measures to restore the street. For example, streets that are classified as fair or good can be treated with a fog seal, scrub seal, or similar treatment that would prolong the life of the street by another three to five years depending on traffic volume. Streets that are classified as critical may require repair or replacement, such as mill and overlay, while those that are classified lost will require a complete rebuild potentially including the subgrade.

Table 1

Surface Rating	Numeric Rating	Visible Distress	Treatment Measures
Excellent	5	None	None due to new construction, recent overlay or seal coat.
Good	4	Some traffic wear. Longitudinal cracking of ¼ to ½" or traverse cracks of ¼".	Crack filling, seal coat to extend life.
Fair	3	Multiple longitudinal or traverse cracks of ½" in wheel path or at the edge of pavement.	Seal coat or thin overlay.
Critical	2	Alligator cracking, moderate rutting, extensive patching.	Mill and overlay.
Lost	1	Severe distress with extensive loss of surface integrity.	Needs total reconstruction.

From the map, the approximate number of miles based on each rating are as follows:

- Excellent = ½ mile
- Good = 44 miles
- Fair = 63 miles
- Critical = 5 miles
- Poor = 1.5 miles

SIDEWALKS

As part of the maintenance and repair plan, sidewalks will be given the same consideration as streets. With the City's plan of creating walkability in the downtown vicinity, the condition of our existing sidewalks needed to be given consideration in terms of walkable safety.

In October 2017, Precision Sidewalks prepared a survey of 16.7 miles of the city's sidewalks. The survey extended from Dogwood to Hico streets and from Cheri Whitlock to Jefferson Streets. The survey identified trip hazards using measurements and photographs of separations. The trip hazards were put in two classifications; those that ranged from 1/4-inch to 3/8-inch and those from ½-inch to 2-inch.

From the survey, the following was identified:

- 695 repairable trip hazards
- 66 high priority replacement locations with average replacement lengths of 25 feet.

- 70 mid-priority replacement locations with average replacement lengths of 17 feet.
- 75 low-priority replacement locations with average replacement lengths of 12 feet.

The 695 repairable trip hazards listed above can be repaired by Precision Safe Sidewalks. The City has utilized their services previously to repair sidewalk on Tulsa from Holly to Mt. Olive and on Mt. Olive from Hwy. 412 to Twin Springs. The process is similar to having wood planed. Offsets in the sidewalk panels are planed smooth, removing the trip hazard without creating dust as grinding tends to do.

The survey also identified sidewalk replacement locations. Sidewalks conditions were ranked as high, mid, and low priority. Each condition is defined in Table 2 below.

Table 2

Ranking	Condition Description
High Priority	Areas impassable or nearly impassable in a wheelchair.
Mid-Priority	Areas passable in a wheelchair but with difficulty.
Low Priority	Areas passable in a wheelchair. The concrete may have superficial damage, but the integrity of the concrete is not compromised.

New sidewalks will be installed in accordance with the matrix developed in the Sidewalk and Trail Connectivity Master Plan that was adopted per Resolution No. 06-17.

Cost of Maintenance

STREETS

The 2018 budget focuses primarily on capital improvements when it comes to the maintenance of streets. While there is a non-capital budget line item for street repairs, the line item is funds smaller repairs over the entire street network. In 2018, this amounts to $20,000 earmarked for street repairs.

More than half of the non-capital budgeted funds for street repairs are spent on crack sealing tar material and pothole mix. As of March 2018, $5,000 has been spent on crack sealing material. Streets that have been crack sealed include Main Street from Maxwell to Highway 412, Hico from Cheri Whitlock to Tahlequah, and Ashley from Hico to Lincoln. Plans are to crack seal Benton Street from Mt. Olive to Dogwood before the weather warms up. Crack sealing is more effective when the weather is cold because the cracks are at their widest.

Approximately $9,000 will be spent in 2018 on the on-going repair of potholes. This is based on the average over the past five years.

Capital improvement projects slated for 2018 are the Kenwood widening project and a pavement overlay on Elgin from Carl to Wright Streets. The Kenwood widening project is currently

underway. Utility relocates have been completed and storm sewer is being installed. Projected completion is around Memorial Day. The Elgin overlay project is expected to begin in June, once school is out. Table 3 shows these and other capital projects through 2020.

The downtown improvements shown in Table 3 for 2018 has a length and cost estimate listed as TBD, or to be determined. This is because the fog seal is included in the total cost for the downtown improvements (bump outs, striping, and other improvements). As it stands, the pavement left after the work is complete will be fog sealed. The amount of remaining pavement is not yet known.

Table 3

2018

Rating	Improvement Type	Project Name	Length (ft.)	New Rating	Cost Estimate
4	Rebuild	Kenwood Widening	2,650	5	$1,236,900
2,3	Overlay	Elgin (Carl to Wright)	2,665	5	$181,000
3	Fog Seal	Downtown Improvements	87,750 Square Feet	4	$11,605

2019

3	Overlay	University (west of Holly)	2,885	5	$107,100
1	Rebuild	Lake Francis (R/R to HWY 59)	900	5	$706,900
3	Fog Seal	Jefferson (Mt Olive to E. Main)	3,800	4	$4,178
3	Fog Seal	East Main (Maxwell to 412)	6,380	4	$28,321

2020

1,2	Rebuild	Kenwood (Lincoln to HWY 412)	1,600	5	$1,213,600
2,3,4	Overlay	Tahlequah (Washington to Country Club)	2,350	5	$65,000
3	Fog Seal	Benton (Dogwood to Broadway)	4,100	4	$4,500
3	Fog Seal	Twin Springs (Mt. Olive to Carl)	2,590	4	$2,900

From Table 3, the first two projects in 2019 are capital improvement projects that are being planned in the long-range budget. The cost of the overlay project on University, west of Holly, also includes the installation of metal corrugated panels along the cemetery to stop the intrusion of roots from the pine trees that are causing the pavement to lift. Lake Francis Drive from the

railroad tracks to Lincoln will be a complete rebuild. This will involve pavement removal, subgrade rebuild, pavement replacement, a side pedestrian/bike path and storm drain improvements. Lake Francis Drive has a rating of one on the map in Figure 1. Other streets that have one ratings are being planned but are not shown through 2020. For example, Villa View at the State line is scheduled for replacement in 2021. The work would tentatively extend from the City limits to Sycamore Heights.

Another similar area in distress is on Sager Creek Drive from Hico to Lincoln along with all the connecting streets in the subdivision that lead north to Cheri Whitlock. This area is under consideration and will likely be completed in phases, as the streets are concrete. Paving over concrete will allow the cracks to find their way up through the asphalt, so removing the concrete will be required. The streets may also require subgrade work since they have cracked so badly.

Orchard Hill is another concrete street with a one rating. Its placement on the schedule is uncertain at this time. The primary reason is street replacement projects are costly. They need to be staggered in priority placement to allow other streets that can be sealed in some fashion to get attention in the years that a major replacement project is not scheduled.

In 2020, the big project would be a rebuild of Kenwood Street from Lincoln to Highway 412. These improvements will be similar to Lake Francis Drive with pavement removal, subgrade rebuild, and pavement replacement. The small bridge on Kenwood near Highway 412 was replaced in 2017, so it will not need any attention.

Additional plans for 2019 and 2020 include fog sealing. A fog seal is an asphalt emulsion that restores flexibility to aged pavement. As a basis for comparison, fog seals are common in parking lots. It will be utilized on pavement with a rating of three or four and will increase the rating by one point for three to five years depending on traffic volume.

SIDEWALKS

Sidewalk repair is essentially the same as street repair in that more funds will need to be designated in the 2019 budget to repair the existing infrastructure. In 2018, there is $35,000 for sidewalk repairs. So far in 2018 there has been a sidewalk repair at the corner of Tulsa and Mt. Olive to repair damage caused by a water main break. New sidewalks thus far in 2018 include Maxwell Street downtown and Lake Francis Drive from Mt. Olive to Eliana Chacon Memorial Park.

In their survey report, Precision Sidewalks proposed two options to repair the trip hazards:

- Option A was to remove all 695 trip hazards at a cost of $43,380.
- Option B was to remove the 269 trip hazards that ranged from ½-inch to 2-inch at a cost of $24,650.

The survey was completed in October 2017 after the 2018 budget was complete. Therefore, we will investigate the possibility of having the most critical trip hazards, Option B, repaired by Precision Sidewalks with the $35,000 in the sidewalk repair line item and budget the remaining repairs in 2019.

Capital spending on sidewalks will target primarily those that are called out in the sidewalk master plan. Some capital expense will need to be budgeted for repairs each year, as simply increasing the street repair line item will not sufficiently address needed repairs.

Overall plan updates will include any changes in sidewalks, whether it is new sidewalk, repair or replacement of existing sidewalk, or sidewalk assessment in various sections of the city. Once enough sidewalk work is completed, whether new or repair, a table will be added to this document to track progress. Additionally, new sidewalks will be added to the table for the same three-year period as streets based on the sidewalk master plan once sidewalk capital projects are confirmed.