

STREETS and DRAINAGE

MISSION STATEMENT:

The mission of the Streets and Drainage Department is to maintain high-quality public transportation and drainage infrastructure to enhance safety and provide effective traffic circulation.

CORE FUNCTIONS:

- 1) **Street repairs and maintenance** - Provide quality maintenance for streets, sidewalks and alleys
- 2) **Drainage channels** - Clean and maintain creeks and channels
- 3) **Signs, signals and markings** - Install and maintain traffic signs, signals and markings

2016 - 2017 WORK PLAN

CORE FUNCTION: #1 Street repairs and maintenance

Action:

- Continue to work with Dallas County to overlay streets
- Repair potholes
- Repair streets due to utility cuts
- Install permanent street patches
- Provide American Disabilities Act (ADA) compliant barrier-free ramps
- Crack seal streets, as necessary, and maintain 310 miles of streets and 133 miles of storm sewer
- Maintain streets and alleys in a clean and safe condition
- Inclement weather response

CORE FUNCTION: #1 Street repairs and maintenance...Continued

Activity Measurement:

- Overlay (a minimum of) \$250,000 worth of asphalt streets annually
- Fill potholes within two business days of notification
- Repair utility cuts within two business days of notification
- Complete approximately 100 permanent patch repairs annually
- Inspect barrier-free sidewalk ramps for compliance with ADA monthly
- Respond to requests of clearing of debris from streets, sidewalks and alleys ways within two hours
- Deploy sanding operations within 1 hour of ice storm events

Meets City Council's Premier Statements:

Cedar Hill is Safe.

Cedar Hill is Clean.

CORE FUNCTION: #2 Drainage channels

Action:

- Maintain creeks and channels to ensure flow of storm water
- Inspect creeks and channels for debris
- Use outside sources and equipment, when available, to clean difficult conditions

Activity Measurement:

- Arrive at emergencies and initiate repairs within 45 minutes of initial report
- Complete non-emergency drainage requests within 90 days of notification
- Inspect all potentially hazardous creeks and channels twice a year

Meets City Council's Premier Statements:

Cedar Hill is Clean.

Cedar Hill has Excellent, Safe and Efficient Infrastructure.

CORE FUNCTION: #3 Signs, signals and markings

Action:

- Install and maintain traffic signs, signals and markings
- Perform an inventory of signage within the right-of-way
- Inspect and maintain signs and markings for clarity and appearance, includes graffiti removal or replacement of vandalized signs
- Emergency response to signal outages

Activity Measurement:

- Install signs, signals and markings within 72 hours of receiving work order
- Reinstall damaged Stop sign(s) within four hours of notification
- Inspect and inventory signs, signals and markings annually
- Respond to graffiti clean-up requests within one day of notification
- Initiate installation of temporary signs during signal outages within one hour of notification

Meets City Council's Premier Statements:

Cedar Hill is Safe.

Cedar Hill has Excellent, Safe and Efficient Infrastructure.

SUMMARY - STREETS & DRAINAGE

EXPENDITURES	ACTUAL FY 14	ACTUAL FY 15	BUDGET FY 16	EST. FY 16	FISCAL YEAR 2016-2017		
					CONTINUED	GROWTH	PROPOSED
Personnel	\$ 827,346	\$ 781,943	\$ 863,575	\$ 867,332	\$ 895,112	\$	\$ 895,112
Supplies	49,918	34,990	62,500	26,754	53,500	\$	53,500
Maintenance	202,060	262,380	229,000	212,741	232,200	\$	232,200
Services	66,194	60,328	72,745	64,804	83,440	\$	83,440
Utilities	646,331	535,327	517,210	575,351	576,775	\$	576,775
Lease/Rentals	22,738	23,760	42,060	30,824	63,428	\$	63,428
Miscellaneous	10,751	11,240	11,010	8,963	11,009	\$	11,009
TOTAL Dept. Budget	\$ 1,825,338	\$ 1,709,968	\$ 1,798,100	\$ 1,786,769	\$ 1,915,464	\$	\$ 1,915,464
STAFFING	ACTUAL FY 14	ACTUAL FY 15	BUDGET FY 16	EST. FY 16	FISCAL YEAR 2016-2017		
					CONTINUED	GROWTH	PROPOSED
Street Maintenance Supervisor	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Signs & Signals Coordinator	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Crew Chief (Maintenance)	3.00	3.00	3.00	3.00	3.00	0.00	3.00
Crew Chief (Drainage)	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Street Maintenance Worker	8.25	8.25	8.40	8.40	8.40	0.00	8.40
TOTAL Department Staff	14.25	14.25	14.40	14.40	14.40	0.00	14.40
REPLACEMENT VEHICLES & EQUIPMENT:					ACTUAL COST	LEASE COST	FUNDED
Bucket Truck					\$ 65,000	\$ 12,095	Yes
Dump Truck					\$ 120,000	\$ 19,565	Yes
Vibratory Roller (with trailer)					\$ 52,500	\$ 8,560	Yes
Trailer					\$ 17,500	\$ 2,855	Yes
PROGRAMS:					PRIORITY	COST	FUNDED
Signs and Signals Workers (2)					1	\$ 100,915	No
Motor Grader					2	\$ 21,610	No
Pavement Management Analysis					3	\$ 100,000	Yes*

*This Program is Recommended via One-Time Funds.

PROGRAM DESCRIPTIONS

Program One (1): Two Signs/Signals Workers (2)

PROGRAM COST: \$100,915

Tax Rate Impact: \$0.0032

Included in City Manager's Budget: No

PROGRAM DESCRIPTION:

As the City grows, the number of traffic signs, signals, and markings increase. As the number of traffic signs and signals increase, the responsibility associated with their safe operation and maintenance is increased. There are licensing requirements and liability issues related to the proper maintenance of records as well as the actual operation of these traffic signs, signals, and markings.

Currently, the Signs and Signals Section of the Streets Division has one Coordinator and one signs and signals maintenance worker assigned to this work. The City currently maintains an inventory of approximately 8,000 signs, 14 signalized intersections and 33 school zone flashers. Further, the crew has to update approximately 3,000 street name markers and update the sign posts to current standards. This work requires approximately 4,500 man hours. They also maintain all the markings, such as crosswalks, stop bars, and lane markings, throughout the city and manufacture all signs that are used within the city. Traffic studies are also conducted that include warrant studies for traffic control devices such as; speed limit signs, stop signs, and traffic signals. Also, studies are performed for traffic volume. These newly created positions will also provide adequate enumeration for the responsibilities that are intrinsic to such position.

- Sign Shop (fabricating signs)
- Installation of regulatory signs which are faded
- Install markings (striping, stop bars, buttons, etc.)
- Update street signs (larger fonts)
- Will be approaching a population of 50,000 and will be taking over all signal lights which are currently being maintained by TxDOT (almost doable).
- Install banners (very short notice)

A thirteen City survey was performed to inquire number of personnel and crew sizes, please refer to table on next page:

CITY	PERSONNEL	# CREWS	# PEOPLE PER CREW
BEDFORD	1 (Currently hiring 1)	1	1
COPPELL	7	2	4/3
DESOTO	2	1	2
DUNCANVILLE	4	1	3
EULESS	2.5 (1 Supervisor, 1 Staff and .5 borrowed)	1	1 Traffic Technician (.5 - staff borrowed from Street Department, as needed)
GRAND PRAIRIE	Signals-9 (including Supervisor) Signs-10 (including Supervisor)	Signals-3 Signs-2	Signals-3/3/2 Signs-4
GRAPEVINE	8	4	2
KELLER	1	1	1
LANCASTER	1	1	1
MANSFIELD	3 (1 Supervisor, 1 Signal Technician and 1 Sign Technician)	1	3
ROWLETT	2	2	1 - Sign & 1 Signal
CEDAR HILL	2	1	2
AVERAGE	4.3	2	2

Benefits if approved:

- ✓ Increased level of response to signs/signal repair,
- ✓ Provide for increase in maintenance of pavement markings
- ✓ Increase in sign manufacturing.
- ✓ Public safety would be increased.

A one ton crew service vehicle would be needed as a sign/marking vehicle for this crew. Cost is \$35,000.

If this program is not funded,

The City cannot keep pace with the existing inventory and future growth. Additionally, as the City's population increases past 50,000, it is expected that the City will become responsible for the installation and maintenance of traffic signals on State highways.

This program would accommodate the City Council's Premier Statements with respect to Cedar Hill having an "Excellent, Safe, and Efficient Infrastructure."

Program Two (2): Motor Grader

PROGRAM COST: \$21,610

Tax Rate Impact: \$0.0007

Included in City Manager's Budget: No

PROGRAM DESCRIPTION:

This program would provide funding to allow the City to purchase a motor grader with a 10-foot moldboard. This equipment is essential to provide asphalt street repairs resulting in a smoother ride surface, faster and better quality shoulder maintenance, provide for various types of barrow ditch repair, and for snow/sleet removal other than what is possible with equipment that the City currently possesses. When we order the grader, sometimes it takes anywhere from two weeks to a month to receive it, thus delaying completion of projects.

The motor grader is currently being rented for an average of two months, which is what the current budget allows. Total costs for rental and labor savings for this time frame is \$25,680. Program cost is \$21,610 per year. The difference is \$4,070 in savings per year in buying versus renting, just for two months rental. If the equipment is acquired, we would be able to use the grader on a more regular basis, thus allowing for even greater cost savings.



Benefits if approved:

- ✓ Large street repairs will be completed more timely and surface will have a smoother ride,
- ✓ Shoulders and drainage ditches along non-curbed roadways could be better maintained and better graded,
- ✓ Can turn a two or three day job into a one day job saving labor and equipment hours.
- ✓ Safety of employees and citizens
- ✓ Savings on renting equipment- approximately \$4,200/month in rental fees
- ✓ less labor time-approximately 30% which would be approximately \$8,640 in saved labor costs for one month
- ✓ Removal of snow/sleet off critical roadways – allowing for quicker/safer reopening of roadways to thru traffic

If this program is not funded,

The Department will continue to approach maintenance in the same historic manner, which will result in a less optimum ride for traffic. Also, without this equipment, the quality and quantity of road repairs, shoulder maintenance, and ditch work being completed will occur over longer periods of time.

This program would accommodate the City Council's Premier Statements with respect to Cedar Hill having an "Excellent, Safe, and Efficient Infrastructure."

Finance Department's Comments:

This program is eligible for the Equipment Lease Fund. The budgeted cost of the motor grader is \$160,000 with a lease cost of \$21,610 for 15 years.

Program Three (3): Pavement Management Analysis

PROGRAM COST: \$100,000

INCLUDED IN City Manager's Budget: Yes (One Time Funds)

PROGRAM DESCRIPTION:

The outcome of the Analysis will provide staff with a prioritized list of existing roadways based on the condition of the roadway in terms of failure and riding surface. This list will allow staff to target the streets with the worst conditions.

In order to come up with a prioritized list, the first step is to have an inventory of the different physical characteristics of the roadways which are maintained by the City. This pavement condition inventory will be conducted by mobilizing a Mobile Asset Collection (MAC) vehicle equipped with scan cameras and laser illumination beams which will capture Right-of-Way (ROW) images. The ROW images will be used to assess conditions for rating on other above-ground infrastructures such as roadway signs.

The pavement distress rating process will take place concurrently with ROW image collection which will allow the evaluation of the existing pavement condition per ASTM M6433 concrete and asphalt pavement distress rating process including alligator cracking, longitudinal cracking, transverse cracking, raveling, flushing and patching. Subsequently, the Overall Condition Index (OCI) will be calculated, and a 5-year pavement rehab/resurfacing/repairs program will be prepared based on the City's pavement condition evaluation. Also, signs will be inventoried and rated for type, offset from ROW, and condition. Afterwards, a Final Pavement Condition Index Report and pavement preservation plan will be delivered to the City for the project including: executive summary, project methodology, pavement and roadway sign data, street segment OCI, annual pavement maintenance program with recommendations for improvement, repair and treatment types and development of unit cost estimates, budget deferral analysis with goals and priorities and guidelines for selecting treatments with ranking criteria, exhibits showing OCI and street segment length, lanes and pavement type, exhibits illustrating streets to be maintained based on annual budget and maintenance activity.

Benefits if approved:

- ✓ Will provide Citywide grading of streets based on industry standards
- ✓ Will provide accurate inventory of all signs within the right of way to better manage sign management and replacement.
- ✓ Will be able to integrate street condition and sign inventory into work order system which will provide accurate asset management so that roadways and signs can be prioritized for repair/replacement.

If this program is not funded:

The basis on which selection of the roadways for rehab work will be complaints and best information available at the time, as opposed to having a good knowledge of the condition of roadways citywide.

This Program meets City Council's Premier Statement:

- ✓ Cedar Hill has Excellent, Safe and Efficient Infrastructure.

STREETS & DRAINAGE

CURRENT VEHICLES & EQUIPMENT:

ITEM	X IF ITEM IS UNRELIABLE	YEAR	MILEAGE	DESCRIPTION OF REPLACEMENT ITEM	ESTIMATED COST	LIFE	CM APPROVED
Vehicles:							
Ford Dump Truck		2012	23,000				
Ford 1 ton utility dually GAS		2011	50,500				
F-350 (# 810)		2008	73,700				
F-800 Dump Truck		2008	48,500				
F-350 (# 804)		2007	82,650				
F-450 Bucket Truck	X	2006	130,000	Bucket Truck	\$65,000	8 Years	Yes
Chevrolet 3/4 crew 4x4(# 806)		2015	19,800				
Sterling 12 yard Dump Truck	X	2003	87,700	12 Yard (Dump Truck)	\$120,000	10 Years	Yes
Chevrolet 2016 D/C 4x4		2016	300				
Ford 1/2 Ton 4x4		2001	80,000				
Equipment:							
Warren Sandspreader 8yard		2012					
John Deere Backhoe		2012	800 Hours				
Wanco Message Boards (2)		2011					
John Deere 410 Backhoe		2010	2,025 Hours				
Husquvarna Concrete Saw		2008	300 Hours				
CAT Skidsteer Loader		2006	2,625 Hours				
Quickie Saw		2005					
Striping Machine		2014					
Equipment Trailer		2004					
9 Foot Cubic Concrete Mixer		2004					
Quickie Saw		2004					
Arrow Boards (2)		2004					
Vibrating Roller	X	2003	560 Hours	Steel VibratoryRoller	\$45,000	10 Years	Yes
Vibrate Plate Tamper		2002					
Crack Sealing Machine		2000					
Warren Sandspreaders 6 Yard(2)		1997					
Honda Generator		1993					
Trailer 16' (2)		1991					
Trailer 12' (Hauls Roller)	X	1990		12' Trailer	\$7,500	10 Years	Yes
Diamond C equipment trailer	X	1991		21' Trailer	\$17,000	10 Years	Yes

