SEAL / RESEAL PAVEMENT CRACKS & JOINTS
Specification

To extend pavement life, crack and joint sealants must be placed or replaced periodically. Correct sealant application and maintenance minimizes infiltration of surface water and incompressible materials. Manufacturer's instructions for installation will be followed at all times.

MATERIALS

All random cracks, transverse / longitudinal saw joints and expansion joints will be sealed with Dow Corning Sealant 890 SL, Tremco Spectrum 900 SL or approved equal designed for sealing concrete pavements. A self-leveling silicone product is recommended for all horizontal surfaces. Sealant will be gray in color. Bidders will be required to submit the silicone brand and blend they intend to use on the job if different than listed above in their bid documents. Appropriate Backer Rod will need to be installed in joints. Zip Stripe / Redwood / Black Board at joints, will need to be pulled / removed, prior to backer rod and sealant installation.

Curbs - random cracks in curbs, transverse saw joints and expansion joints in curbs will also be sealed.

Cold joints of asphalt pavement to concrete pavement will be sealed with the silicone product approved by the manufacturer for that purpose.

UNSEALED

Unsealed random cracks, saw joints either transverse or longitudinal, and expansion joints will be prepared for sealant by sawing with a diamond saw blade. Flail type routers will not be allowed.

PREVIOUSLY SEALED

Resealing consists of five steps:

1. Removing old sealant.
2. Shaping the reservoir.
3. Cleaning the reservoir.
4. Installing the backer rod.
5. Installing the sealant.

1. Removing old sealant

Removing the old sealant and cleaning the joint faces are required steps. The following processes are approved for use in Coppell.

- **Manual**

- **Sawing** Sawing with diamond blades.
- **Plowing** Plowing can be used for removal of most of the old sealant.
- **Cutting** A worker may run a knife blade along the face of the joint.

Note: All debris and old sealant will be collected and removed from the pavement prior to the opening of the affected lanes of traffic. All debris and sealant will be disposed of properly in accordance to any and all applicable local, state, and federal laws & regulations. All methods require cleaning the joint faces prior to installing new sealant.

2. Shaping the reservoir

The contractor will be responsible for insuring that the proper depth of the reservoir is determined and applied to the various conditions that may be encountered to help prevent and insure the proper sealant depth to width ratio per the manufacturer's specifications

Shaping may be unnecessary if the sealant was removed by hand and the existing reservoir provides adequate dimensions. Sawing out the old sealant typically provides an adequate reservoir.

Some minor spalling along the joint face will not inhibit performance of most sealants. However, some patching may be needed for larger spalls. A city representative will need to be contacted concerning locations encountered requiring repair.

Resealing pavements containing plastic, redwood, or metal joint inserts require first removing the insert. Afterward, sawing provides smooth vertical faces for the new sealant.

3. Cleaning the reservoir

Reservoir faces require a thorough cleaning to ensure good sealant adhesion and long-term performance. No dust, dirt, or visible traces of old sealant will remain on the joint faces after cleaning.

No chemical solvents will be used to clean the joint reservoir.

Proper cleaning requires mechanical action to remove any contaminants. Use the following procedures:

1. As soon as practical after sawing, the slurry and/or saw dust will be removed via manual or mechanical means from the pavement prior to being opened to traffic and disposed of in accordance to any and all applicable local, state, and federal laws and regulations.
2. After the joint has dried sufficiently, sandblast the joint to remove any remaining residue. Do not sandblast straight into the joint. Hold the sandblast nozzle close to the surface at an angle to clean the top inch of the joint face. One pass along each reservoir face provides texture to improve sealant adhesion.
3. To ensure that the sealant enters a clean reservoir, air blast the joint and pavement surface to remove sand, dirt, and dust just before pumping the sealant. Make sure the air compressor does not introduce oil into the lines because this will contaminate the joint faces. The compressor should deliver air at a minimum of 120 cubic feet per minute and develop at least 90 psi nozzle pressure. Use a vacuum sweeper and hand brooms to keep the surrounding pavement clean.

Note: As much as is practical, traffic and/or neighboring property both public and private shall be shielded from excessive dust, any spray, and/or all flying debris. Windy conditions could warrant a delay to protect the public from these conditions.

4. Installing backer rods

Backer rod is required for all transverse / longitudinal saw joints and expansion joints. The use of backer rod in random cracks is not necessary but may be useful to reduce the quantity of sealant applied.

Install backer rods after cleaning the joint but before installing the liquid sealant. The backer rod must be compatible with the liquid sealant and have a diameter about 25% greater than the reservoir width. Backer rods will be placed with a double-wheeled, steel roller or similar tool that will force backer rod into the joint uniformly to the required depth. Slightly faulted joints may require a single-wheel roller. Ensuring that the backer rod is at the proper depth cannot be overemphasized. The insertion wheel will be rolled over the backer rod twice to help insure proper depth is obtained.

Installation of backer rod where necessary will be deemed as subsidiary to joint sealant pay item. No separate pay item for backer rod installation.

5. Installing the sealant

Silicone Sealant

Before installing the sealant, check for dirt and dust on the reservoir walls. If traces of contamination are found, the joint will need to be cleaned again.

Sealant is to be installed per manufacturer's written instructions.

The reservoir walls ***must be dry*** before installing any liquid sealant.

The sealant will be recessed at least ¼ to 3/8 inch below the surface of the pavement.

Vertical faces (including curbs) require **Non-Sag Silicone Sealant** rather than self-leveling.

The same brand of sealant will be used to repair damaged sections, replace defective seal or in locations where sealant is tested.

Any seal may be examined after installation. A knife blade may be pushed down along the joint face to check for sealant adhesion. A loose, effortless penetration indicates adhesion loss, while good adhesion provides resistance. Sections failing this test will require replacement.

Final testing of silicone sealant curing will and can only be completed after 14 to 21 days.

A 2-inch-long sample of sealant may be removed for testing. The segment will be stretched about 50% for about 10 seconds before releasing it. A fairly fast and uniform relaxation of the sample indicates adequate curing. Slow rebound and curling of the sample indicates differential curing. The curl results from the upper (cured) seal retracting faster than the lower (less cured) portion. Sections failing this test will require replacement.

General

Measurement
These Items will be measured by the linear foot by types listed in the bid document. Additional measurements or calculations will be made if adjustments are required.

Payment
The work performed and materials furnished will be paid for at the unit price bid for "Crack and Joint Sealing/Resealing" or of the types specified. This price is full compensation for all items necessary for a turn-key project, not to exceed.

Hours of Operation
The work performed during the day is restricted to between the hours of 9 AM until 4 PM. At no time will any lane of a thoroughfare be obstructed or restricted except during these hours. Nighttime work will be an option for portions of major thoroughfares where activities will not adversely affect residents. 48 hours of notice of intent to perform nighttime work is required. Holiday work will not be permitted. Weekend work may be permitted with prior authorization. Contractor will be responsible for inspector's overtime pay at a rate of $54.00/hour for weekend work.

Completion of Work
Work shall commence within 10 days of Notice to Proceed. Notice to Proceed will be issued at a time that is agreeable to both the contractor and the City of Coppell. All work must be completed within the specified calendar days of the Notice to Proceed.

Safety
The contractor will be required to submit general work zone plans based on the Texas Manual on Uniform Traffic Control Devices for each type of zone activity anticipated. The contractor shall also be responsible to supply and deploy the devices identified in a manner consistent with those plans. A message board will be required for each cardinal direction of the activity on major thoroughfares. The message board will be deployed 3 days before the activity is to occur for the cardinal direction affected, with the date(s), times, activity, and information specific to what the motorist may encounter. Arrow boards will be utilized for lane closures.

All vehicles within a work zone shall be equipped with and utilize conspicuous hazard lighting that rotates or strobes during use in addition to standard hazard lights. All contractor vehicles shall be conspicuously marked with company name and contact information.

The City reserves the right to reject any safety device that is deemed to be ineffective or otherwise in such a condition that it doesn't serve the purpose intended. Replacement of the device should be as soon as practical unless it is a personal safety device in which case the person affected should not continue to work until the device has been replaced or repaired as the situation dictates.

Barricading will be deemed subsidiary to joint sealant pay item. No separate pay item for barricading.

Environment
The City has a commitment to preserving the environment. All debris from this work activity shall be collected and disposed of in accordance with federal, state, and local laws and regulations.

The contractor shall prevent debris from entering storm drain systems.

Dispersal of dust and debris should be minimized through frequent clean up, vacuuming, and/or other dust control measures.

Equipment

Furnish and maintain vehicles and equipment in good working condition.

Use moisture and oil traps in air compression equipment to remove all contaminants from the blasting air and prevent the deposition of moisture, oil, or other contaminants in the cracks, joints, or on the surrounding roadway surface.

Chronic leaks of oils, fuels or other fluids typical of vehicles and equipment will not be tolerated.

The contractor will be required to provide a two (2) year bond on all work performed.

Location:

This project will begin after **October 1st of 2017/2018 Fiscal Year**. Sealing will begin on E. Sandy Lake Rd. at Eastern City Limit, progressing west to MacArthur Blvd. completing all westbound lanes. Once this section is complete, the work will progress east to eastern city limit completing all eastbound lanes. Any remaining funds in this contract or subsequent renewals will be used in other areas of town including E. Sandy Lake Rd. from MacArthur Blvd. to Denton Tap Rd., N. Coppell Rd. and other major thoroughfares.

Crack and Joint Sealing/Resealing

Item No.	Description	Bid Price Per LF
1	Random Cracks Sealed or Re-Sealed on Concrete Streets	
2	Redwood Expansion Joints Sealed or Re-Sealed on Concrete Streets	
3	Construction (Saw) Joints Sealed or Re-Sealed on Concrete Streets	

Total payments for this contract shall not exceed $100,000.00. Sealing shall progress up until the time the maximum distance for the combined sealed cracks and joints reaches as near as practical to the total value of the contract. The contractor will be responsible for determining the point at which further work will exceed the maximum allowed for this contract.