



2020 Street Maintenance Plan

City of Helotes Public Works
Department

Activity	Impact	Unit
JT/Crack Seal	5	%
Mastic Surface Treatment	60	%
Micro Surfacing/HA5	85	%
Mill/ Overlay	100	Absolute
One Course surface Treatment	85	Absolute
Overlay Chip Seal	95	Absolute

Pavement Condition Index

- **Pavement Condition Index (PCI)**- a numerical index between 0 and 100 which is used to indicate the general condition of a street or pavement segment.
- **Activity**- Road maintenance option programmed into Cartegraph.
- **Impact Amount**- The amount of impact on the each Activity has on the PCI.
- **Unit**- There are two different units of impact that affect the PCI.
 - 1. Percentage: Percentage of increase on current PCI of the Asset.
 - 2. Absolute: Exact PCI point score for the Asset.

Condition Category Ride Quality

Activity	Impact	Unit
JT/Crack Seal	1	%
Mastic Surface Treatment	60	%
Micro Surfacing/HA5	100	Absolute
Mill/ Overlay	100	Absolute
One Course surface Treatment	100	Absolute
Overlay Chip Seal	100	Absolute

- **Ride Quality-** Score from Zero to One Hundred on smoothness of ride for the street.
- **Activity-** Road maintenance option programmed into Cartegraph.
- **Impact Amount-** The amount of impact on the each Activity has on the PCI.
- **Unit-** There are two different units of impact that affect the PCI.
 - 1. Percentage: Percentage of increase on current PCI of the Asset.
 - 2. Absolute: Exact PCI point score for the Asset.

Overall Condition Index (OCI)

Asset Estimated OCI Calculations:

- The estimated OCI for an asset is calculated by taking into account the asset's age, predicted performance, and inspections and tasks performed on the asset. Using this data, the estimated OCI for the asset is determined.



Preferred Technologies for Street Maintenance- Crack Seal

Benefits of Crack Sealing:

- Asphalt crack sealing is an extremely economical and effective way that can help to extend the life of your pavement and save the cost of early replacement.
- Asphalt crack sealing main objective is to make the asphalt water tight. When water seeps into the base of your asphalt, it leads to pavement deterioration or failure. These cracks are the beginning of potential potholes that leads unnecessary expensive repairs.

- Crack treatment, including crack sealing, crack filling, and crack repair, is one of the most common maintenance activities performed on pavements.
- Crack sealing is the method of placing material in a crack to create a watertight barrier.
- Sealing cracks in asphalt pavements have long been regarded as an annual preventive maintenance procedure.



The purpose of applying a One Course Surface Treatment is to extend pavement life and arrest or retard deterioration and progressive failures.

Preferred Technologies for Street Maintenance - One Course Surface Treatment

- A one- course surface treatment is constructed by spraying asphalt binder on the primed base surface followed by spreading aggregates (rocks). The aggregate layer is then rolled, typically using a pneumatic roller, to seat the rock in the asphalt.
- The average life of a seal coat or surface treatment is about six to eight years.



FEATURES AND BENEFITS:

Speed to Open – Returns traffic to roadway within 1 hour (weather dependent)

Friction – Will maintain existing pavement frictional characteristics

Long Service Life – Typical service life expectancy is 3-5 years

Dark Color – Resists UV damage to maintain its' dark color for the life of the product

Preferred Technologies for Street Maintenance-Onyx

- Onyx® is a “Mastic Surface Treatment”. Onyx®, through quality control and quality assurance, yields excellent frictional characteristics achieved from improving micro-texture by locking down loose aggregate and eliminating dust associated with Chip Seal Surfaces.
- Onyx®, installed at 0.25-0.30 gallons/square yard, is a mixture of polymer modified asphalt emulsion, quality “fine” aggregate, dark color enhancers, recycled materials and catalysts. Onyx® is designed to protect your investment, minimize the costs of future maintenance treatments and get traffic back on the roadways more quickly.



Preferred Technologies for Street Maintenance- Mill and Overlay

- Mill and Overlay involves grinding up the existing asphalt and base material, removing it, and applying new pavement.
- The major benefits of Mill and Overlay are to reduce surface roughness and address minor deformations, cracking, and irregularities in the pavement surface which results in a much smoother driving surface.
- This type of resurfacing treatment prevents the City from having to perform a full street reconstruction, which can be costly and time-consuming.



Preferred Technologies for Street Maintenance- Chip Seal Overlay

- Combination of Preferred Maintenance Activities.
- Incorporates a Level up procedure followed by a One Course Surface Treatment then sealed with a Mastic Surface Treatment.

Benefits

- Adds Structure
- Adds a new Wearing Surface
- Significantly reduces aggregate loss and polishing
- UV/Oxidation Resistant Finish
- 75% Cheaper than Mill and Overlay



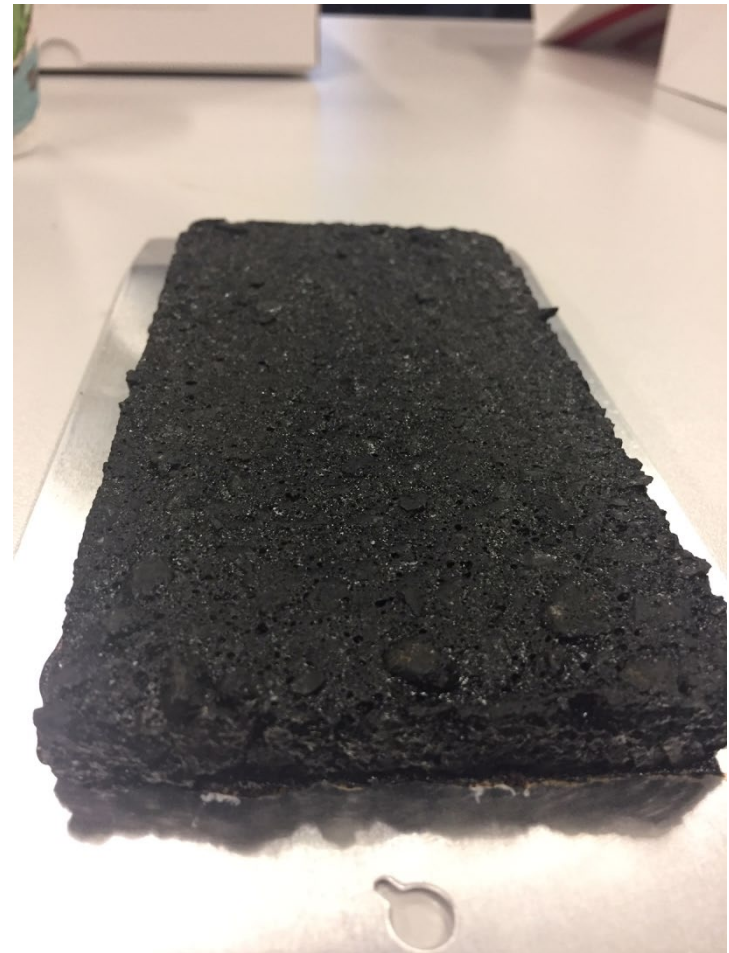
Highly Polymer-Modified (HPM) mixtures can use 7% to 8% polymer to create a more integrated polymer chain network, which improves rutting and fatigue.

New Technologies for Street Maintenance - Micro Surfacing

What is Micro Surfacing?

- Micro surfacing is a highly polymer modified surfacing system that protects asphalt pavements and increases the durability of roads.
- Micro Surfacing offers a greater resistance to damage than other surfacing applications by providing a tougher surface that will minimize the road's vulnerability.
- Micro surfacing is typically used as a preventive maintenance solution for roads in moderately good condition, in order to raise their Pavement Condition Index levels and keep them in good condition longer.
- Micro surfacing – more resistant to cracking and raveling.

Micro-Surfacing





Benefits:

- Significantly extends pavement life
- Lower cost of pavement ownership/management
- No loose aggregate or grainy residue on the surface post installation
- Performance backed by seven year study
- High public approval

New Technologies for Street Maintenance - HA5

- HA5® was developed to meet the demand for effective asphalt preservation on residential roadways without the negative side effects of chip seals or slurry seals. Specifically engineered to preserve the native asphalt binder, HA5 is exceptional at preventing oxidative damage.
- HA5 is a High Density Mineral Bond uniquely emulsified with a near neutral charge that is able to hold a proprietary blend of fine aggregates.

Street Maintenance Protocols

Protocol ID	Protocol Name	Description
21	Asphalt and Chip Seal	Meets standard
14	Asphalt and Chip Seal	Joint / Crack Seal
20	Asphalt	Micro-Surfacing/HA5
9	Asphalt	Mill / Overlay
19	Chip Seal	Mastic Surface Treatment
11	Chip Seal	One Course Surface Treatment
10	Chip Seal	Overlay Chip Seal

2020 Recommended Activities

Street Name	Activity	Total Square Ft	Cost Per Sq. Ft	Estimated Cost
Beverly Hills	Overlay Chip Seal	112,608	\$ 0.60	\$ 67,564.80
Old Scenic Loop	Overlay Chip Seal	38,510	\$ 0.60	\$ 23,106.00
Leslie Road	Mill/Overlay	58,000	\$ 2.59	\$ 150,220.00
Bar X Trail	Mastic	159,395	\$ 0.28	\$ 44,630.60
	Total	368,513		\$ 285,521.40

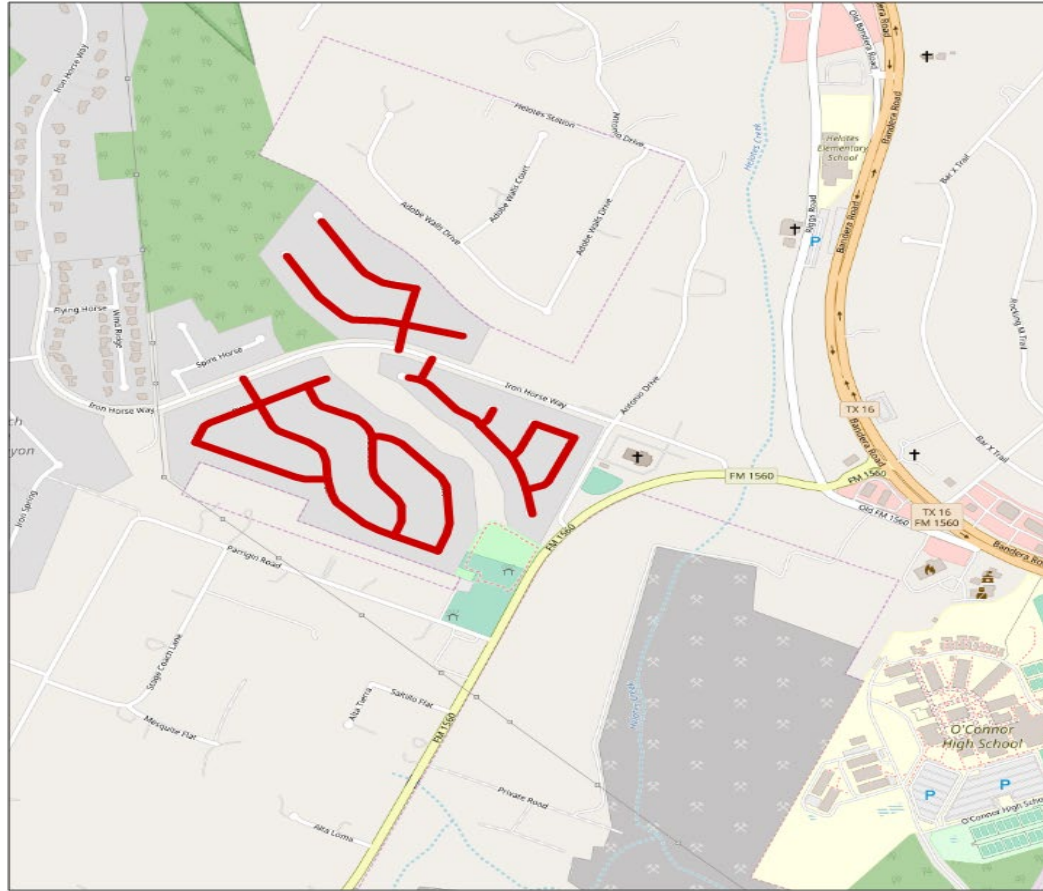
2020 Recommended Activities

Street	Activity	Sq. Ft	Sq. Ft. Cost	Estimated Cost
Bitterroot	HA5	37,076.20	\$ 0.36	\$ 13,347.43
Black Horse	HA5	73,371.55	\$ 0.36	\$ 26,413.76
Canyon River	HA5	48,896.10	\$ 0.36	\$ 17,602.60
Five Brooks	HA5	54,423.60	\$ 0.36	\$ 19,592.50
Rainbow View	HA5	51,052.75	\$ 0.36	\$ 18,378.99
Ashwell	HA5	33,372.50	\$ 0.36	\$ 12,014.10
Wild Heart	HA5	43,592.50	\$ 0.36	\$ 15,693.30
Lost Horse	HA5	6,304.65	\$ 0.36	\$ 2,269.67

2020 Recommended Activities

Street	Activity	Sq. Ft	Sq. Ft. Cost	Estimated Cost
Red Tail	HA5	5,103.12	\$ 0.36	\$ 1,837.12
Mystic Saddle	HA5	38,771.40	\$ 0.36	\$ 13,957.70
Spotted Horse	HA5	18,436.95	\$ 0.36	\$ 6,637.30
Wind Walker	HA5	31,249.40	\$ 0.36	\$ 11,249.78
	Total	441,650.72		\$ 158,994.26

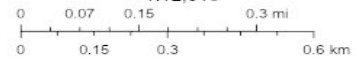
2020 HA5 Map



February 26, 2020

— All Pavement

1:12,915



2020 Recommended Activities

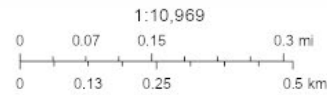
Street	Activity	Sq. Ft	Sq. Ft. Cost	Estimated Cost
Hollow Ridge	Micro-Surfacing	42,475.20	\$ 0.40	\$ 16,990.08
Hunters Break	Micro-Surfacing	25,326	\$ 0.40	\$ 10,130.40
Hunters Oak	Micro-Surfacing	7,123.20	\$ 0.40	\$ 2,849.28
Hunters Path	Micro-Surfacing	24,281.40	\$ 0.40	\$ 9,712.56
Hunters Way	Micro-Surfacing	73,125.60	\$ 0.40	\$ 29,250.24
	Total	172,331.40		\$ 68,932.56

Micro-Surfacing Map



February 26, 2020

— All Pavement



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2020 Recommended Activities Summary

Scenario Detail

- Asset Type: Pavement
- Start Date: 2/21/2020
- Years: 1
- Type: OCI Target
- Activity By: Best Value
- Budget: \$500,000
- OCI Target: 80

Scenario Results

- Streets Included: 22
- Beginning OCI: 76.71
- Ending OCI: 80
- Net OCI Gain: 3.29
- Cost: \$513,448.22

ANY
QUESTIONS?

