



# 2019 Street Maintenance Plan

City Of Helotes Public Works  
Department

Activity	Impact	Unit
Edge Repair (Chip Seal Edge)	3	%
Edge Repair (Cut and Remove Pavement)	3	%
JT/Crack Seal (Poly Mod ASP Emulsion)	5	%
Mastic Surface Treatment	60	%
Mill and Overlay Type D 2 inch	100	Absolute
One Course Surface Treatment	85	%
Overlay 2 inch Type D	85	Absolute
Pavement Patch	15	%
Pothole Repair	5	%
Two Course Surface Treatment	95	%

## 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 three 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.
  - 3. Relative: PCI score increase to the existing Asset Score.

Activity	Impact	Unit
Edge Repair (Chip Seal Edge)	1	%
Edge Repair (Cut and Remove Pavement)	1	%
JT/Crack Seal (Poly Mod ASP Emulsion)	1	%
Mastic Surface Treatment	50	%
Mill and Overlay Type D 2 inch	100	Absolute
One Course Surface Treatment	75	%
Overlay 2 inch Type D	100	Absolute
Pavement Patch	5	%
Pothole Repair	5	%
Two Course Surface Treatment	85	%

## Condition Category Ride Quality

- **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 three 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.
  - 3. Relative: PCI score increase to existing Asset Score.

# 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 - One Course Surface Treatment

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

- 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.



### **Benefits of Crack Routing:**

By routing a working crack to a 1/2" X 1/2" width / depth, a clean reservoir is created to allow the hot rubberized crack sealer to bond properly to the walls of the crack. During the winter months when the cracks are expanding, the reservoir has already taken the place of the expansion and will remain sealed.

## **Preferred Technologies for Street Maintenance- Crack Seal**

- 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.



## 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.





### 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.



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

## 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.

# 2019 Recommended Activities

Street Name	Activity	Total Square Ft	Cost Per Sq Ft	Estimated Cost
Antonio	One Course	210,332	\$ 0.42	\$ 88,339.61
Cash Mountain	One Course/Onyxx	68,185	\$ 0.42	\$ 28,637.90
Circle B	One Course/Onyxx	10,269	\$ 0.42	\$ 4,312.95
Circle C	One Course/Onyxx	4,097	\$ 0.42	\$ 1,720.77
Circle E	One Course/Onyxx	6,818	\$ 0.42	\$ 2,863.57
Circle J	One Course/Onyxx	24,125	\$ 0.42	\$ 10,132.58
Double Spur	One Course/Onyxx	24,186	\$ 0.42	\$ 10,158.18
Laurel Leaf	One Course/Onyxx	5,607	\$ 0.42	\$ 2,354.81
Lazy J Trl	One Course/Onyxx	54,430	\$ 0.42	\$ 22,860.78
Marin Hollow	One Course/Onyxx	114,403	\$ 0.42	\$ 48,049.23
Open G Trl	One Course/Onyxx	4,700	\$ 0.42	\$ 1,974.03
Rafter S Trl	One Course/Onyxx	135,631	\$ 0.42	\$ 56,964.97
Seven L Trl	One Course/Onyxx	63,213	\$ 0.42	\$ 26,549.29
Star Cross Trl	One Course/Onyxx	49,922	\$ 0.42	\$ 20,967.13
Marnoch	One Course/Onyxx	52,469	\$ 0.42	\$ 22,037.12
	<b>Total</b>	<b>828,388</b>	<b>-</b>	<b>\$ 347,922.93</b>

# 2019 Recommended Activities

Street Name	Activity	Total Linear Ft	Cost per Pound	Estimated Cost
Galm Rd	Crack Routing/Crack Seal	N/a	\$ 2.50	-
Braun	Crack Routing/Crack Seal	N/a	\$ 2.50	-
Shaenfield	Crack Routing/Crack Seal	N/a	\$ 2.50	-
	<b>Total</b>			\$ <b>est. 50,000.00</b>

# 2019 Recommended Activities

Street Name	Activity	Total Square Ft	Cost per Sq Ft	Estimated Cost
Antonio Dr	HA5	210,332	\$ 0.32	\$ 67,306.24
Hunters Way	HA5	97,407	\$ 0.32	\$ 31,170.24
Hollow Ridge	HA5	42,475	\$ 0.32	\$ 13,592.06
Hunters Oak	HA5	7,123	\$ 0.32	\$ 2,279.42
Hunters Break	HA5	25,326	\$ 0.32	\$ 8,104.32
	<b>Total</b>	<b>382,663</b>	<b>-</b>	<b>\$ 122,452.29</b>

# 2019 Recommended Activities

<b>Street Name</b>	<b>Activity</b>	<b>Total Square Ft</b>	<b>Cost per Sq Ft</b>	<b>Estimated Cost</b>
Iron Horse Way	Mill and Overlay	24,682	\$ 2.00	\$ 49,364.64
	<b>Total</b>	<b>24,682</b>		<b>\$ 49,364.64</b>

# 2019 Recommended Activities Summary

	<b>Activity</b>			<b>Cost</b>
	One Course/Onyx			\$ 347,922.93
	Crack Routing/Crack Seal			\$ 50,000.00
	HA5			\$ 122,452.29
	Mill and Overlay			\$ 49,364.64
	Level Up	500 tons	\$ 105.00	\$ 52,500.00

2019 Street Maintenance Plan  
Total Recommended  
Expenditures:

**\$ 622,239.85**