



FY 2023-24 Annual Street Maintenance Plan

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Agenda

- Background
- Project Planning
- OpenGov (formerly Cartegraph) Demonstration
- Annual Street Maintenance Plan
- Raised Pavement Marker (RPM) Plan
- Questions

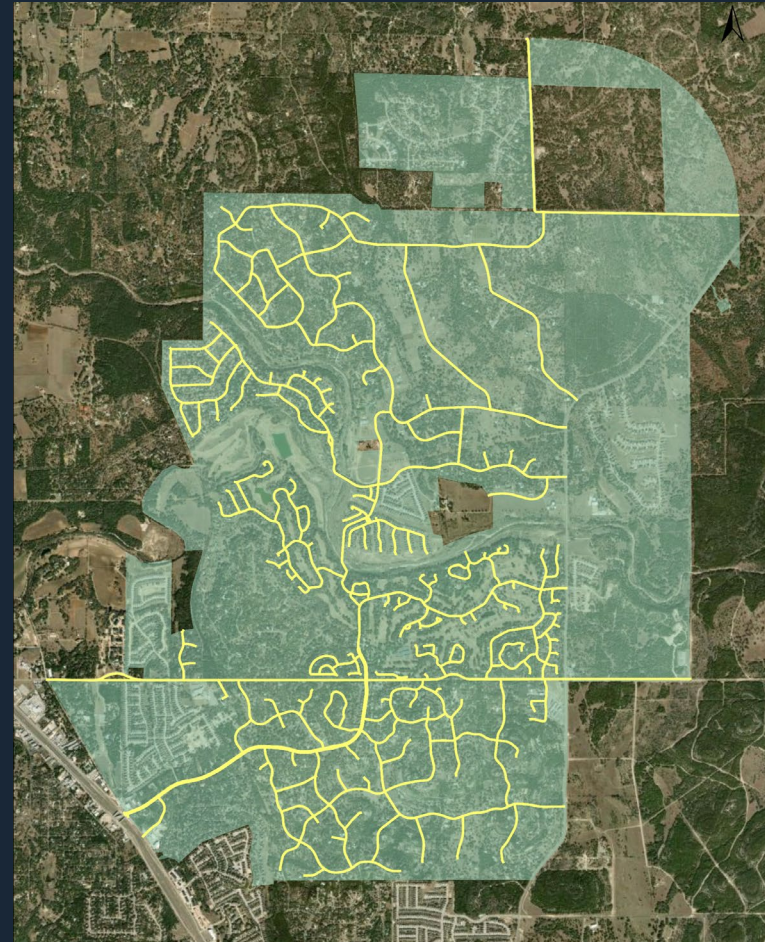


Background

The City of Fair Oaks Ranch includes 60.95 miles of roadway infrastructure

- 78% of the roadway network is over 30 years old
- 54% of the roadway network is over 40 years old

The goal of the Pavement Preservation Program is to strategically and effectively budget roadway expenses based on pavement condition forecasting to successfully preserve the City's infrastructure.



Background



- In 2020, City Council approved a Pavement Condition Survey utilizing a Mobile Asset Collection (MAC) vehicle per ASTM D6433 criteria
- The data has been used to generate the Annual Street Maintenance Plan each year
- The next Pavement Condition Survey will occur in the 2025 timeframe (every five years)





PCI vs. OCI

- PCI (Pavement Condition Index) scores the roadway from 0-100 based on distresses (cracks, unraveling, potholes, etc.) visible in the pavement
- OCI (Overall Condition Index) is a combination of the PCI and a Roughness Indicator rating (also from 0-100) that rates ride quality

Pavement Condition Index (PCI)



Pavement Condition
86 - 100 (Good)



Pavement Condition
71 - 85 (Satisfactory)



Pavement Condition
56 - 70 (Fair)



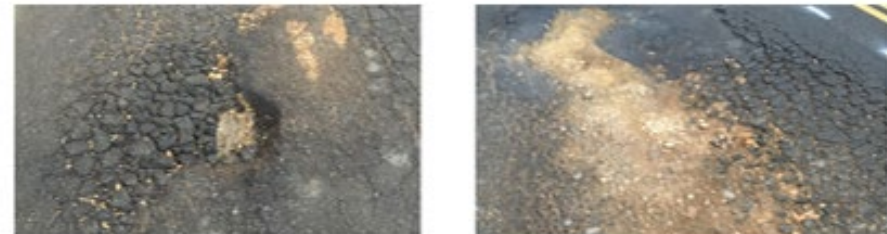
Pavement Condition
41 - 55 (Poor)



Pavement Condition
11 - 40 (Very Poor/Serious)



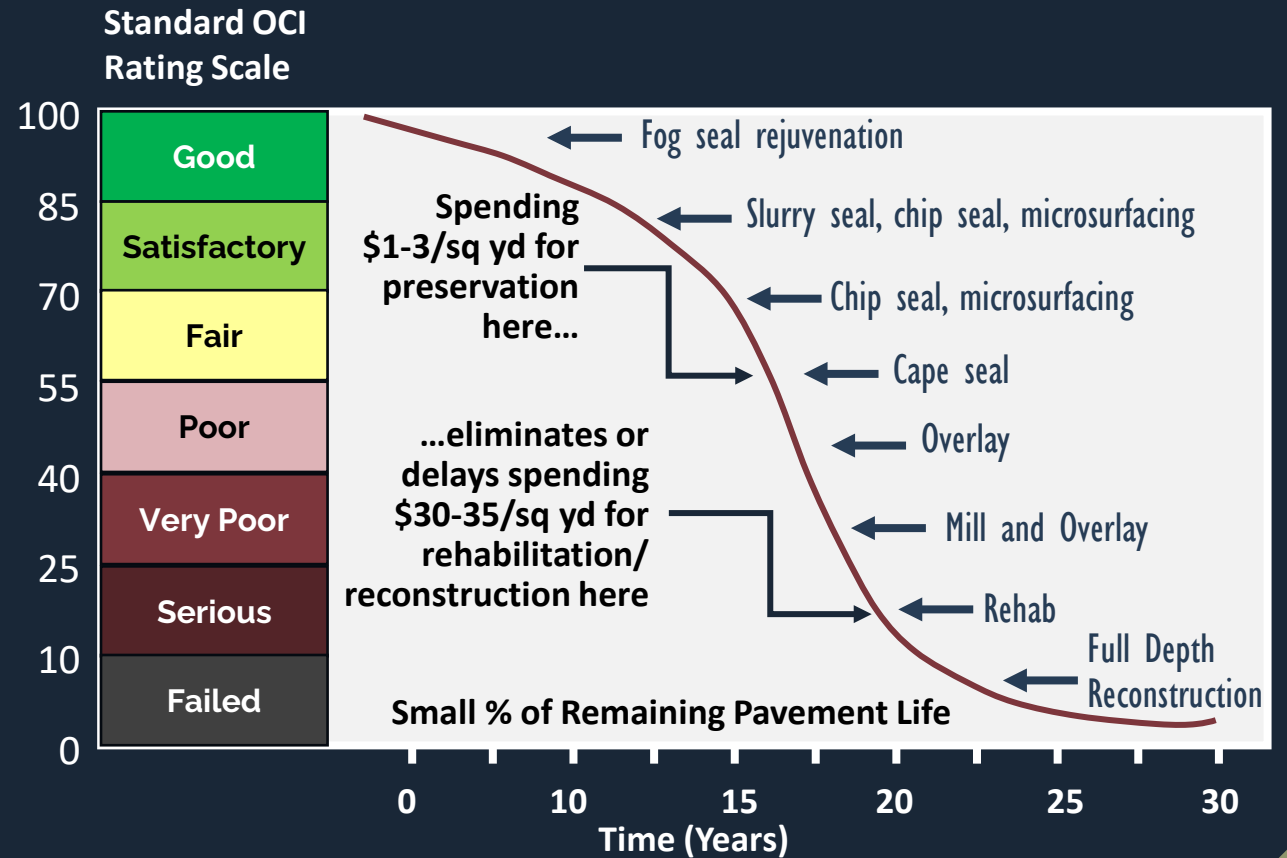
Pavement Condition
0 - 10 (Failed)



Pavement Preservation Plan



- The implementation of an effective Pavement Preservation Plan is essential in extending the overall life of the City's roadway network
- A thorough Pavement Preservation Plan utilizes a combination of treatment techniques that include preservation, preventative maintenance, rehabilitation, and reconstruction
- Delaying maintenance increases the frequency and cost for major pavement rehabilitation



Project Planning



The screenshot shows the OPENGOV Asset Management interface. The top navigation bar includes 'Dashboard', 'Requests', 'Work', 'Assets', 'Resources', 'Reports', and 'Scenarios'. The 'Assets' tab is active. On the left, there is a sidebar with 'Assets' and a list of layers, including 'FOR11_15_23' with 554 items. The main area displays a map with a search bar and a table of asset data.

Street	ID	Inspected OCI	Estimated OCI	Width	Length	Area	Prediction Group	Current Ins...	Est
<input checked="" type="checkbox"/> Ammann Rd	444	72.36	64.17	23 ft	3264.032385...	75072.7448658981 ft²	Asphalt	DTS-444	Fai
<input type="checkbox"/> Ammann Rd	440	68.16	59.55	24 ft	2555.573762...	61333.7703003024 ft²	Asphalt	DTS-440	Fai
<input type="checkbox"/> Ammann Rd	452	87.52	74.3	22 ft	69.22360321...	1522.91927077604 ft²	Asphalt	DTS-452	Sat
<input type="checkbox"/> Ammann Rd	451	52.61	27.95	22 ft	2146.830711...	47230.2756532266 ft²	Asphalt	DTS-451	Ver
<input type="checkbox"/> Ammann Rd	453	62.53	53.04	24 ft	3371.223611...	80909.3666698961 ft²	Asphalt	DTS-453	Po
<input type="checkbox"/> Angel Fire Drive	115	79.44	90.28	30 ft	541.6115217...	16248.345653206 ft²	Asphalt	DTS-115	Go

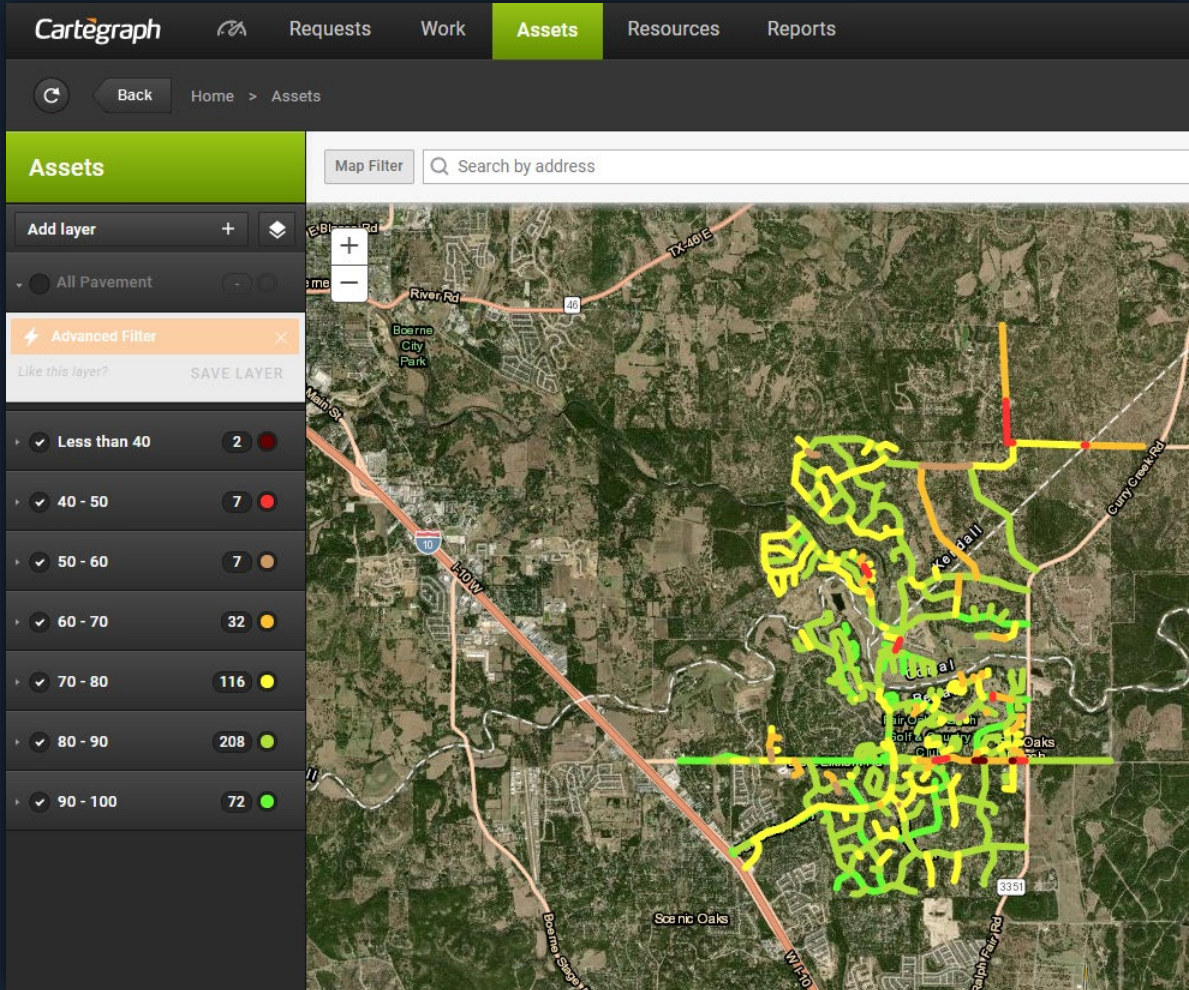
The City of Fair Oaks Ranch uses a web-based asset management program to store pavement attributes and update annual maintenance data.

The program uses algorithms to predict pavement degradation to assist with the planning process and stay within budget.

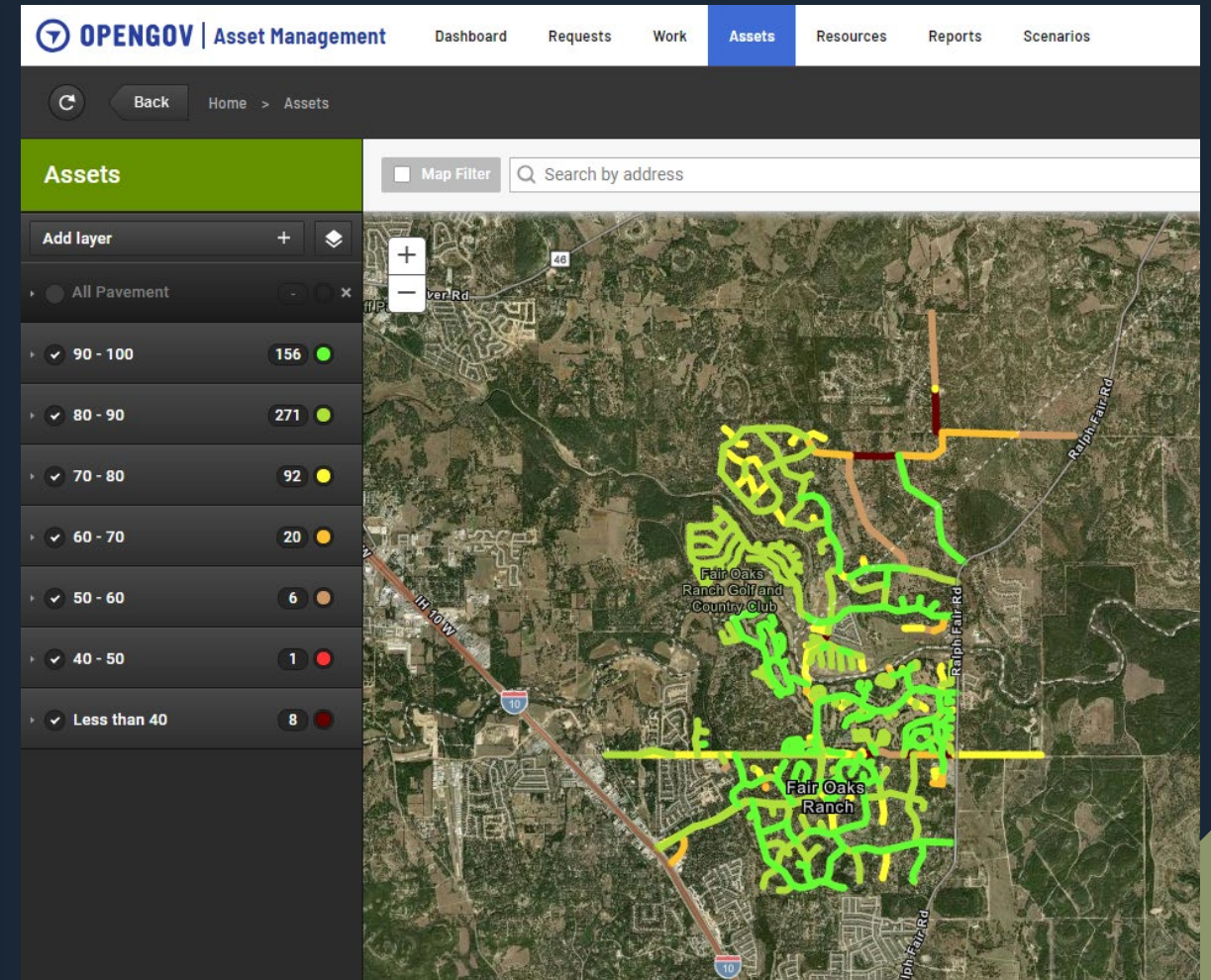
Project Planning



2020



2024



Typical Road Treatments



Rejuvenation

Rejuvenation is a high-performance treatment made from coal tar, aromatic oils, and solvents.

This type of maintenance treatment can extend the service life of pavement by replacing the pavement binder that is lost through oxidation. It protects the roadway from oxidation, UV rays, and moisture intrusion.



Typical Road Treatments



Fog Seal

Fog seal is a single, typically light, application of emulsified asphalt to an existing asphalt surface.

This type of maintenance treatment can be a valuable aid to renew weathered (oxidized) asphalt surfaces and improve the surface appearance, seal minor cracks and surface voids, and inhibit raveling as well as preventing moisture from penetrating into the hot mix.



Typical Road Treatments



Slurry Seal

A slurry seal is the application of a mixture of water, asphalt emulsion, aggregate (very small crushed rock), and additives to an existing asphalt pavement surface.

A slurry seal is an emulsion with aggregates as part of the mixture.

The placement of this mixture on existing pavement is the “seal” of the pavement surface.



Typical Road Treatments



Chip Seal

A chip seal is a two-step process which first includes an application of asphalt emulsion and then a layer of crushed rock to an existing asphalt pavement surface. A chip seal gets its name from the “chips” or small crushed rock placed on the surface.

Chip seals slow reflective cracking which develops from the bottom of the pavement structure towards the top over time.

Chip seals are not recommended on curbed roadways.



Typical Road Treatments



Mill & Overlay

A “mill & overlay” is a street rehabilitation technique that requires the removal of the top layer (typically 2") of a street by the grinding action of a large milling machine. After the top layer is removed, a new layer of asphalt pavement is put in its place.

Well-designed pavements with a strong base and adequate thickness to support traffic loads will deteriorate from the surface down. Therefore, mill and overlays are an important part of the pavement lifecycle as they replace deteriorated surfaces with fresh new asphalt.



Typical Road Treatments



Full-Depth Reconstruction/ Reclamation

Full-Depth Reconstruction consists of complete removal of existing asphaltic or concrete pavement, base re-work, and new pavement structure construction. This method of pavement rehabilitation is used on excessively deteriorated roads.

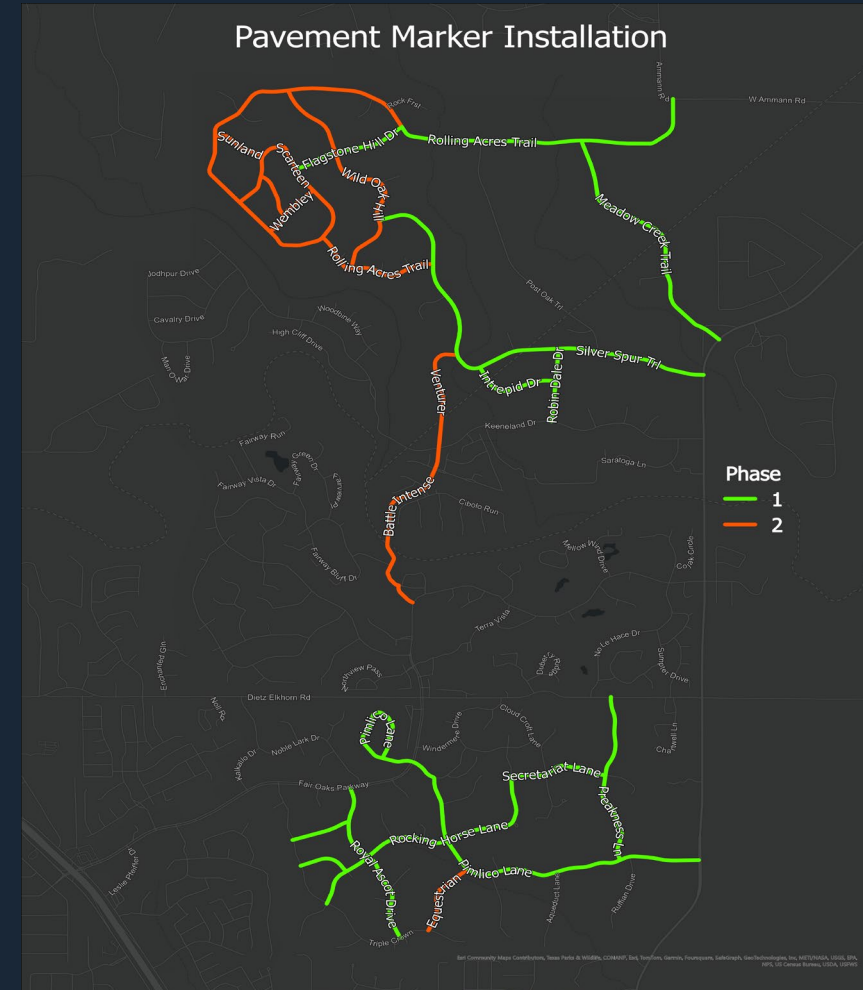
An alternative is Full-Depth Reclamation which includes in-place recycling for reconstruction of existing flexible pavements using the existing pavement section material as the base for the new roadway-wearing surface.



Raised Pavement Markers (RPMs)



- RPM's will be installed in two phases:
 - Phase 1 will be done as soon as bids are received and approved
 - Phase 2 will be done after the street maintenance work has been completed on these roads
- Typical spacing shall be 50 feet (closer than the 100 feet used in the past) since many peel off over time



Questions?

