

CITY OF PALACIOS
2022 PAVEMENT INVENTORY

AUGUST 2022

PREPARED BY:
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2004 N. COMMERCE STREET
VICTORIA, TX 77901

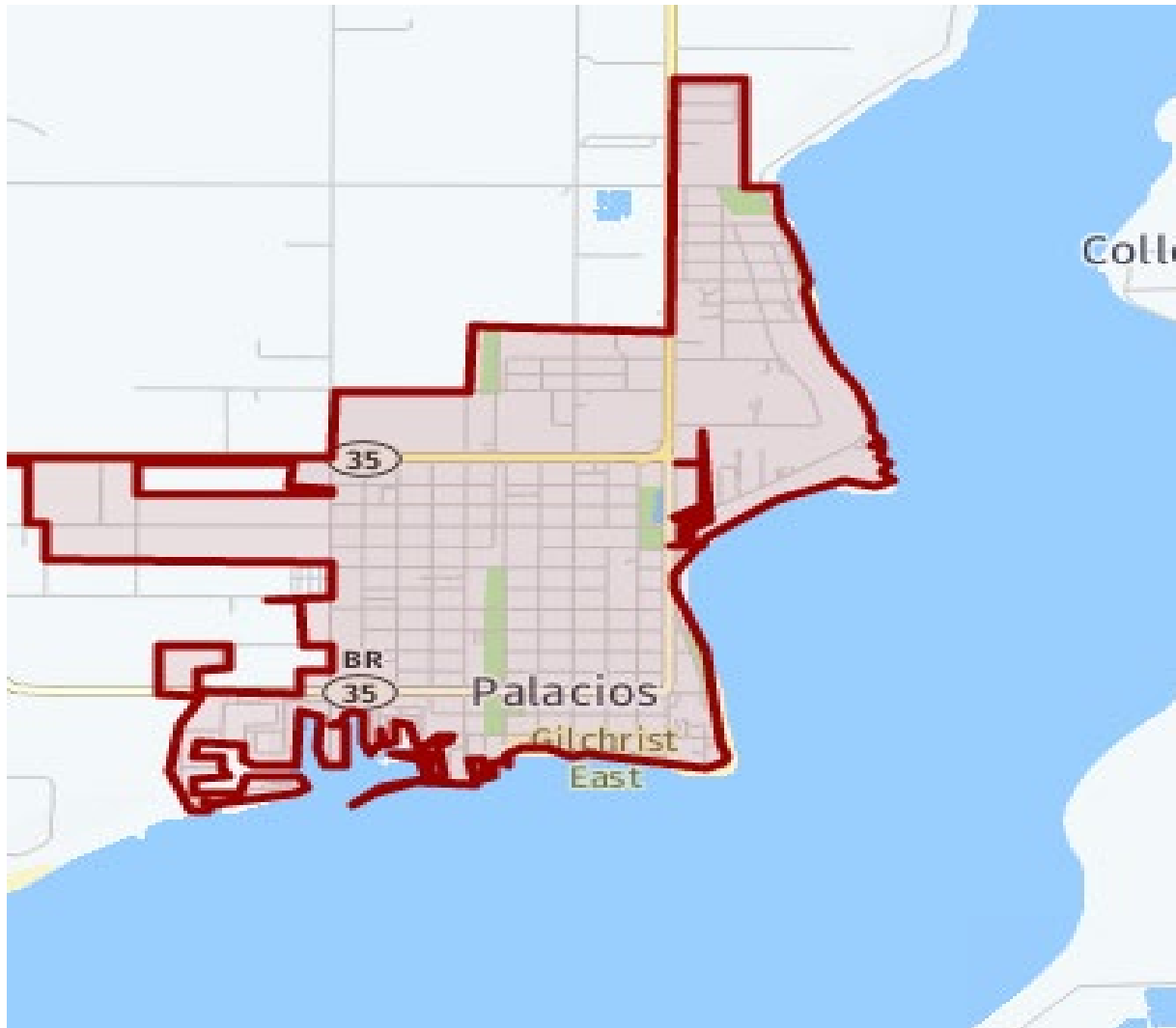
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INTRODUCTION

The 2022 pavement inventory of the City of Palacios is a study undertaken by Urban Engineering to document and evaluate existing roadway condition and pinpoint the inadequacies of the roads and thoroughfares within the city limits of Palacios, Texas. The City of Palacios currently maintains approximately 25 miles of paved roadways within the city limits. Throughout this inventory report there will be detailed examples of findings and the corresponding engineering analysis to determine the quality of these roadways which is the basis of maintenance and reconstruction recommendations. This inventory and proposed improvements can ensure future needs in the transportation network.

INVENTORY STUDY AREA

The area which was inspected below includes all streets found inside the city limits of Palacios.



RESULTS

Throughout the pavement inspection process, there were many trends which were present visually which were used to determine the ratings. Examples of the pavement defects found during inspection are included in Appendix A of this report.

Cracking:

The most frequent defect found on roads is cracking, which includes longitudinal and alligator cracking. Longitudinal cracking was observed on most roadways within the city limits of the City of Palacios and was primarily concentrated on the edges of the pavement surface. Alligator cracking was also observed on most roadways and intersection. Unlike the longitudinal cracking, the alligator cracking was not concentrated at any specific areas and spanned across the pavement surface. Service vehicles, such as waste disposal, delivery trucks, and postal service vehicles, contribute significantly to cracking of the pavement surface because of the additional loading due to their weight and operation on the edges of the pavement to collect waste or deliver goods and mail.

Rutting, Shoving & Pushing:

Road surface depressions or movement was observed on many of the streets within the City of Palacios. Rutting is the depression of the pavement surface parallel to the direction of traffic and is typically found in the wheel paths. Shoving and pushing is the lateral displacement of the paving material due to the action of traffic and typically results in the bulging of the surface perpendicular to the direction of traffic. These types of surface movement significantly reduce the ride quality of the streets and resulted in lowered ratings on the roads. Again, these defects were concentrated on the edges of roads.

Potholes:

While most potholes found along the roadways were within the wheel paths, the second most common areas were driveway entrances directly adjacent to the roadway. Many of the driveways within the city limits are gravel or base material. The constant vehicle action on these driveways directly contributes to the wearing of the edges of the roadway where they connect.

Overall street ratings were determined by the frequency of defects and the overall ride quality. As the frequency of defects increased, the ride quality decreased and the overall street rating also decreased.

Traffic patterns should also be considered during the street rating process and the prioritization of repair projects and continued maintenance. Traffic typically concentrates on roadways with less stop signs which accelerates the deterioration of the pavement surface. In addition to this,

schools must also be looked at as a location in which roadway deterioration is accelerated due to the large amount of traffic.

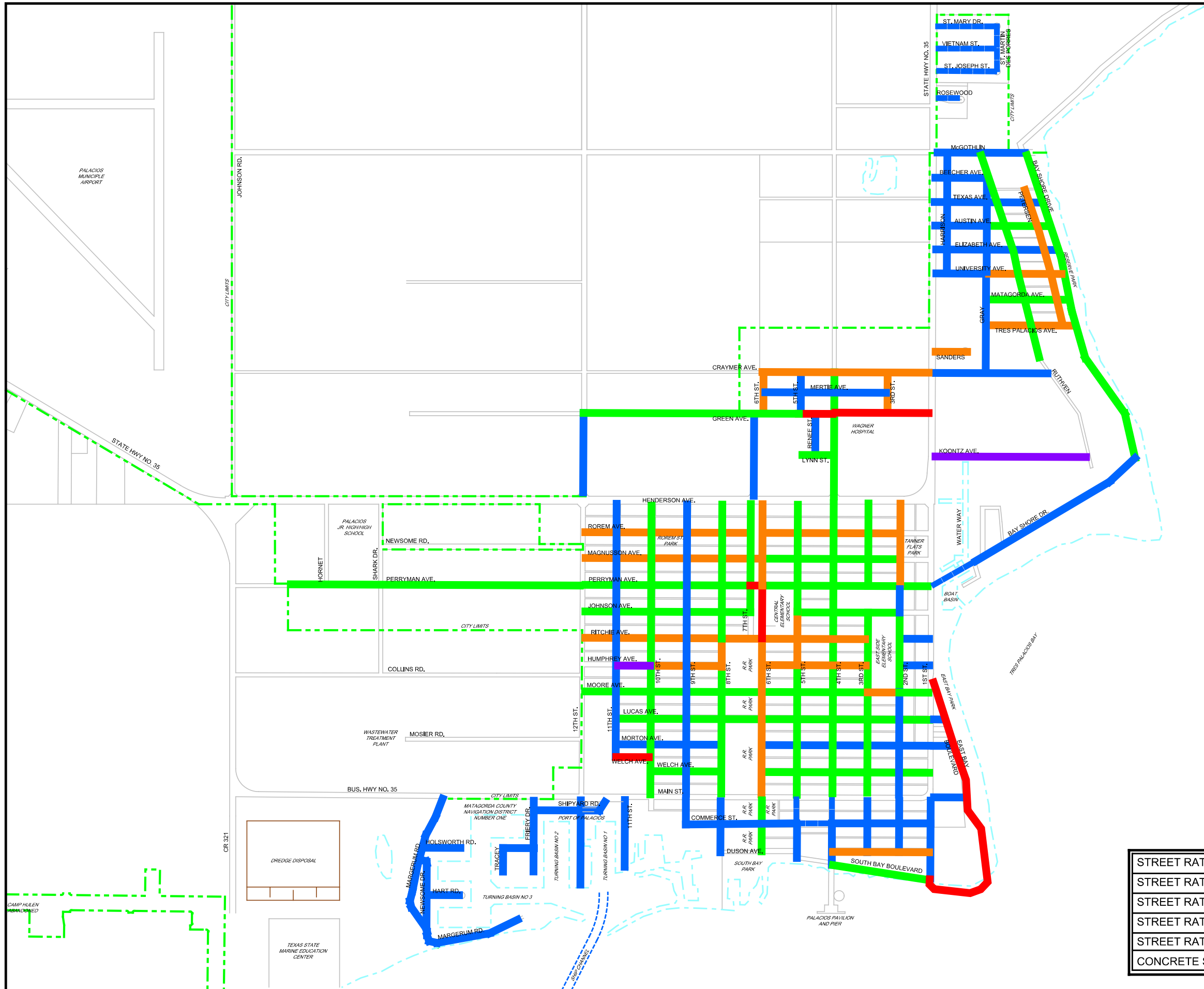
In the map, titled City of Palacios Street Inventory, the ratings which were taken from the street inventory were translated to certain colors corresponding to the condition of the roadway. These ratings were broken down into averages rated between 0 to 100 by values of 20, which 100 being the best and 0 being the worst.

We have grouped the ratings into the following categories:

<u>Rating</u>	<u>Condition</u>	<u>General Description</u>
80-100	<u>Very Good</u>	Little to no maintenance required.
60-79	<u>Good</u>	Minor cracking, potholes and some rutting and deterioration.
40-59	<u>Fair</u>	Major cracking, subgrade deterioration, with potholes and other spot or base problems.
20-39	<u>Poor</u>	Significant potholes, surface deterioration, misaligned curbs and destroyed ride surface.
0-19	<u>Very Poor</u>	Complete deterioration of road surface, pavement heaving, numerous potholes.

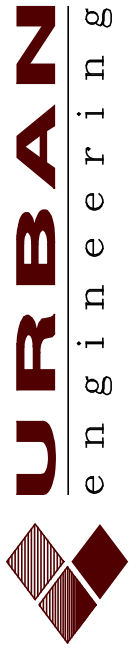
Street Rating Mileage (miles of roadway related to their respective rating)

<u>Rating</u>	<u>Roadway Miles</u>
80-100	6.7 miles
60-79	11.8 miles
40-59	5.7 miles
20-39	1.4 miles
0-19	.43 miles



LEGEND

STREET RATING 80 - 100	
STREET RATING 60 - 79	
STREET RATING 40 - 59	
STREET RATING 20 - 39	
STREET RATING 0 - 19	
CONCRETE STREETS	



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CITY OF PALACIOS STREET INVENTORY

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RECCOMENDATIONS

Using results gained from the street inventory, certain recommendations have been made for maintenance of roads in Palacios.

1st Priority Seal: A street given the distinction as 1st priority should be the first streets to receive a seal. These streets which are given the distinction of 1st priority are higher rated streets, this is due to the idea that if you seal good existing roads, it keeps them in good condition for longer and allows you to focus on other more deteriorated streets after.

Total Rehabilitation: Rehabilitation is a recommendation given to streets that have major failures on more than 70% of the roadway surface. Many roadways withing the City of Palacios are shell base roads which respond to cement stabilization and rehabilitation. Geotechnical testing is required to confirm existing subsurface conditions prior to design. Seal coat projects and spot treatments would not be adequate to address the pavement failure.

One Course Seal Coat Treatment: Placing a seal coat on streets will lengthen the life of a street and improve many qualities of the road which is desirable. The cost to seal coat per mile is \$75,000.

Total Rehabilitation: Rehabilitation requires remixing of the existing base materials and adding a stabilization material such as cement or fly-ash, in this case oyster shell, then applying a two-course surface treatment. The cost to reclaim an existing street is \$350,000 a mile.

Appendix A

Pot Holes





Bowl shaped holes caused by weakness in pavement and progressive deterioration.

Cracking



Series of cracks in pavement usually caused by unstable subgrade or movement in the ground.

Polished Aggregate/Excess Asphalt



Surfaces that have been worn smooth by traffic or aggregate that is applied in excess.

Rutting



Depressions in pavement caused by displacement of asphalt and or traffic use.