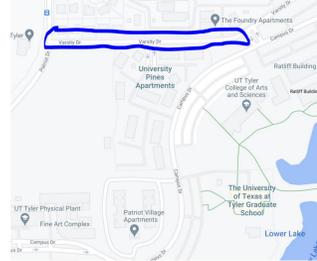


Pavement Analysis of Varsity Drive

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Introduction

This research is over a pavement analysis of Varsity from the entrance of Campus Dr to Patriot Dr. The purpose of this research is to determine the pavement failures along this stretch of road. Classify each type of pavement failure and determine the severity of the failure. This will help us determine how bad the road's condition is and what type of treatment needs to be done to keep the road in good condition.



Materials

For this research several basic equipment's are needed, safety vest, measuring tape, and ruler. Along with this equipment other needed materials are, google map, distress sheet, deduction graphs, and CDV graph.

Methodology

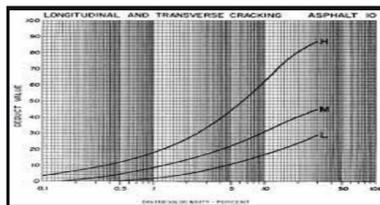
The first step was to use good map to determine the length of the road that is about to be study. After determining the length of the road the next step is to break it into several sections to study, in this case it will be broken down into 3 sections roughly 300 ft long and 40ft wide.



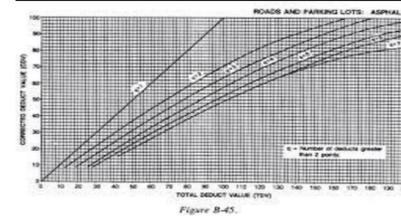
Once that is determined the next process is to go out into the field and record information on the pavement failures that occur along each section. In the first section 4 major types of pavement failures have been identified, longitudinal & transverse cracking, potholes, edge cracking, and patching & utility cut patching. From there the severity is determined by depth, roughness and width depending on the pavement Once the severity has been determined the next step is to measure the length, or area of the failure depending on the type of failure.

ANNUAL SURVEY DISTRESS AND PERFORMANCE CONDITION SURVEY DATA SHEET FOR SAMPLES		DATE		SECTION	
SECTION	DATE	SECTION	DATE	SECTION	DATE
020	10/11	021	10/11	022	10/11
1.0	0.00	2.0	0.00	3.0	0.00
1.1	0.00	2.1	0.00	3.1	0.00
1.1	0.00	2.1	0.00	3.1	0.00

This process is done for each of the three sections. After that each type of pavement failure is added together to find a total and then divided by the area of the section to find a density. Once the density is determined, the deduct value is then found using a graph accordingly to the type of failure it is and the severity of the failure.



The largest of the deduct values is the taken to determine the maximum allowable number of deduct numbers (insert formula). If the allowable value is higher then total amount of deduct values, then all the deduct values can be used. After that q is determined by the amount of deduct values that surpass the value of 2. From their all the allowed deduct values are added together to determine the TDV(total deduct value), this number is then used in a CDV graph along with q to determine the CDV. This process is then repeated for each section with the q value become one less for each section.



The highest CDV is chosen from all three sections and then subtracted from 100 to determine the PCI. The PCI then determines what quality the road is currently at. This will then help determine what type of treatments should be applied to the road.



Edge cracking



Longitudinal Cracking



Pothole

Results

As a result of the study on Varsity Drive it was determining that the PCI for the road is 74. Using this information and the types of pavement failures found on Varsity Drive, 3 treatment methods have been determined. These three methods are Hot In-Place Recycling, cape seal , chip seal. Hot In-Place is a cost efficient and quick method use to treat roads that are not to worn down. This method involves heating up the existing materials of the road and compacting the pavement. This will help extend the life of the pavement by 7-15 years. Another method is cape seal which is a more cost-efficient method then Hot In-Place, and allows traffic to start back up in a few hours. This treatment just involves adding a seal to the whole road that can extend the life of the road for about 8-10 years. The last method is chip seal, not being as efficient as cape seal but more cost efficient and allows traffic to start back in a single hour. This methods will only add 5-7 years of life to the existing pavement.

Conclusion

It was determined that the road was in good condition overall and three methods of extending the pavements life span have been identified.