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7. Author(s) Moon Won and Cesar Medina		8. Performing Organization Report No. 0-5445-2
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16. Abstract

Microscopic behavior and distress types in continuously reinforced concrete pavement (CRCP) were investigated using the information in the TxDOT's rigid pavement database. Crack width behavior was evaluated using the information from two test sections. Transverse crack width decreased over time, which is quite contrary to what's been accepted as a general crack width behavior in CRCP. The reason for this decrease is not known. Concrete temperature has a dominant effect on the crack width behavior. Most of the times, CRCP slabs exhibit flexural behavior at transverse cracks due to temperature variations through the depth. The neutral axis for crack width variations appears to exist below the mid-depth. Two major distress types were observed in the field: horizontal cracking induced distress and edge punchouts. Even though the mechanisms for the two distress types are different, the appearance of the two distresses could be quite similar. The mechanism of horizontal cracking appears to be curling of concrete slab, caused by large temperature variations in the upper portion of concrete slab. Large coefficient of thermal expansion and modulus of elasticity of concrete, and temperature variations appear to be causing this distress. Transverse crack spacing or concrete temperature does not appear to have substantial effects on load transfer efficiency (LTE) in CRCP. The insensitivity of LTE to temperature is different from the behavior of Jointed Concrete Pavement (JCP). In JCP, LTE at a transverse joint is quite sensitive to concrete temperatures. Crack widths get larger with lower temperatures, which should result in lower LTEs. However, field evaluations indicate almost constant LTEs evaluated in the summer and in the winter. Also, transverse crack spacing does not appear to have substantial effects on slab deflections. Based on the findings, it appears that load transfer efficiency, as in the current form, is not a good indicator for structural condition of CRCP. Efforts should be made to clarify the effects of transverse crack spacing on CRCP performance.

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ANALYSIS OF CONTINUOUSLY REINFORCED CONCRETE PAVEMENT BEHAVIOR USING INFORMATION IN THE RIGID PAVEMENT DATABASE

Moon Won
Cesar Medina

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Center for Transportation Research
The University of Texas at Austin
3208 Red River
Austin, TX 78705

www.utexas.edu/research/ctr

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Project Engineer: Moon Won
Professional Engineer License State and Number: Texas No. 76918
P. E. Designation: Research Supervisor

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Products

This report contains Product 3, “Database Analysis.” Examples of analyses that can be conducted with the database are provided in the tables of Chapter 3.

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Chapter 1. Introduction

Pavement systems represent a large portion of assets of any state highway agencies (SHAs). Developing and managing the pavement system in an efficient way is becoming more important as financial resources available for highway funding have not been kept up with demands. The Texas Department of Transportation (TxDOT) has the most mileage of portland cement concrete (PCC) pavement in service in the nation, as well as the most mileage of continuously reinforced concrete pavement (CRCP). To keep track of the performance of PCC pavement in the state and develop information that will be required for the calibration of to-be-developed mechanistic CRCP design procedures, TxDOT initiated a research study on rigid pavement database.

1.1 Background

As of 2006, TxDOT has more than 10,000 lane miles of CRCP, which is the most in the US (*1*). Even though most of the CRCP constructed recently uses standardized pavement structures, various designs are still in use due to specific requirements needed for certain projects, such as fast track pavement. It is important to keep track of the behavior and performance of CRCP with various design features. Understanding the performance of CRCP constructed with various designs will enhance TxDOT’s capability to improve the efficiency of the overall pavement management system. Developing and maintaining a good rigid pavement database is the best way to gather necessary information in an organized manner. Another benefit of having a good rigid pavement database would be to develop information that can be used to calibrate any mechanistic pavement design models. To achieve these goals, TxDOT initiated a rigid pavement database project in 2005. For the last two and a half years, much information has been collected on the behavior and performance of CRCP in Texas.

1.2 Scope

This report presents the findings made after the publication of the previous report, 0-5445-1 and provides example analysis results from the database.

Chapter 2 presents and discusses detailed analysis results on the crack width measurements in two projects. Also discussed in this chapter are CRCP distress types observed in Texas and their mechanisms.

Chapter 3 presents the examples of analysis results from the database. A test section in Amarillo was selected, and the analysis of the information collected in the project is discussed.

Chapter 4 summarizes the findings and provides conclusions.

Chapter 2. CRCP Behavior and Distress Mechanisms

It has been stated that crack width is one of the most important parameters influencing CRCP performance (*2*). This chapter discusses the findings from the field instrumentations and subsequent monitoring for long-term crack width measurements. Investigating crack widths behavior also helps understand the behavior of CRCP in response to temperature and moisture variations (environmental loading) at a microscopic level, which is expected to enhance the success of any research efforts to improve CRCP design and construction practices. Also presented in this chapter are distress types and their proposed mechanisms in CRCP. It has been reported that punchouts are the only structural distress type in CRCP. However, during the field evaluations of CRCP performance in Texas, other types of structural distresses were observed that required pavement repairs. Some of the information presented was gathered under this research study; information gathered under different research projects over the years is also presented for an effective and thorough discussion.

2.1 Crack Width Investigation

The behavior of CRCP is quite different from that of jointed concrete pavement (JCP). It is primarily due to the way concrete volume changes are addressed. In JCP, transverse contraction joints are provided to accommodate concrete volume changes. Cracks are supposed to form only at intended joints. Because concrete volume changes are not restrained by any means other than concrete's own weight and low level of subbase friction, rather large concrete displacements take place due to temperature and moisture variations. In CRCP, on the other hand, concrete volume changes are highly restrained by longitudinal steel, and as a result, numerous transverse cracks form and longitudinal steel is in quite a high tension at the transverse cracks. This high steel stress at a crack is transferred to surrounding concrete, thus allowing gradual decrease in steel stress as it moves away from the crack. This gradual decrease in steel stress is accomplished by the differential strains between steel and concrete, called *bond slip*. If there is no bond slip between concrete and steel, the steel stress will easily exceed yield point at transverse cracks, resulting in larger crack widths and poor CRCP performance. On the other hand, excessive bond slip will result in lower steel stresses at transverse cracks and larger crack widths, which is not good for CRCP performance either. Larger crack widths are detrimental to CRCP performance in two ways. One is that larger crack widths will reduce the load transfer efficiency of the cracks and increase concrete stress due to wheel loading applications. The other is that larger crack widths will allow water to get in, resulting in the corrosion of the steel. In reality, there is a reasonable amount of bond-slip taking place, which keeps crack widths quite tight. There are a number of factors influencing transverse crack formation and the magnitude of crack widths. They include environmental condition during construction, concrete material properties, steel design variables such as percent steel, bar size, and vertical location, other design variables such as slab thickness and subbase friction, and the bond-slip characteristics. Due to the numerous factors involved in transverse crack formation and the magnitude of crack widths, mechanistic modeling for crack width determination is quite complicated. A comprehensive and most advanced crack widths prediction model was developed under NCHRP 1-37(A) (*1*) as shown in Equation 1.

$$cw = CC \cdot \overline{L}\left(\varepsilon_{shr} + \alpha_{PCC}\Delta T_{\varsigma} - \frac{c_2 f_{\sigma}}{E_{PCC}} \right) \cdot 1000 \qquad \text{(Equation 1)}$$

where,

cw = average crack width at the depth of the steel, mils

CC = local calibration constant (CC =1 is used based on global calibration)

$\overline{L}$ = mean crack spacing, inch

ε_{shr} = unrestrained concrete drying shrinkage at the depth of the steel,

α_{PCC} = PCC coefficient of thermal expansion, °F

ΔT_{ς} = drop in PCC temperature from the concrete "set" temperature at the depth of the steel,

c_2 = second bond stress coefficient increment,

f_{σ} = maximum longitudinal tensile stress in PCC at the steel level, and

E_{PCC} = PCC elastic modulus, psi.

Equation 1 shows that crack width will increase with crack spacing, even though the rate of increase is not constant, as the tensile stresses in concrete will be dependent on crack spacing as well. However, a research study conducted in the late 1980s in Texas illustrates poor correlations between crack spacing and crack width as shown in Figure 2.1 *(3)*. There might be several reasons for poor correlations between crack spacing and crack width, which is not discussed in this report.

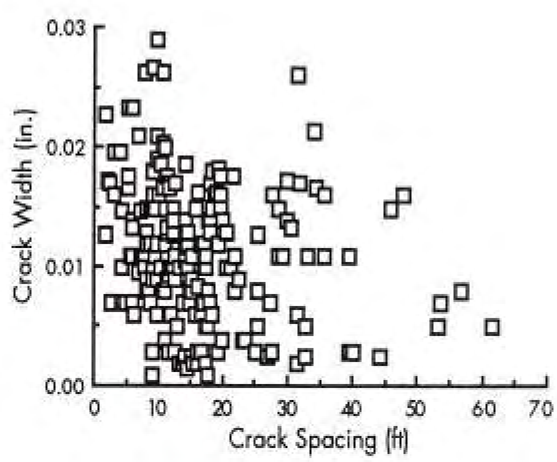

Figure 2.1: Poor correlation between crack spacing and crack width (2)

Two test sections were constructed under TxDOT research study 0-1700 to investigate CRCP behavior at early ages. One section was placed on US 183 in the Austin District and the other on US 59 in the Houston District. Table 2.1 illustrates the details of the two test sections.

Table 2.1: Design and construction details for two test sections

	Austin	Cleveland
Highway	US 183	US 59
Construction	Sep 25, 2003	Jul 20, 2004
Thickness	11 inch	13 inch
Pavement Structures	- 11 in. CRCP - 4 in. ASB* - Flexible base	- 13 in. CRCP - 1 in. ASB* - 6 in. CTB** - 6 in. LTS***

* ASB: Asphalt Stabilized Base
** CTB: Cement Treated Base
*** LTS: Lime Treated Subgrade

For crack width investigations, various gages were installed, including vibrating wire strain gages (VWSG), steel strain gages, and temperature sensors. Typical layouts of gage installations are shown in Figure 2.2. Three VWSGs were installed at 1-in depth from the surface, at mid-depth, and at 1-in from the bottom of the slab. The one at the mid-depth was placed midway between two longitudinal steel lengths. Steel strain gages were installed at 0 in., 3 in., 6 in., 9 in., 12 in., 18 in., 24 in., and 36 in. from the induced crack. All the gages were connected to a data logger before the concrete was placed so that the complete information was obtained.

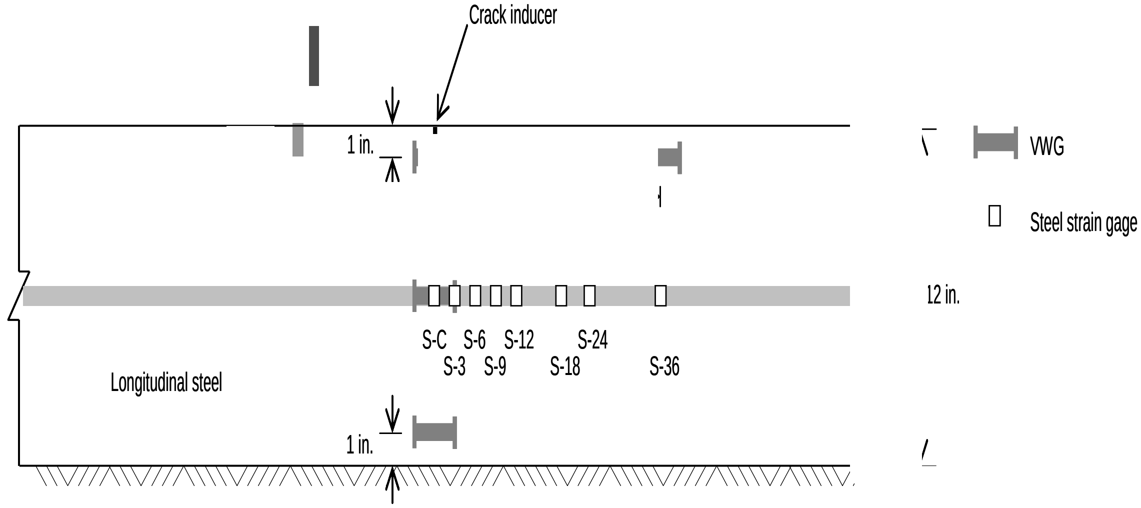

Figure 2.2: Typical layout of gage installations in test sections

Setting temperature is reported to have substantial effects on crack widths and it is important to accurately estimate the setting temperature of concrete. To determine setting temperature, a method devised by Glisic et al. was applied *(4)*. The method is based on the fact that (1) strains in vibrating wire gages (VWGs) and temperatures move in the same direction while concrete is plastic and does not exert forces on VWGs, and (2) once it starts setting, and the concrete and VWG start behaving together, strains in VWG and temperatures move in opposite directions. Figure 2.3 shows the variations in temperatures and strains in concrete after concrete placement. It illustrates that the concrete was placed at about 7:00 a.m. and temperature and concrete strain moved in the same direction until about noon (5 hours after concrete placement). At that point, the temperature and concrete strain started moving in the opposite directions. In this report, day 0 means midnight, and day 0.5 denotes noon. Figure 2.3 indicates that the setting took place in about 5 hours. The concrete strain reading at setting temperature was subtracted from the subsequent readings and the resultant values were modified to take temperature effects into account and to obtain total strains and crack widths.

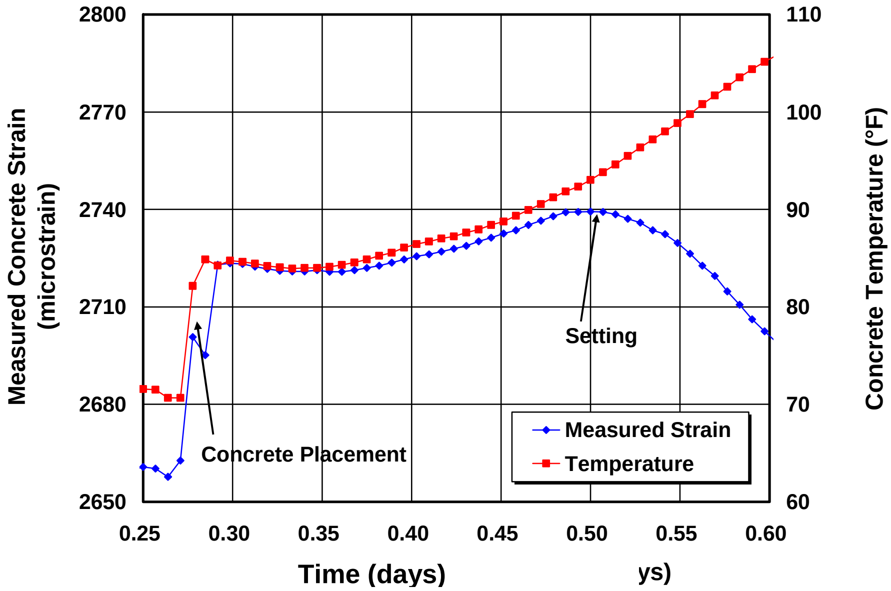

Figure 2.3: Variations of measured strain and temperature in concrete after concrete placement

Following is a discussion of the detailed crack width behavior. Cleveland section data is presented first, followed by Austin section.

2.1.1 Cleveland Section

In the Cleveland test section, concrete was placed at the gage location at 6:50 a.m., on July 20, 2004. Concrete setting temperature was 94° F, which occurred at 12:30 p.m. on the same day. Figure 2.4 shows the crack width variations at early ages in Cleveland section. Crack width was derived by the product of VWSG strains and gage length. In this computation, the contribution of stresses in concrete from the crack to the gage length (3.35 in.) is ignored. This approximation is quite reasonable in that the concrete stresses in longitudinal direction near the transverse crack are quite small. Figure 2.4 contains valuable information on the microscopic crack behavior of CRCP at early ages. The information can be summarized as follows:

(1) Although the crack propagated to the mid-depth rather quickly, it took 3.5 days before the crack propagated all the way to the bottom.

(2) The slab behavior at the crack is that of flexure. It is shown that when the crack width gets large at the top and mid-depth, crack width actually decreased at the bottom of the slab. It is more pronounced after day 3.5 (noon, day 3).

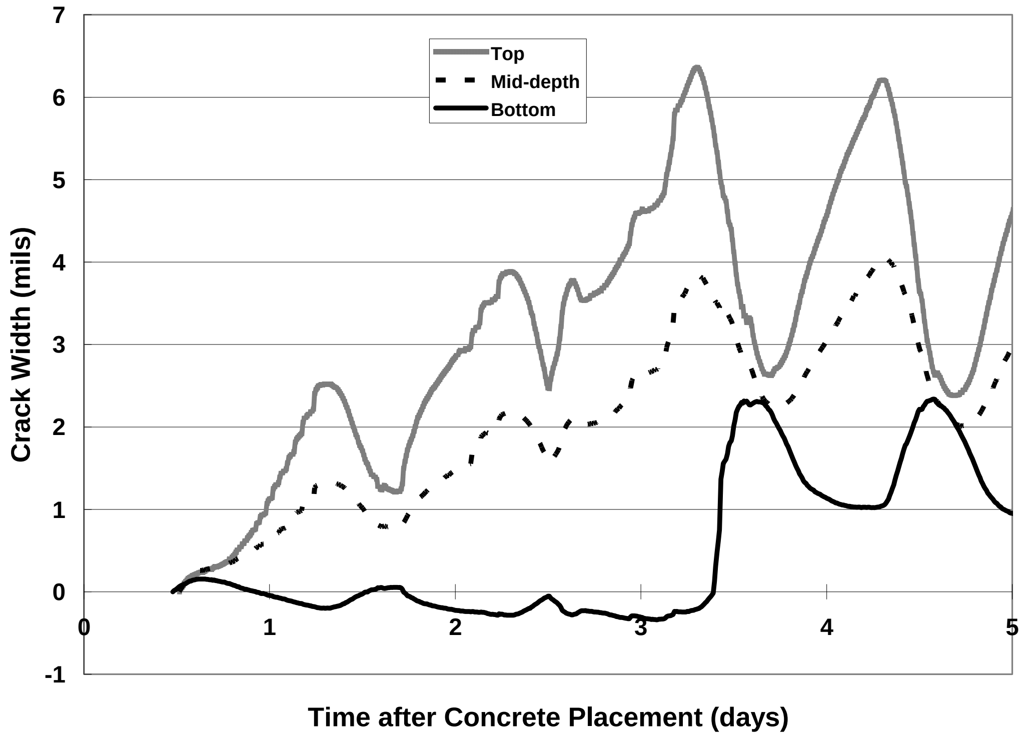

Figure 2.4: Crack width variations at the top, middle, and bottom of slab for the first 5 days

(3) Crack width is the greatest at the surface and gets smaller with depth. However, note that VWSG at mid-depth of the slab was placed midway between two longitudinal steel lengths. In the field, it was often observed that crack width at the mid-depth near longitudinal steel was so small that, sometimes, it was not feasible to visually detect the crack. It appears that there is a zone in concrete influenced by the longitudinal steel, where the crack can no longer propagate to concrete due to the restraint provided by longitudinal steel.

(4) Before the crack propagated all the way through the slab bottom, the crack width variations at the top and mid-depth were irregular and relatively small. It appears that the bottom portion of concrete, which has not cracked yet, provided some degree of restraint on the slab movement in the upper portion of the concrete slab. Once the crack propagated all the way to the bottom, crack width variations got large at all depths, and the “rate” of crack width variations got higher and more linear over time.

(5) “Neutral axis” of crack width variations is located below the mid-depth. This may be due to the nature of environmental loading in CRCP. Both temperature and moisture variations are more pronounced at the upper half of the slab than at the bottom of the slab. Therefore, more concrete volume changes occur at the upper half of the slab, which

forces the neutral axis below the mid-depth. This information could be used in determining the “optimum” depth of the longitudinal steel to maximize load transfer efficiency of the cracks and to minimize the potential for horizontal cracking.

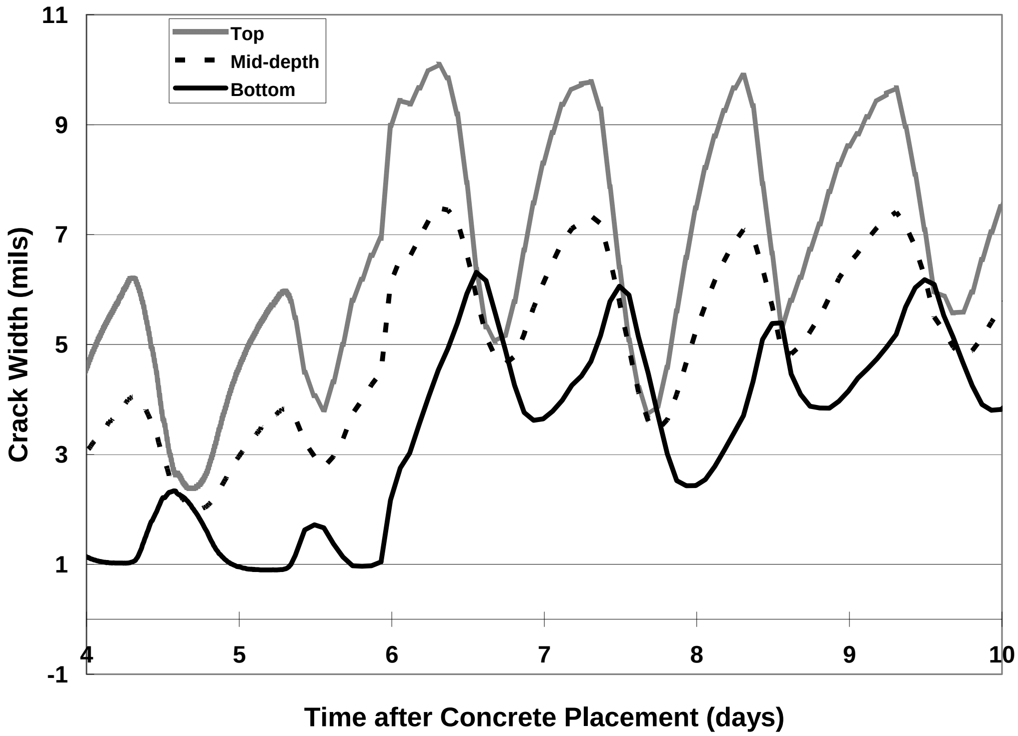

Figure 2.5: Crack width variations at various slab depths from day 4 to day 10

Figure 2.5 shows crack width variations at three different depths from day 4 to day 10. It shows that crack width at the top of the slab increased rather quickly from the afternoon of day 5 to early morning of day 6. Crack width at the bottom also increased by a large amount from the late night of day 5 to the noon of day 6. It is noted that, unlike the early behavior of the slab where flexural behavior was dominant, in the period of late night of day 5 to early morning of day 6, cracks increased at all depths. No flexural behavior is observed at this time period. This behavior can be explained by the temperature variations during that time period as shown in Figure 2.6. Figure 2.6 shows that concrete temperatures dropped quite rapidly in the morning of day 6 at all depths. Even the bottom concrete experienced a rather quick drop in temperature. Accordingly, the concrete slab experienced contraction at all depths, resulting in rapid increase in crack widths in all depths with flexural behavior almost non-existent. After day 6, Figure 2.6 indicates daily concrete temperatures actually increased a little bit, and Figure 2.5 shows that the slab started showing flexural behavior at some portions of the time. Figures 2.5 and 2.6 indicate the dominant effects of temperatures on crack width behavior. The rate of drying shrinkage of concrete is quite large at early ages. However, Figure 2.5 and 2.6 do not clearly indicate drying shrinkage effects on crack width. It may be that drying shrinkage effect is more concentrated at the very top portion of the slab, as moisture loss from the concrete is the largest at that region. Also, note that the location of the VWSG for top crack width measurements is 1 in. from the concrete surface, and the variations in crack width due to drying shrinkage might have not been captured by the VWSG at the depth.

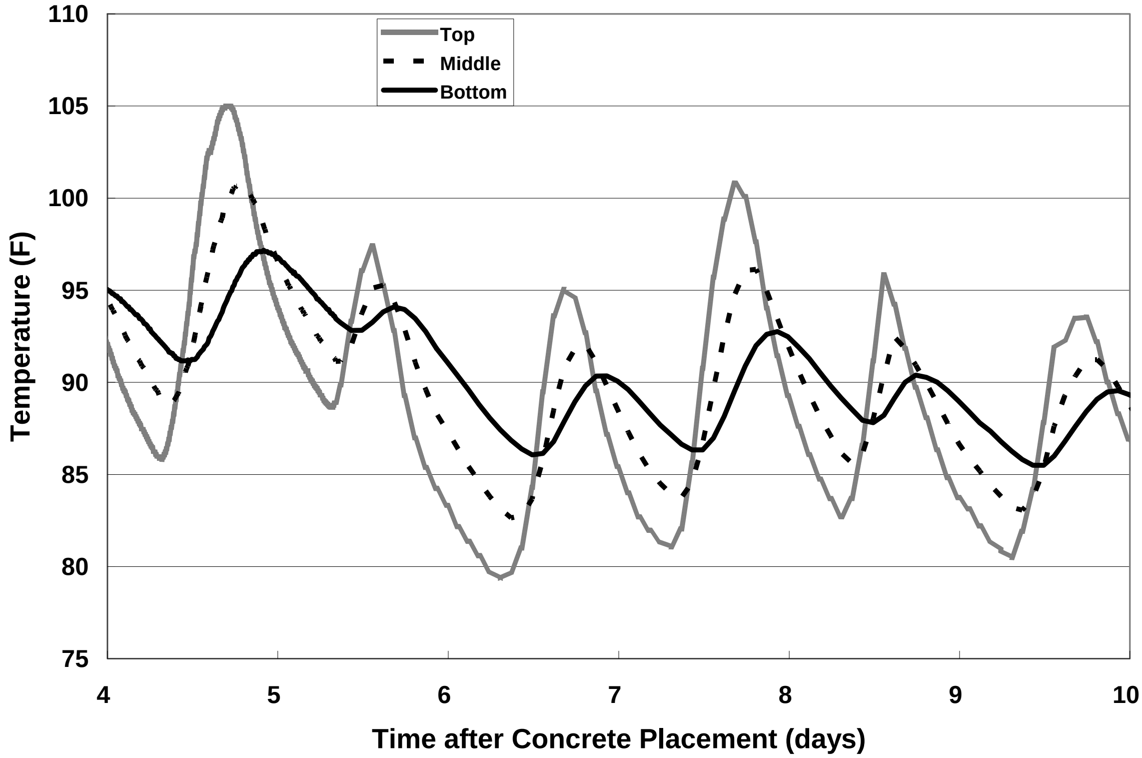

Figure 2.6: Concrete temperature variations at various slab depths from day 4 to day 10

Crack width behavior in this test section 2 years after construction is illustrated in Figure 2.7. It clearly shows that crack widths at the top and mid-depth follow the same direction while those at the bottom follow the opposite direction. This is possible only when the concrete slab behaves in flexure. This flexural behavior of the slab is a strong indication of dominant effect of curling. As will be shown later in Austin section discussions, slab behavior is strongly influenced by temperature variations through the slab depth. When the temperature variations over time are relatively greater than those through the slab depth, then this flexural behavior becomes less pronounced. Figure 2.7 also illustrates that, overall, the crack width values actually decreased compared with those at early ages. In Figure 2.5, the maximum crack widths at the top of the slab were about 10 mils at day 6 through day 9. Figure 2.7 shows the maximum crack width at the top is about 5.8 mils. It has been shown that temperature has substantial effects on crack width. Figure 2.6 shows the minimum concrete temperatures at early ages at the top was about 80° F. Figure 2.8 shows the minimum concrete temperature at the top of the slab was also about 80° F. In other words, for the comparable concrete temperatures, the crack width actually decreased by about 40% in 2 years. This is unexpected in that it has long been postulated that crack widths in CRCP actually increase over time, eventually leading to the structural deterioration of the pavements.

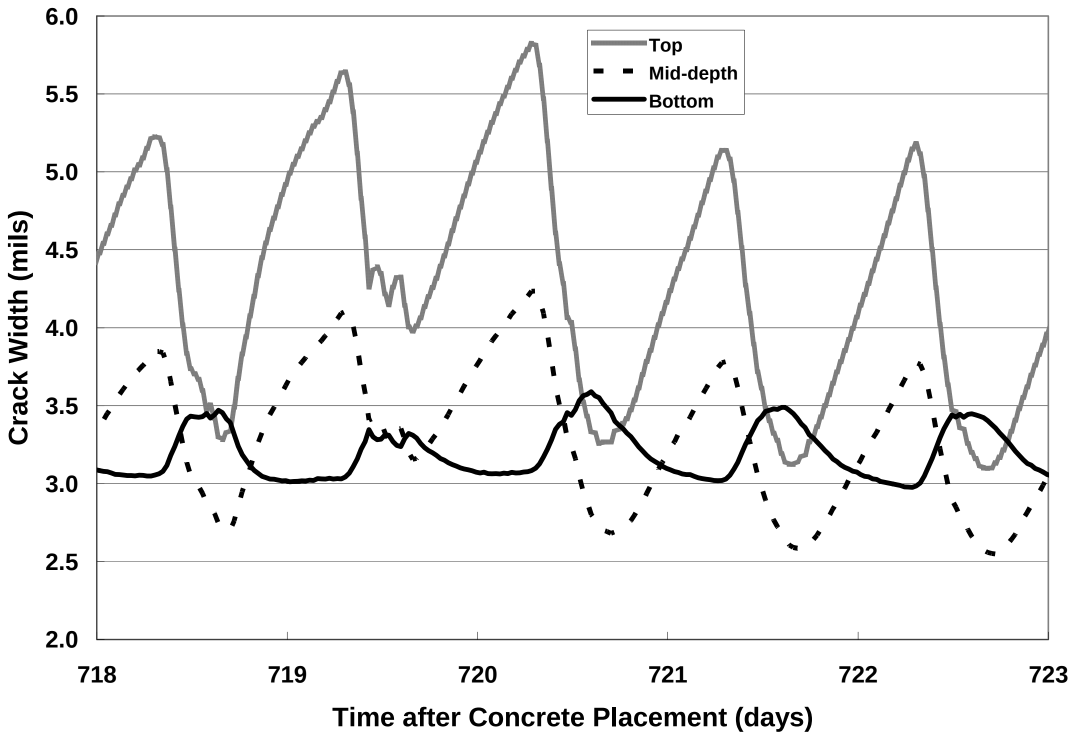

Figure 2.7: Crack width variations at various slab depths from day 718 to 723

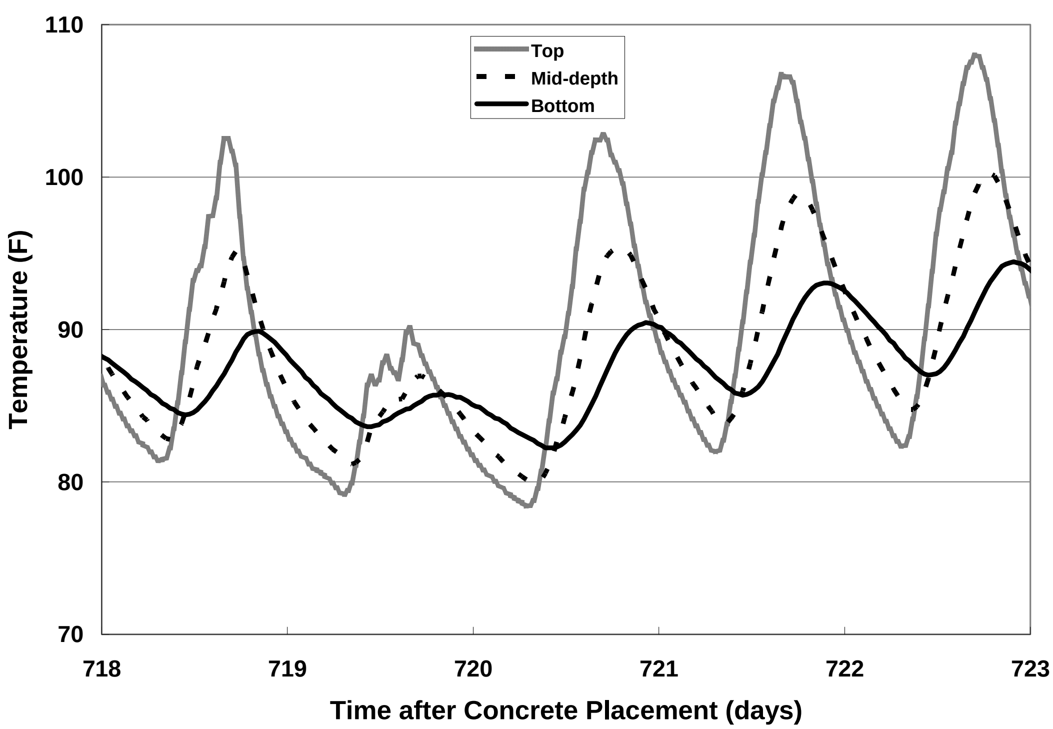

Figure 2.8: Concrete temperature variations at various slab depths from day 718 to 723

Figure 2.9 shows the variations of the crack width at the top of the slab evaluated over 2-year time period. In the legend, dates of the crack width evaluation are shown, with the age of the pavement in days indicated in parentheses. The crack width values are the daily maximum value corresponding to approximately the daily low concrete temperatures at the top of the slab. It shows the effects of concrete temperatures on crack widths. The correlation between concrete temperature and crack width is not quite good at the early ages (6 to 35 days from the construction). However, the correlations improved in a year. The poor correlation at the early ages might be due to the effects of other variables on crack width, such as drying shrinkage of concrete and the development of additional transverse cracks. The figure shows crack width actually decreased over time. Even though the values in two years are about 0.5 mils larger than those in one year, it shows the reduction of crack width in almost 3 mils over the 2-year time period. As will be discussed later, the same trend was observed in the Austin section. This has quite important implications in understanding long-term performance of CRCP. Up to now, the hypothesis that crack width increases over time has been universally subscribed to by researchers and practitioners, and theoretical models have been developed with this hypothesis. The practical implications of this finding are discussed later on.

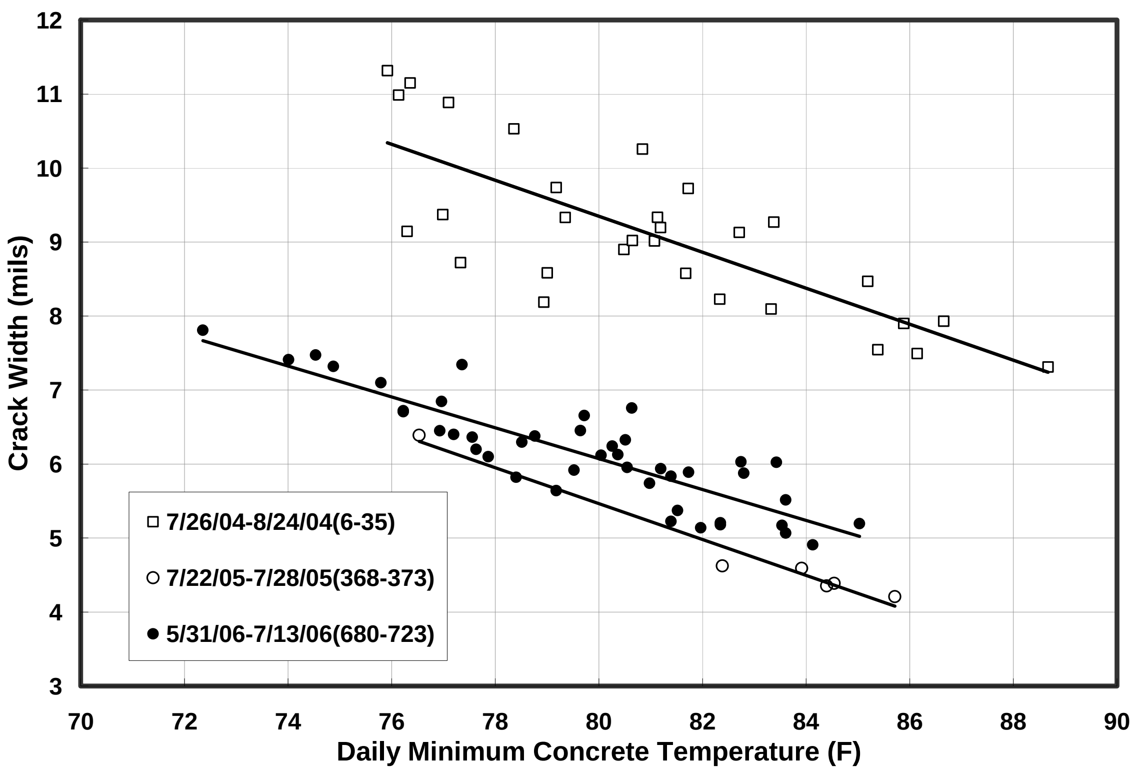

Figure 2.9: Crack width variations over 2-year time period

2.1.2 Austin Section

In the Austin test section, concrete was placed at the gage location at 7:40 a.m., on September 25, 2003. Concrete setting temperature was 87° F, which occurred at 2:00 p.m. on the same day. Figure 2.10 shows that the crack developed about 8:00 a.m. on the third day. In the graph, day 1.0 means the midnight of the second day after concrete placement and day 2.5

denotes the noon of the second day after concrete placement. It is noted that the crack developed all the way through the depth rather quickly. In this test section, crack inducers were installed at both the top and bottom of the slab, which may explain the lack of gradual crack development though the slab depth as observed in the Cleveland section. It also shows that the bottom crack width was larger than those at the top and mid-depth between noon and 7:00 p.m. of the third day. Also noted is that the concrete displacements at all three depths have the same directions. In other words, the crack opens up or closes down in all depths together, except for a short duration between 3:00 p.m. and 8:00 p.m. on the third day, when the crack at the top and middle started opening up while the crack at the bottom was closing down. At that time period, the slab at the crack was showing flexural behavior.

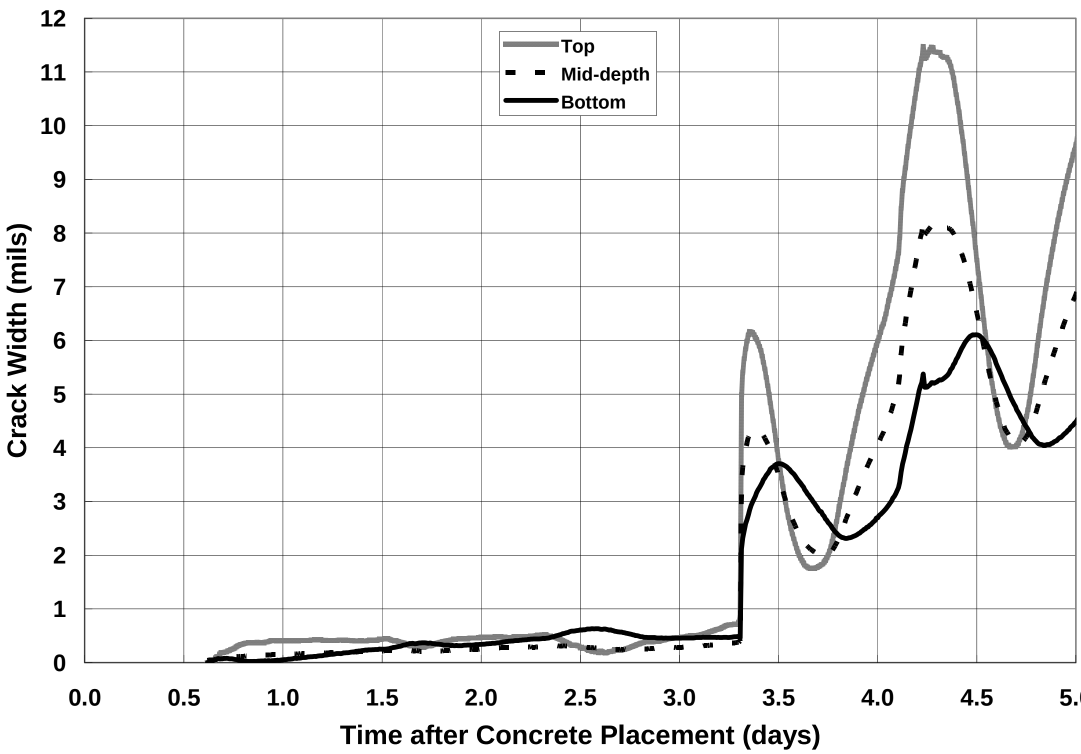

Figure 2.10: Crack width variations at the top, middle, and bottom of slab for the first 5 days

Figure 2.11 illustrates temperature variations at three depths for the first 5 days after concrete placement. It illustrates that the concrete temperatures at the mid-depth and bottom were higher than that at the top during the first two and a half days, which was due to the heat of hydration stored within the concrete. After two and a half days, the trend doesn't continue. It also shows that concrete temperatures decreased during the first 5 days, with a rather large drop on the second night and third morning after concrete placement, which explains the development of the crack in the morning of the third day.

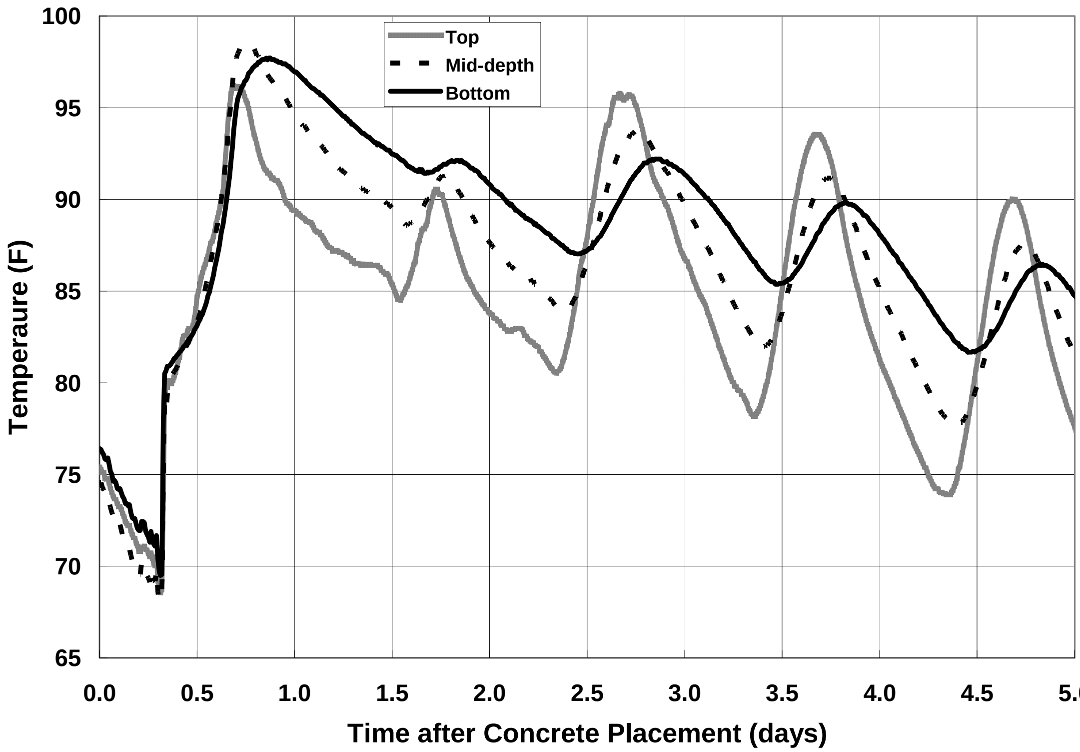

Figure 2.11: Concrete temperature variations at various slab depths for the first 5 days

Figure 2.12 shows the crack width variations for 3 days at different slab depths almost 3 years after the construction. It is noted that crack widths at the top and mid-depth follow the same pattern, while the crack width at the bottom follows the opposite trend. In other words, the slab shows flexural behavior.

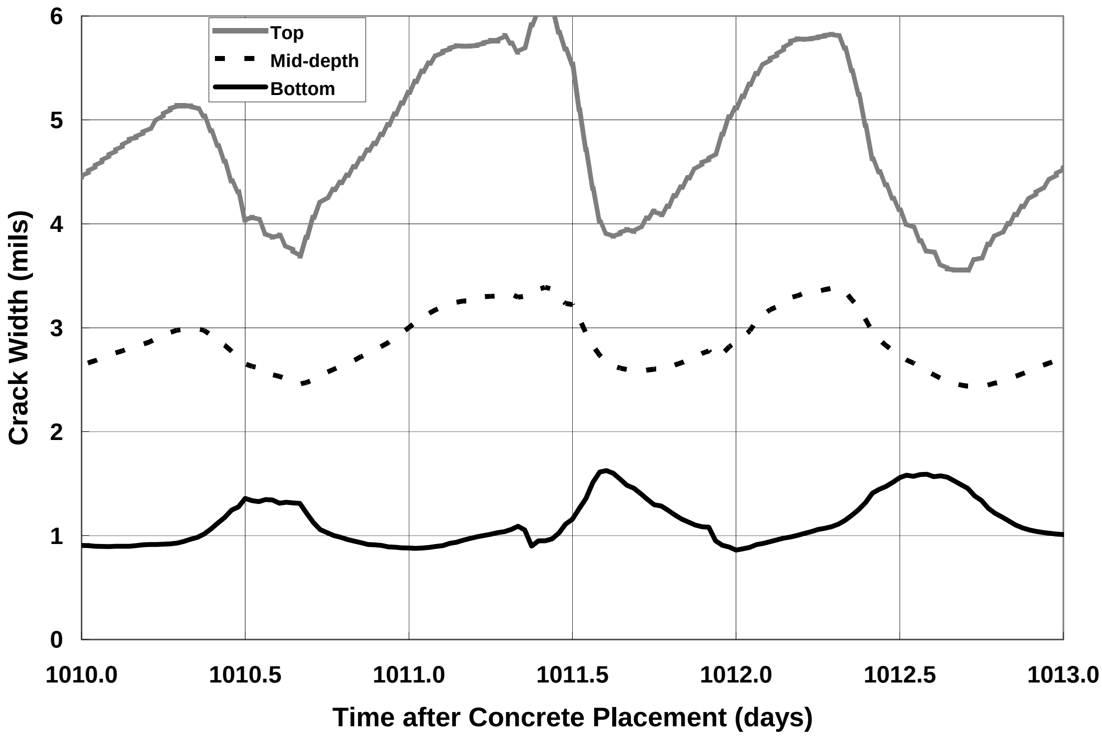

Figure 2.12: Crack width variations at various depth almost 3 years after construction

Crack width variations over the three year period are shown in Figure 2.13. Because VWSG measurements were downloaded at different times of the year, the concrete temperatures in the data sets were different. As crack width values depend on concrete temperatures, direct comparisons of crack widths over three year period were not feasible. To make direct comparisons feasible, the crack widths values were normalized at 75° F. It was achieved by conducting linear regression between crack widths and temperature variations in a day, and estimating crack width at 75° F from the regression equation. It shows that crack widths actually decreased over the 3-year time period. As briefly discussed earlier, one of the basic assumptions made in the CRCP research area is that crack width increases over time, resulting in the loss of load transfer efficiency at the cracks and eventual structural failure in the form of punchouts. Even though the assumption of crack width increasing over time has been generally accepted for many years in CRCP research, no field data has ever been presented to support the assumption. Instead, the assumption was based on the fact that drying shrinkage in concrete increases over time, and as a result, crack width in CRCP would get larger. The findings in the Cleveland and Austin test sections contradict this assumption. Visual field evaluations of crack widths in quite old CRCP sections show tight crack widths as shown in Figure 2.14. Figure 2.14(a) shows a large crack width on the surface of then-36-year-old CRCP, while Figure 2.14(b) shows the crack width variations along the slab depth, which shows that the crack almost disappears as it goes down. Also, the load transfer efficiency (LTE) measured in this study, discussed in the next chapter, indicates no deterioration of LTE in old CRCP in Texas. The fact that crack width decreases over time and remains quite tight in old CRCP has significant implications in that, if CRCP is properly designed and constructed, it might provide better performance than predicted with currently available models. However, at this point, the exact reason for crack widths decreasing over time is not known and research efforts are underway to identify the reasons.

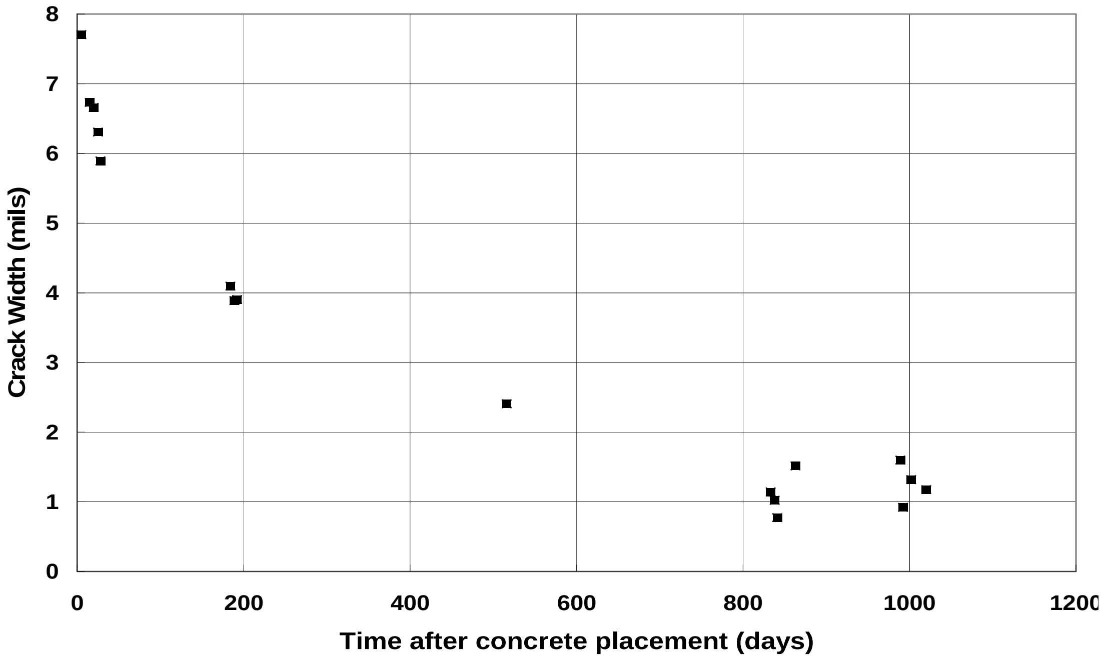

Figure 2.13: Crack width variation over time

Figure 2.14: (a) Large crack width on the surface

Figure 2.14: (b) Tight crack widths

2.2 Structural Distresses Observed in CRCP and Their Proposed Mechanisms

In this section, structural distress types observed in CRCP are discussed. During the selection and project-level evaluations of 27 test sections in this project, no punchouts were observed in those test sections. Punchouts are not easy to detect and investigate, as most punchouts are rather quickly repaired. Most often, patches are the only evidence of distress observed in the field evaluations. To identify “active” punchouts, a survey was sent out to district pavement engineers, inquiring whether they were aware of any punchouts in progress. Several districts responded with a list of punchouts. Field visits were made to evaluate those “active” punchouts. As expected, most of the punchouts were already repaired with full-depth repairs. Very few active punchouts were observed.

It has been reported that punchouts are the only structural distress in CRCP. However, over the years, another structural distress type was observed in CRCP in Texas. It is partial-depth crack that occurs horizontally at approximately mid-depth of the slab. It is believed that, up to now, this distress type was identified and recorded as a punchout. To correctly identify structural distress mechanisms in CRCP, the two distresses should be separately addressed.

2.2.1 Failures due to Horizontal Cracking at Mid-Depth of the Slab

This distress type was first observed in 1999 in Texas, and since then, has been observed rather frequently. What’s unique about this distress type is that it is not actually caused by structural deficiency of the pavement system. In other words, this distress occurs where a sufficiently thick slab was placed over good-quality stabilized subbase. Also observed is that, more often than not, deterioration occurs only on the top half of the slab. The bottom half usually remains solid. Figure 2.15 shows typical appearance of distress with this failure type. Also, note two closely spaced transverse cracks in the deteriorated area, but just one transverse crack in the other side.

Figure 2.15: Distress caused by horizontal cracking at the mid-depth

This CRCP is actually unbonded overlay on old CPCD with 2 in. of hot mix asphalt in between. Figure 2.16 shows the slab segment taken out, which illustrates (1) horizontal cracking in the depth of the longitudinal steel, (2) longitudinal cracks on top of longitudinal steel that stop at the steel, and (3) sound bottom half of the slab. At the time of this investigation, the pavement was more than 15 years old under heavy truck traffic. Still, the bottom half of the slab survived and remained intact without any damages. Further applications of heavy wheel loads might deteriorate the pavement condition. However, the distress mechanism for the initial failure doesn’t appear to be due to structural deficiency of the pavement system, as better subbase support and/or the use of thicker slabs did not prevent this distress type. Currently, a research study is underway to identify the causes of this distress and ways to prevent it. Findings made so far indicate that this distress is caused by splitting bond failure between concrete and steel. Splitting bond failure requires a certain amount of bond slippage between concrete and steel, which could be facilitated by a combination of high coefficient of thermal expansion (CTE) and elastic modulus of concrete, and potentially low concrete strength, as well as substantial temperature variations. It appears that modifying steel designs or the use of concrete with low CTE or modulus of elasticity could minimize the occurrence of this distress. Figure 2.17 shows the distress due to horizontal cracking. It is observed that the concrete on the surface is shattered. Figure 2.18 shows that the bottom concrete is solid. It appears that this distress is not due to structural deficiency of the pavement system. TxDOT used to repair this type of failures using Item 361, full-depth repair (FDR). The effectiveness of FDR has not been fully established, as subsequent additional distresses form near the border of the new FDR. Also, FDR is quite costly. Suggestions were made to Area Office personnel to utilize partial depth repairs, as this distress is not full-depth failure. Area office repaired the failures with partial depth repair method, which cost about 1/7 of FDR. The Area Office personnel are quite satisfied with the results. For the repair of this type of distress, partial depth repair should be utilized. As TxDOT is utilizing locally available coarse aggregates for CRCP construction, the potential for this type of distress still exists. Research efforts are still underway to prevent or mitigate this type of failures.

Figure 2.16: Slab segment showing horizontal cracking at the mid-depth, longitudinal crack above longitudinal steel, and sound concrete at the bottom half

Figure 2.17: Distress due to mid-depth horizontal cracking

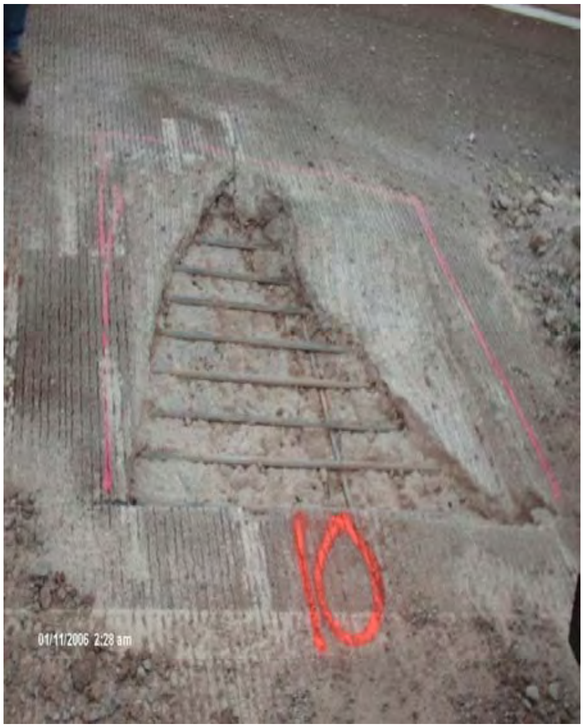

Figure 2.18: Solid bottom concrete shown after the top concrete was removed

2.2.2 Edge Punchouts

Rather extensive research efforts have been made to identify the causes of edge punchouts and to develop means to mitigate this type of distress. Edge punchouts are full depth failure, where an edge slab segment with two closely spaced transverse cracks and a longitudinal crack are extending down. Figure 2.19 shows a typical edge punchout. This distress is normally preceded by excessive edge deflections and some loss of support at the edge due to pumping. When slabs were relatively thin from the standpoint of today's traffic, subbase support was not sound, and no load transfer existed at the edge of the pavement, this type of failures was not uncommon. Recognizing this mechanism, TxDOT modified its design and construction practices, by using thicker slabs over non-erodible subbase with tied concrete shoulder. Since then, this distress type is extremely rare. However, TxDOT still has many miles of CRCP with deficiencies in slab thickness, subbase support, or load transfer at the edge, which might experience edge punchouts in the future. It's expensive to make slabs thicker by bonded overlay, and almost impossible to improve subbase support. However, retrofitting tied concrete shoulders could be the most cost-effective option to extend the lives of CRCPs, if funding becomes available.

Figure 2.19: Typical edge punchout

During the course of this research, it was discovered that concrete slabs with 4-in. asphalt stabilized subbase showed severe pumping as shown in Figure 2.20. Fortunately, longitudinal cracking or punchouts have not taken place yet. FWD testing showed quite high edge deflections, as high as 11 mils at 9,000 lbs loading. With continued pumping and wheel loading applications, the slabs are expected to experience longitudinal cracking, and eventual punchouts.

Figure 2.21 shows a half-moon shape longitudinal crack. This section is also on the same highway shown in Figure 2.20, and it is not unreasonable to assume that the section shown in Figure 2.20 will develop the crack pattern shown in Figure 2.21. In Figure 2.21, it is observed that one slab segment was already repaired by FDR. Eventually, it is expected that all these slab segments will develop into punchouts. The progression following this pattern was also observed independently by a researcher at the University of Illinois (*3*). It appears that edge punchouts can be best prevented by providing good subbase support and load transfer by tied concrete shoulder.

Figure 2.20: CRCP with severe pumping

Figure 2.21: Half moon shape longitudinal crack

Chapter 3. Data Analysis

In this research project, detailed project-level evaluations were made on the pavement condition and structural behavior of CRCP using a falling weight deflectometer (FWD). Field evaluations were made twice a year, one in the summer and the other in the winter. This chapter presents detailed example analysis of the data on one test section in the Amarillo District and discusses the findings. The complete analysis of the data for all the sections will be presented in the final report of this project. The information on the test section selected for the presentation in this report is shown in Table 3.1. In the database, this form constitutes the first sheet, with general information about the test section and collected data following this table. The Center for Transportation Research (CTR) maintains the database in two forms: electronic and hard copy.

Table 3.1: Detailed information for the test section

District	Amarillo
County	Oldham
CTR No.	4I40-1
Survey Date	2/23/2006
Construction Date	3/31/1997
Reference Markers (start to end)	RM1 MP 33 + 287 ft
Surveyor	Medina, Won, Ho
Highway	IH 40
Direction	W
Vertical Align	Fill
Horizontal Align	Tangent
No. Lanes	2
PMIS Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Tining Transverse
Concrete CAT	River Gravel
Drainage Characteristics	Nomal Ditch
GPS Start	35° 15' 17.6"
0 ft	102° 28' 57.5"
GPS C Joint	n/a
500 ft	n/a
GPS End	35° 15' 21.1"
1500 ft	102° 29' 14.8"
CRCP D (in)	11 in

This section is located in the Amarillo District on IH 40 in Oldham County. The unique CTR number for this section is 4I40-1. The first number 4 denotes the number for the Amarillo District in the old District Number system and I40 is the highway name. The last number 1 after dash is the section ID in the District. The first survey was conducted on February 23, 2006. The section was constructed on March 31, 1997, and begins at milepost 33 plus 287 ft. The list of CTR staff who conducted the field evaluation is included. The test section is in westbound, tangent, and in fill. There are two lanes in each direction and the lane surveyed is in L1 per TxDOT's PMIS Rater's Manual (1). L1 is a designation for the farthest outside lane that is in opposite direction to the increasing reference markers. Tied concrete shoulder was utilized. The surface was tined in transverse direction and coarse aggregate used was siliceous river gravel. Normal drainage ditches were used. GPS coordinates were measured and recorded for the beginning and end of the test section. The slab thickness was 11 inches.

As one of the primary objectives of this research study is to collect information on CRCP behavior that will be used to calibrate a yet-to-be developed mechanistic-empirical CRCP (MECRCP) design procedures, CRCP behavior that will be included in MECRCP design procedures was evaluated. The information analyzed includes effects of crack spacing and concrete temperature on load transfer efficiency and the effect of crack spacing and slab thickness on slab deflections.

3.1 Load Transfer Efficiency (LTE) Analysis

As discussed in the previous chapter, LTE is considered one of the most important CRCP structural behaviors that determine pavement performance, as wheel load stresses in concrete will be greatly influenced by LTE. Because LTE depends on crack widths and it is assumed that the crack spacing and concrete temperatures have substantial effects on crack widths, it follows that LTE will depend on those two variables. The effects of the crack spacing and concrete temperatures on LTE were evaluated in this project. In this report, LTE analysis for the Section 4I40-1 described earlier is presented. The effect of transverse crack spacing and measurement season on LTE is presented.

In this database project, three crack spacing groups were selected; short (1~3 ft long), medium (3~6 ft long), and large (over 6 ft). In order to accurately evaluate the effects of transverse crack spacing on LTE, when selecting a crack, it was made sure that crack spacing on both sides of the crack was similar. For example, in selecting a crack for large spacing, it was made sure that two adjacent cracks from the selected crack were more than 6 ft apart. Table 3.2 illustrates the detailed information on the cracks selected for LTE evaluations. The first column shows the crack ID for each crack. The first letter in the crack ID denotes the crack spacing. S stands for short crack spacing, M for medium, and L for large crack spacing. The second letter, either I or II, denotes whether the crack is before the transverse construction joint or after the construction joint. Letter I is used to designate the crack before the construction joint, and II the crack after the construction joint. The third letter shows the crack number within the group, either before or after the transverse construction joint. The second and third columns show GPS coordinates of the cracks. The fourth and fifth columns show the crack spacing before and after the selected crack, respectively. The last column provides information regarding the time the FWD testing was conducted for LTE evaluations. In the field, paint was used to denote the locations of each crack as shown in Figure 3.1. Figure 3.1 shows the crack M-II-1, which denotes the first crack with medium spacing on both sides of the crack that is in after the construction joint. Table 3.2 shows the crack spacing on both sides of this crack was the same 5.6 ft.

Table 3.2: Detailed information on the cracks selected for LTE evaluations

Crack ID	GPS Coordinates		Crack Spacing		Time
	Latitude	Longitude	Before	After	
M-I-1	35° 15' 17.7"	102° 28' 57.9"	3.6	5.3	
M-I-2	35° 15' 17.7"	102° 28' 58.5"	5.7	2.7	11:29
L-I-1	35° 15' 17.8"	102° 28' 58.1"	7.8	7.3	
S-I-1	35° 15' 18.0"	102° 29' 0.1"	3.0	3.9	11:30
S-I-2	35° 15' 18.4"	102° 29' 1.8"	3.3	4.8	
L-I-2	35° 15' 18.5"	102° 29' 2.5"	8.4	9.4	11:51
S-II-1	35° 15' 18.6"	102° 29' 3.3"	2.9	2.8	
L-II-1	35° 15' 18.7"	102° 29' 3.6"	9.8	6.8	12:50
M-II-1	35° 15' 18.7"	102° 29' 4.0"	5.6	5.6	
S-II-2	35° 15' 18.9"	102° 29' 5.3"	2.5	3.3	
M-II-2	35° 15' 19.1"	102° 29' 6.2"	3.8	4.9	
M-II-3	35° 15' 19.2"	102° 29' 6.9"	4.5	4.2	13:11
S-II-3	35° 15' 19.6"	102° 29' 8.3"	1.8	1.5	
M-II-4	35° 15' 19.7"	102° 29' 8.8"	3.8	3.9	
L-II-2	35° 15' 19.6"	102° 29" 9.4"	6.8	8.4	
L-II-3	35° 15' 20.0"	102° 29' 11.3"	10.7	7.3	
M-II-5	35° 15' 20.2"	102° 29' 12.2"	5.6	5.0	13:50

Figure 3.1 Crack M-II-1

Before the further discussion of LTE, it is necessary to discuss how LTE is computed in CRCP, as most of the work on LTE has been for jointed concrete pavement (JCP) and not much information is available on LTE in CRCP. There are several different ways to evaluate LTEs in JCP. The most widely used method in JCP is as follows:

$$LTE = \frac{d_u}{d_l} * 100\% \quad (3.1)$$

and

$$LTE^* = \frac{2 d_u}{d_l + d_u} * 100\% \quad (3.2)$$

where:

- d_l = the maximum deflection at the joint of the loaded slab.
- d_u = the corresponding deflection at the joint of the unloaded slab.
- LTE and LTE* = load transfer efficiency indexes.

These two formulations are related as both include only d_l and d_u as independent variables. In LTE analysis in JCP, d_l and d_u are measured across a transverse contraction joint. Figure 3.2 illustrates the LTE measurements in JCP. d_l is the deflection measured directly under the loading plate, while d_u is the deflection at 12 inches away from the loading plate across the joint. The assumption made in these two formulations is that the maximum deflection will be at the joint, not at the loading plate. In JCP, this assumption appears to be correct as a full crack exists under the joint.

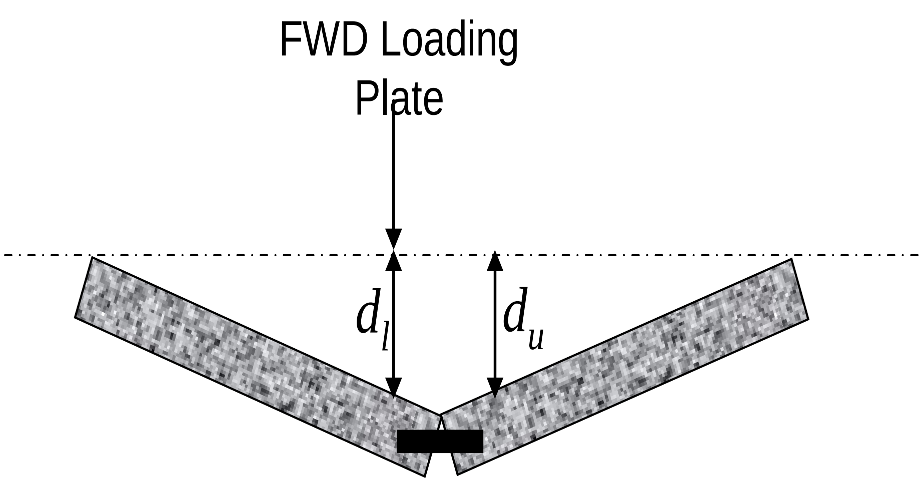

Figure 3.2: LTE evaluations for jointed concrete pavement

However, it is not clear whether the same system should be applied to LTE evaluations for CRCP. Normal transverse crack in CRCP is quite different from transverse contraction joint in JCP as far as structural continuity is concerned. In a transverse contraction joint in JCP, one-third or one-quarter of the slab depth is saw cut, and a crack develops under the saw cut. Aggregate interlock is not always provided, especially at low temperatures. The only physical means to connect the two slabs is dowel bars. Dowel bars are not to keep the two slabs together, but to provide load transfer. On the other hand, in CRCP, transverse cracks are kept quite tight by longitudinal steel and there is a high degree of aggregate interlocks. Moreover, many transverse cracks do not go all the way to the bottom of the slab. Because of this difference, the slab might deflect as shown in Figure 3.3(a) or in Figure 3.3(b) depending on the condition of crack width and longitudinal steel at a crack. The slab might deflect as shown in Figure 3.3(a) if the slab behaves as if it were a continuous slab. and the maximum deflection will develop under the loading plate. In this case and when the loading is applied at the same side as sensor #2 (upstream case), sensor #2 reading becomes d_l and the forth sensor reading, which is located 12 inches away from the loading plate on the other side of the crack becomes d_u. LTE is evaluated by the ratio of the forth geophone reading (d_u) to the second geophone reading (d_l). In a case where a crack and/or longitudinal steel are badly deteriorated, then the deflection bowl might be as shown in Figure 3.3 (b). In this case, the use of the formula for JCP could be more appropriate for LTE evaluation. To evaluate whether CRCP slabs with normal transverse cracks behave as shown in Figure 3.3(a) or 3.3(b), and to develop a rational LTE evaluation method for CRCP, a field testing was conducted using FWD. FWD trailer was placed in such a way that the center of the loading plate was at 12 inches from a transverse crack, as shown in Figure 3.4(a). With the FWD trailer fixed at the same location, sensor #4 attached in the extension bar was moved, on average one inch at a time, from the far end of the extension bar toward the loading plate with each drop of the loading. In this setup, the deflection readings of the sensor #4 indicate the deflection shape of the concrete slab. Figure 3.4(b) shows the testing results, indicating that the deflection of the slab near a transverse crack follows the shape shown in Figure 3.3(a), which indicates that a transverse crack does not behave like a transverse contraction joint in JCP. In this Figure, the location of a transverse crack is denoted by a vertical line at 12-in from the center of the loading plate. It further indicates that longitudinal steel and aggregate interlock appear to provide continuity of the slab at a transverse crack. Based on this, unless transverse cracks are wide and longitudinal steel is broken, LTE in CRCP should be evaluated in accordance with the deflections measured as shown in Figure 3.3(a). There are other issues related to the measurements of LTE. In the scheme shown in Figure 3.2, it is assumed that the loading plate and sensor #4 are at equal distance from the joint, which is 6 inches. If the loading plate is placed further away from the joint, artificially high LTE values will be obtained. In other words, in this scheme, LTE becomes sensitive to the placement of the loading plate. From a practical standpoint, it’s not always easy to place the loading plate close to the joints or cracks all the time. On the other hand, the testing and analysis scheme shown in Figure 3.3(a) is less sensitive to the location of the loading plate with respect to transverse cracks. In this data analysis, the testing and analysis system shown in Figure 3.3(a) was used.

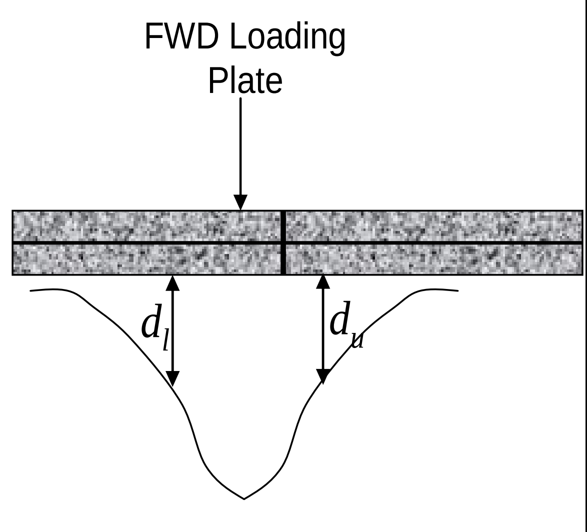

Figure 3.3: (a) LTE testing setup for tight cracks in CRCP

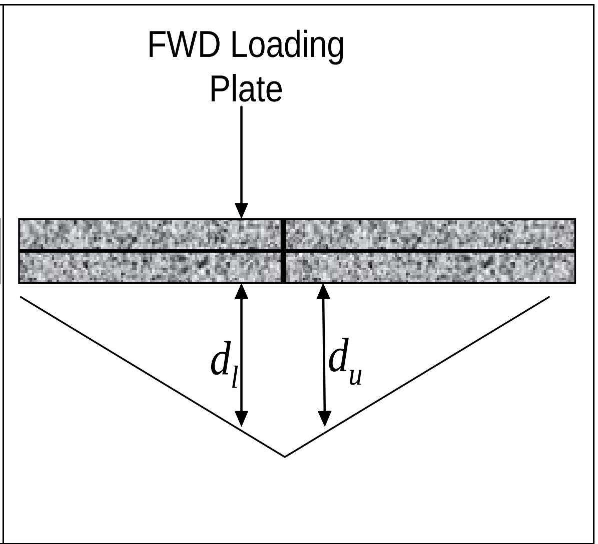

Figure 3.3: (b) LTE testing setup for wide cracks and deteriorated steel in CRCP.

Figure 3.4: (a) FWD testing for deflection bowl evaluation

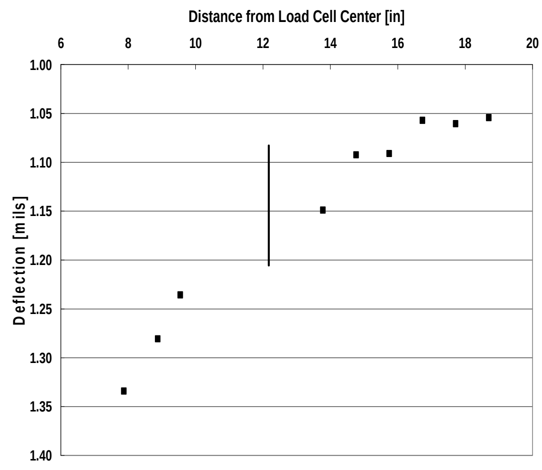

Figure 3.4: (b) Deflection shape of CRCP slab near a transverse crack

Figure 3.5 shows the effects of crack spacing on LTE for winter and summer. In general, quite high LTEs are observed regardless of crack spacing and measurement seasons. It is counter-intuitive in that crack widths will get larger in the winter due to low concrete temperatures, resulting in lower LTEs. This temperature effect is quite pronounced for LTEs of transverse contraction joints in JCP. However, Figure 3.5 shows that's not the case in CRCP. It is noted that crack spacing has practically no effects on LTE during summer. On the other hand, in the winter, cracks with medium spacing provide the highest LTEs, followed by cracks with large and small crack spacing, even though the difference is quite small.

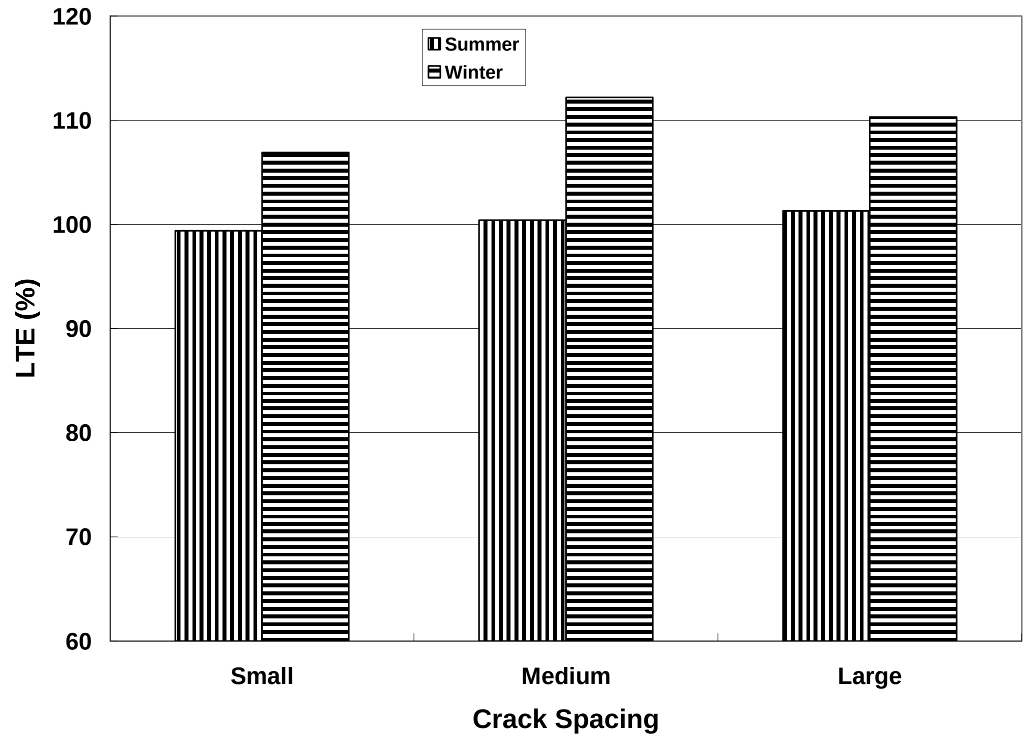

Figure 3.5: Effects of crack spacing on load transfer efficiency for different seasons

Higher LTE values obtained in this test section could be misleading and a caution is needed for the interpretation of the results. As discussed earlier, LTE in CRCP is a ratio of deflections of sensors #4 and #2, and does not consider the absolute values of deflections. Deflections could be high, indicating that the pavement is structurally not sound or a crack is somewhat open, while computed LTEs could be high. It could be the other way around, i.e., deflections could be low, indicating that the pavement is in good structural condition and the crack is quite tight, while LTEs could be low. Also noted in Figure 3.5 is that LTEs were higher in the winter than in the summer. It also could be misleading. This result is also a consequence of LTEs being a ratio of two deflections. Overall deflections in this section were higher in the winter than in the summer; however, LTE values imply that CRCP in the winter might be in better structural condition, although deflection values themselves indicate otherwise. High level of LTEs has been observed in most of the CRCPs in Texas. It's not clear at this point whether LTE itself is a good indicator for the structural and crack condition of CRCP.

3.2 Effect of Crack Spacing on Mid-Slab Deflections

Even though deflections were measured at slab segments with different crack spacing in all test sections, the information collected on US 290 presents more valuable information and is discussed here. US 290 in the Houston District near Hempstead, which was completed in 1993, presents valuable test sections because the same pavement designs were used for both east and west bound lanes, but with different coarse aggregate types. Siliceous river gravel was used in the eastbound lanes, while crushed limestone was used in the westbound lanes. For selected slabs, FWD testing was conducted twice on the same day; one in the morning and the other in the afternoon. Twenty-two slabs with various crack spacing were selected in the westbound lane and 27 slabs in the eastbound lane. Figure 3.6 shows the test results in the eastbound lane. It shows, for a specific slab, both morning and afternoon deflection results. It appears there was almost no effect of crack spacing on deflections. It is also interesting to note that, in this section where siliceous river gravel was used, in general, smaller deflections were obtained in the morning testing than in the afternoon testing. It is postulated that curling effects resulted in the differences in deflections between morning and afternoon testing. In the morning, the slab is curled upward due to lower temperatures on the upper portion of the concrete slab, which results in complete contact of the slab with subbase in the middle of the slab between two transverse cracks, where FWD was applied. This full contact appears to have resulted in smaller deflections in the morning. In the afternoon, slabs curled downward and mid-slab was slightly lifted, which resulted in slightly larger deflections.

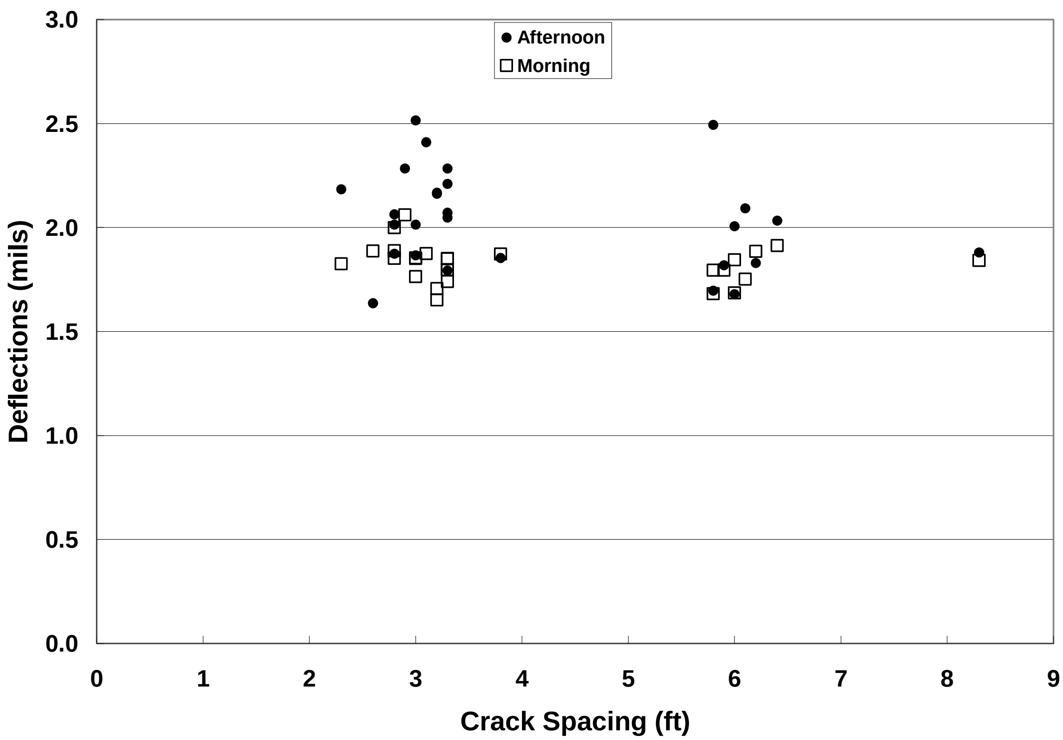

Figure 3.6: FWD deflections at mid-slab on US 290 eastbound lane

Figure 3.7 shows the FWD deflections on the westbound lane. It is noted that crack spacing does not appear to have effects on deflections. Compared with the data on eastbound lane, the difference in deflections between morning and afternoon testing is smaller. Crushed limestone was used in the westbound lanes, and it appears that the amount of curling was less here than in the eastbound lanes, primarily due to the lower coefficient of thermal expansion (CTE) of this concrete. Considering the results in Figures 3.6 and 3.7, it is not feasible to determine optimum crack spacing in CRCP.

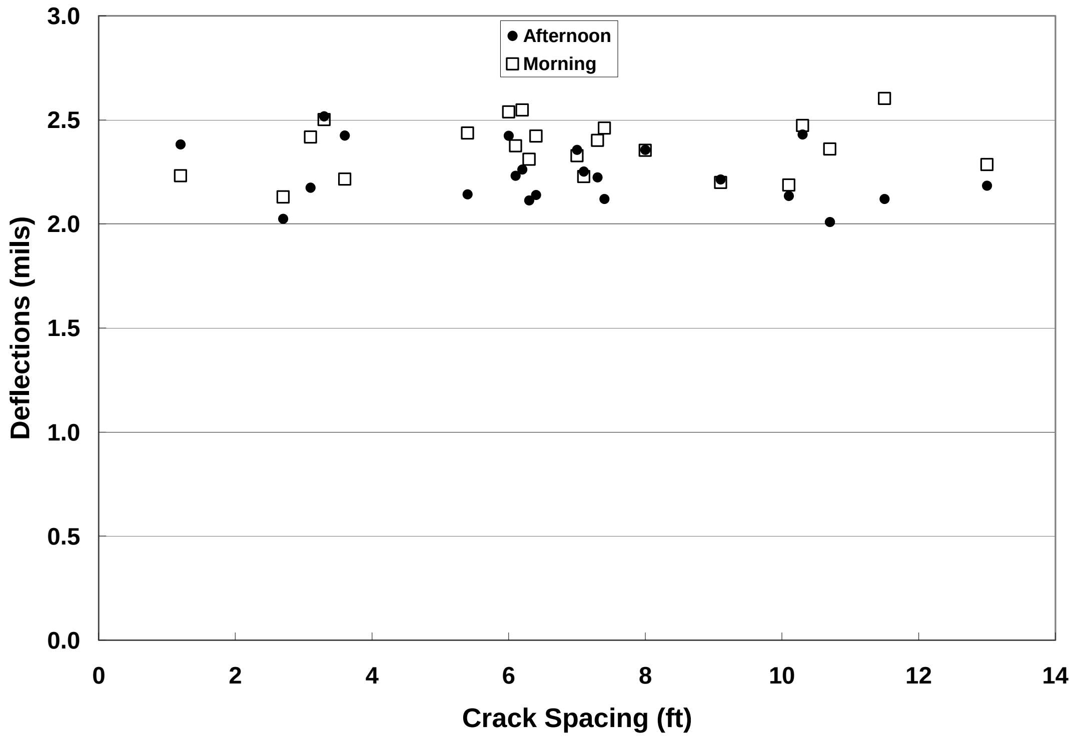

Figure 3.7: FWD deflections at mid-slab on US 290 westbound lane

It is worth discussing the issue of transverse crack spacing in CRCP. Currently, contradicting information exists on the effects of transverse crack spacing on CRCP performance in terms of punchouts. The information promoting shorter crack spacing is as follows:

1) Generally, larger crack spacing results in wider crack opening and loss of LTE. (*2*)
2) The steel design is also critical from the standpoint of its effect on crack spacing. Field studies have shown that increased steel content results in fewer punchouts and increased smoothness, even though the crack spacing typically decreases significantly. (*2*)
3) Limiting mean crack widths to 0.02 in. at the steel depth (or other values as selected by the designer) has been found to control the mean crack spacing to a reasonable level. The maximum recommended mean crack spacing is 6 ft. (*2*)
4) Studies have shown that placing the reinforcement closer to the surface results in much tighter cracks and fewer punchouts due to shorter crack spacing. (*2*)
5) Over 2 miles of the original CRCP design was built on freeways that carry heavy trucks. It has shown exceptional performance: no punchouts have occurred over the past 20 years under very heavy traffic. However, in approximately 1978, the pavements had very tight closely spaced cracks (crack spacing was 1.6 ft), and the government became concerned that the pavement would break up. On subsequent projects the reinforcement was reduced to 0.67 percent and the AC interlayer was eliminated, which resulted in larger crack spacing. Some of these newer pavements are starting to show crack spalling and a few punchouts. (*6*)

On the other hand, information promoting larger crack spacing, even though it does that indirectly, is as follows:

1) CRCP punchouts are the result of a combination of loss of LTE across two closely spaced transverse cracks (crack width is primary factor). (*2*)
2) About 90 percent of all punchouts observed on LTPP sections were on CRCP segments bound by a pair of transverse cracks spaced at 2 ft or less. (*2*)
3) Crack spacing recommendations are derived from consideration of spalling and punchouts. To minimize the occurrence of spalling, the maximum spacing between consecutive cracks should be no more than 8 feet. To minimize the potential for the development of punchouts, the minimum desirable crack spacing recommended by AASHTO is 3.5 feet. (*2*)

Even though the preceding two groups of statements seem to be contradicting each other, they may be pointing out the same idea, which is that the ideal CRCP should have smaller crack widths and decent crack spacing. However, achieving this ideal is quite challenging. For example, the best way to achieve tight crack widths is to use more steel reinforcement. On the other hand, more steel reinforcement will result in more cracks and shorter crack spacing. Based on the findings in this research project, where no punchouts were observed while crack spacing varied substantially, it appears that transverse crack spacing might not be such an important CRCP behavior. Rather, straight, not meandering, cracks with uniform spacing and tight widths obtained by adequate amount of steel reinforcement and good quality control of materials and construction operations might be the ideal features of the CRCP. How to achieve those features in CRCP is beyond the scope of this project. Currently, TxDOT is sponsoring a research study on the mechanistic-empirical CRCP design, and the topic can be addressed in that project.

3.3 Effect of Slab Thickness on Deflections

Slab deflections have substantial effects on CRCP performance. Large edge deflections will cause deteriorations in the subbase, pumping, voids, and eventual punchouts. Deflections were measured in the test section at 50-ft intervals. Figure 3.8 illustrates the deflections measured in the winter and summer on the same locations. It shows larger deflections were obtained in the winter than in the summer, except for a few locations, although Figure 3.5 indicated that larger LTEs were obtained in the winter than in the summer. As indicated in Table 3.1, the coarse aggregate type used in this project was siliceous river gravel. The surface concrete temperature during the winter testing was in the upper 20s, and curling might explain larger deflections in the winter. Considering this testing was conducted at 50-ft intervals so that some testing points could be close to transverse cracks, the small variability in deflections, especially for summer testing, indicates uniform structural condition of the pavement.

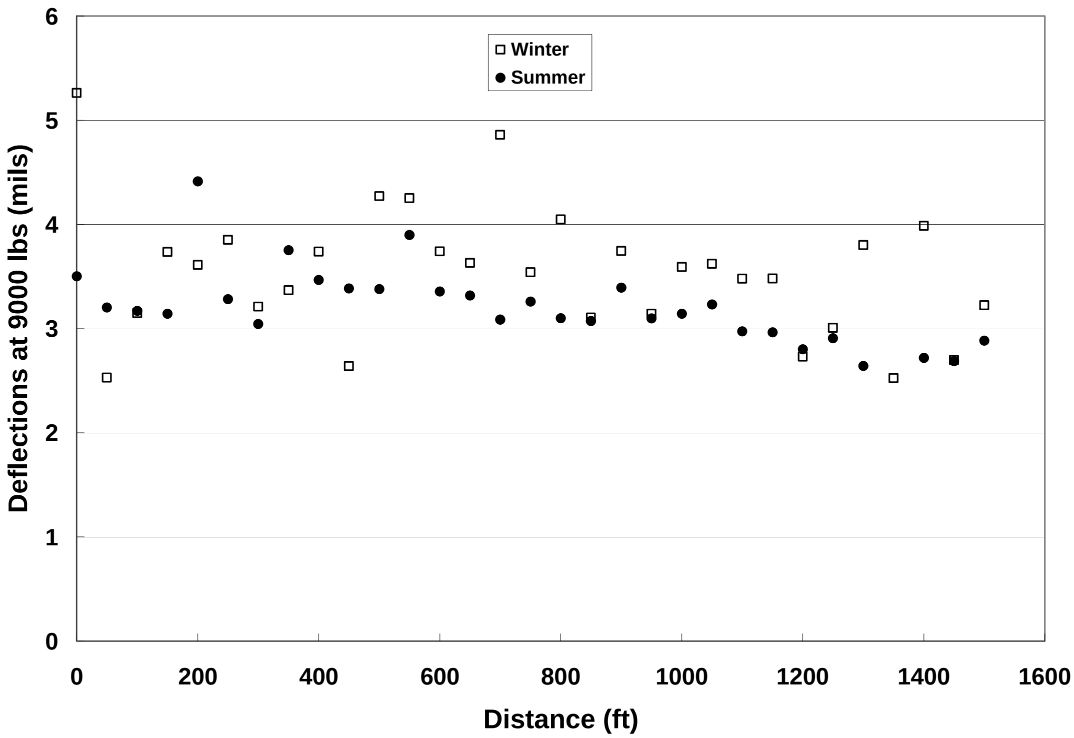

Figure 3.8: Deflections measured at 50-ft intervals at two different seasons

Figure 3.9 presents deflections of each test section in the database. In this graph, each point represents an average of the deflections measured at 50-ft intervals in each test section. Considering various subbase structures used in the test sections, it shows a reasonable correlation between slab thickness and deflections. Low deflections for 14-in. and 15-in. CRCP are noted. With such low deflections, the pavements might last quite a long time before any structural distresses will develop. Or, other distresses caused by durability issues on the surface due to long service life might necessitate the rehabilitations.

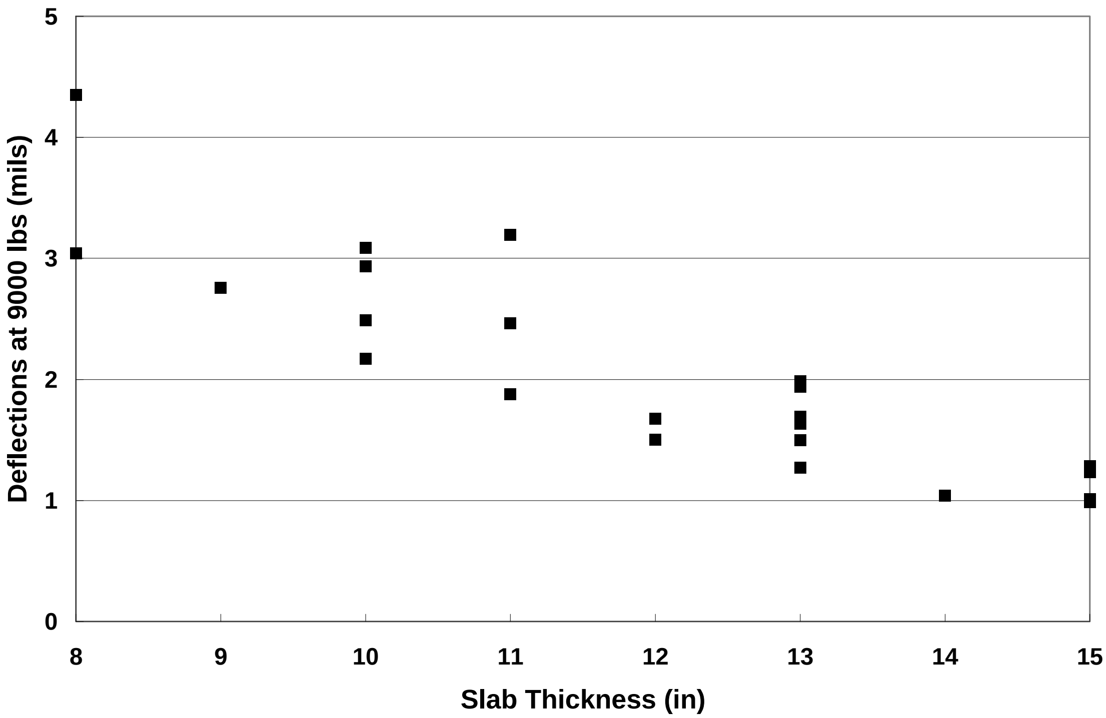

Figure 3.9: Effect of slab thickness on CRCP deflections

3.4 Summary

This chapter presented the analysis results of data collected on a test section in the Amarillo District, CTR No. 4I40-1, along with the other data set. The information analyzed includes effects of crack spacing and concrete temperature on load transfer efficiency and effect of crack spacing and slab thickness on slab deflections. The findings can be summarized as follows:

(1) Transverse crack spacing does not appear to affect load transfer efficiency.

(2) Testing season has minor effects on load transfer efficiency.

(3) Transverse crack spacing does not have substantial effects on mid-slab deflections. For the concrete slab with higher coefficient of thermal expansion, deflections in the morning were higher than those measured in the afternoon.

(4) There is a decent correlation between slab thickness and slab deflections, as expected.

(5) It appears that too much emphasis has been placed on transverse crack spacing in CRCP. Straight, not meandering, cracks with uniform spacing and tight widths obtained by adequate amount of steel reinforcement and good quality control of materials and construction operations might be the ideal features of the CRCP.

Chapter 4. Summary and Recommendations

This report presents the findings from (1) two test sections constructed to investigate microscopic crack width behavior of CRCP, (2) several distress types observed in CRCP in Texas, and (3) example analyses conducted on the information collected in a test section in the Amarillo District. The following summarizes the project findings:

(1) Transverse crack width decreases over time, which is contrary to what's been accepted as a general crack width behavior in CRCP. The reason for this decrease is not known.

(2) Concrete temperature has a dominant effect on the crack width behavior. Most of the time, CRCP slabs exhibit flexural behavior at the cracks due to temperature variations. The neutral axis for crack width variations appears to exist below the mid-depth.

(3) Two major structural distress types were observed in CRCP: horizontal cracking-induced distress and edge punchouts. The mechanism of horizontal cracking appears to be curling of concrete slab, caused by large temperature changes in the upper portion of the concrete slab. A large coefficient of thermal expansion of concrete, modulus of elasticity, and temperature variations appear to be causing this distress.

(4) Neither transverse crack spacing nor concrete temperature appears to have substantial effects on load transfer efficiency in CRCP. The insensitivity of LTE to temperature is different from the behavior of JCP. In JCP, LTE at a transverse joint is quite sensitive to concrete temperatures. Crack widths get larger with lower temperatures, which should result in lower LTEs. However, field evaluations indicate almost constant LTEs evaluated in the summer and in the winter.

(5) Transverse crack spacing does not appear to have substantial effects on slab deflections.

Based on the findings in this study, the following recommendations are made:

(1) Load transfer efficiency, in the current form, doesn't appear to be a good indicator for structural condition of CRCP. Efforts should be made to improve the formulations or develop other evaluation forms.

(2) Efforts should be made to clarify the effects of transverse crack spacing on CRCP performance. Contradicting statements have been made regarding what should be the desirable crack spacing.

References

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2. ARA Inc (2004), "Guide for Mechanistic-Empirical Design of New and Rehabilitated Pavement Structures," ARA Inc, ERES Division, Champaign, Illinois

3. Suh, Y.C., Hankins, K. & McCullough, B.F. (1992) "Early-Age Behavior of Continuously Reinforced Concrete Pavement and Calibration of the Failure Prediction Model in the CRCP-7 Program," Research Report 1244-3. Center for Transportation Research, The University of Texas at Austin, Austin, Texas

4. B. Glisic, N. Simon, (2000) "Monitoring of Concrete at Very Early Age using Stiff SOFO Sensor," Cement and Concrete Composites

5. American Association of State Highway and Transportation Officials (1993), "AASHTO Guide for Design of Pavement Structures," American Association of State Highway and Transportation Officials, Washington, D.C.

6. Federal Highway Administration (1992), "Report on the 1992 US Tour of European Concrete Highways," Federal Highway Administration, Washington, D.C.

Test Section : 2-I35-1

GENERAL DESCRIPTION	
Highway	IH 35W
District	Ft. Worth
County	Tarrant
Direction	S
Reference Marker	MP 41
Pavement Type	CRCP
Slab Thickness	13 in
Construction Date	1905-05-29
Vertical Alignment	Grade
Horizontal Alignment	Curve R
No of Lanes	3
PMIC Surveyed Lane	L3
Shoulder Type	Flex
Surface Texture	none
Concrete CAT	SRG
Drainage	
GPS (start)	N32°35'58.7"
	W097°19' 10.2"
GPS (end)	N32°35'49.0"
	W097°19' 10.2"
Survey Dates	2006-09-13
Surveyors	Medina, Graham, Ryan

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00	0.00	313.09	9.51	617.09	7.59	898.17	7.17
2.25	2.25	319.67	6.57	626.08	8.99	906.75	8.58
5.25	3.00	326.42	6.75	632.42	6.33	915.33	8.58
13.08	7.83	332.00	5.58	636.08	3.67	920.08	4.75
18.58	5.50	338.00	6.00	641.09	5.01	925.17	5.08
25.25	6.67	345.00	7.00	645.67	4.57	931.50	6.33
30.17	4.92	350.09	5.09	649.67	4.00	940.08	8.58
34.08	3.92	354.08	3.99	653.25	3.58	945.17	5.08
35.17	1.08	357.17	3.08	660.08	6.83	951.08	5.92
40.09	4.93	358.42	1.25	664.00	3.92	955.08	4.00
45.09	5.00	363.08	4.67	673.25	9.25	961.33	6.25
53.67	8.58	373.58	10.50	674.50	1.25	968.00	6.67
56.08	2.42	381.33	7.75	680.00	5.50	973.50	5.50
67.25	11.17	393.09	11.76	689.17	9.17	977.08	3.58
74.58	7.33	394.08	0.99	694.75	5.58	985.67	8.58
81.00	6.42	399.58	5.50	701.42	6.67	995.08	9.42
86.50	5.50	405.58	6.00	705.09	3.68	998.75	3.67
89.08	2.58	412.33	6.75	707.08	1.99		
93.00	3.92	426.75	14.42	718.08	11.00		
97.42	4.42	430.75	4.00	723.17	5.08		
107.25	9.83	440.00	9.25	729.75	6.58		
114.42	7.17	445.67	5.67	737.58	7.83		
120.67	6.25	452.00	6.33	741.75	4.17		
129.08	8.42	455.33	3.33	750.17	8.42		
136.42	7.33	464.00	8.67	752.42	2.25		
141.17	4.75	470.42	6.42	755.25	2.83		
147.75	6.58	475.50	5.08	761.75	6.50		
150.75	3.00	479.08	3.58	772.33	10.58		
162.42	11.67	483.00	3.92	779.67	7.33		
177.09	14.68	487.58	4.58	784.58	4.92		
187.00	9.91	494.42	6.83	788.67	4.08		
192.67	5.67	502.00	7.58	791.50	2.83		
198.08	5.42	505.08	3.08	794.67	3.17		
199.17	1.08	513.08	8.00	798.08	3.42		
206.33	7.17	522.25	9.17	807.33	9.25		
215.00	8.67	526.17	3.92	815.08	7.75		
221.09	6.09	533.09	6.92	818.42	3.33		
227.08	5.99	540.17	7.08	823.08	4.67		
233.75	6.67	550.75	10.58	828.00	4.92		
244.17	10.42	554.67	3.92	832.50	4.50		
248.67	4.50	559.75	5.08	842.58	10.08		
255.09	6.42	563.42	3.67	848.50	5.92		
268.67	13.58	568.08	4.67	856.09	7.59		
272.42	3.75	574.50	6.42	861.42	5.32		
277.17	4.75	580.58	6.08	870.00	8.58		
281.17	4.00	586.50	5.92	875.75	5.75		
288.75	7.58	593.08	6.58	878.08	2.33		
293.33	4.58	598.08	5.00	883.25	5.17		
299.42	6.08	605.08	7.00	887.08	3.83		
303.58	4.17	609.50	4.42	891.00	3.92		

- **Load Transfer Efficiency**

2-I35-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
S-I-1	N 32°35'57.9"	W 097°19'10.2"	3'5"	3'2"
M-I-1	N 32°35'56.0"	W 097°19'10.2"	4'10"	4'1"
S-I-2	N 32°35'55.3"	W 097°19'10.2"	3'0"	3'4"
L-I-1	N 32°35'55.0"	W 097°19'10.2"	7'11"	10'4"
L-I-2	N 32°35'54.4"	W 097°19'10.2"	5'10"	6'3"
M-I-2	N 32°35'54.0"	W 097°19'10.2"	3'6"	4'1"
S-II-1	N 32°35'52.4"	W 097°19'10.2"	3'7"	4'0"
S-II-2	N 32°35'51.4"	W 097°19'10.2"	2'0"	2'10"
M-II-1	N 32°35'50.7"	W 097°19'10.3"	4'5"	4'8"
L-II-1	N 32°35'49.9"	W 097°19'10.4"	8'2"	8'11"
M-II-2	N 32°35'49.8"	W 097°19'10.4"	5'6"	4'1"
L-II-2	N 32°35'49.2"	W 097°19'10.3"	8'3"	10'4"

Crack	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S-I-1	no data	no data	1.56	1.51	no data	103.3165
M-I-1	no data	no data	1.84	1.77	no data	104.0855
S-I-2	no data	no data	1.65	1.63	no data	101.0713
L-I-1	no data	no data	1.27	1.24	no data	102.2202
L-I-2	no data	no data	1.16	1.15	no data	100.7722
M-I-2	no data	no data	1.55	1.49	no data	104.561
S-II-1	no data	no data	1.55	1.52	no data	101.9755
S-II-2	no data	no data	2.11	2.10	no data	100.735
M-II-1	no data	no data	1.71	1.62	no data	105.5807
L-II-1	no data	no data	1.39	1.38	no data	100.3542
M-II-2	no data	no data	1.82	1.76	no data	103.1134
L-II-2	no data	no data	1.43	1.43	no data	99.96217

Test Section : 2-I820-1

GENERAL DESCRIPTION	
Highway	IH 820
District	Ft. Worth
County	Tarrant
Direction	NE
Reference Marker	MP 11
Pavement Type	CRCP
Slab Thickness	8 in
Construction Date	1905-05-29
Vertical Alignment	Grade
Horizontal Alignment	Curve R
No of Lanes	3
PMIC Surveyed Lane	
Shoulder Type	Flex
Surface Texture	Carpet drag?
Concrete CAT	Granite + gravel sand
Drainage	
GPS (start)	N32°49'10.5"
	W097°24' 00.9"
GPS (end)	N32°49'15.3"
	W097°23' 50.5"
Survey Dates	2006-09-13
Surveyors	Medina, Graham

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00	0.00	**Construction Joint**		771.25	4.58
3.75	3.75	500.00	9.33	779.67	8.42
8.50	4.75	504.58	4.58	789.17	9.50
14.08	5.58	508.67	4.08	794.08	4.92
17.25	3.17	511.09	2.43	797.42	3.33
28.33	11.08	513.58	2.49	800.50	3.08
34.08	5.75	527.75	14.17	806.08	5.58
45.67	11.58	533.58	5.83	808.17	2.08
54.08	8.42	537.58	4.00	818.25	10.08
57.75	3.67	544.17	6.58	825.67	7.42
63.75	6.00	550.33	6.17	828.09	2.43
65.75	2.00	556.58	6.25	834.42	6.32
71.42	5.67	563.09	6.51	843.25	8.83
74.67	3.25	568.33	5.24	850.58	7.33
79.09	4.43	573.09	4.76	859.00	8.42
96.00	16.91	577.33	4.24	868.00	9.00
98.42	2.42	580.00	2.67	871.17	3.17
106.25	7.83	582.50	2.50	876.25	5.08
110.58	4.33	588.42	5.92	883.00	6.75
117.08	6.50	596.09	7.68	891.08	8.08
125.08	8.00	600.17	4.08	896.50	5.42
128.75	3.67	606.00	5.83	904.42	7.92
134.58	5.83	614.08	8.08	913.00	8.58
140.17	5.58	620.00	5.92	915.50	2.50
148.08	7.92	622.08	2.08	921.67	6.17
155.58	7.50	628.17	6.08	924.58	2.92
163.08	7.50	631.00	2.83	929.67	5.08
171.33	8.25	637.00	6.00	941.58	11.92
174.67	3.33	642.33	5.33	945.08	3.50
182.58	7.92	648.08	5.75	952.42	7.33
186.00	3.42	653.08	5.00	958.42	6.00
379.08	2.50	657.08	4.00	961.50	3.08
385.42	6.33	664.09	7.01	967.08	5.58
387.67	2.25	674.00	9.91	970.33	3.25
396.33	8.67	681.75	7.75	973.00	2.67
399.58	3.25	685.33	3.58	981.17	8.17
408.58	9.00	691.08	5.75	983.50	2.33
416.50	7.92	698.08	7.00	994.33	10.83
419.50	3.00	704.17	6.08		
420.67	1.17	712.42	8.25		
428.58	7.92	713.33	0.92		
436.08	7.50	726.08	12.75		
440.17	4.08	731.50	5.42		
445.08	4.92	738.08	6.58		
450.08	5.00	745.08	7.00		
454.25	4.17	748.50	3.42		
455.08	0.83	755.08	6.58		
471.00	15.92	757.17	2.08		
482.42	11.42	760.58	3.42		
490.67	8.25	766.67	6.08		

- **Load Transfer Efficiency**

2I820-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
L-I-1	N 32°49'10.9"	W 097°26'59.9"	5'1"	15'8"
L-I-2	N 32°49'11.1"	W 097°26'59.5"	7'9"	4'7"
M-I-1	N 32°49'11.5"	W 097°26'58.6"	3'4"	3'0"
M-I-2	N 32°49'11.8"	W 097°26'58.3"	3'3"	5'10"
S-I-1	N 32°49'12.4"	W 097°26'57.1"	3'0"	2'11"
S-II-1	N 32°49'13.0"	W 097°26'55.7"	3'3"	1'8"
M-II-1	N 32°49'13.2"	W 097°26'55.4"	5'10"	4'1"
L-II-1	N 32°49'13.2"	W 097°26'55.2"	6'4"	7'3"
S-II-2	N 32°49'13.3"	W 097°26'55.0"	2'6"	2'9"
L-II-2	N 32°49'13.4"	W 097°26'54.7"	5'11"	8'2"
M-II-2	N 32°49'13.5"	W 097°26'54.4"	5'4"	5'11"
S-II-3	N 32°49'14.1"	W 097°26'53.1"	2'0"	3'7"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
L-I-1	no data	no data	2.29	2.19	no data	104.708
L-I-2	no data	no data	2.05	3.02	no data	101.5888
M-I-1	no data	no data	3.08	4.46	no data	104.0542
M-I-2	no data	no data	2.75	3.94	no data	105.408
S-I-1	no data	no data	3.28	4.83	no data	104.1962
S-II-1	no data	no data	3.82	5.67	no data	102.1011
M-II-1	no data	no data	2.79	4.05	no data	103.9489
L-II-1	no data	no data	no data	no data	no data	no data
S-II-2	no data	no data	2.48	3.64	no data	102.2634
L-II-2	no data	no data	2.39	3.57	no data	102.3924
M-II-2	no data	no data	2.49	3.63	no data	104.1336
S-II-3	no data	no data	2.72	4.12	no data	98.8349

Test Section : 3-I35-1

GENERAL DESCRIPTION	
Highway	IH 35
District	Wichita Falls
County	Cooke
Direction	N
Reference Marker	MP 484+0.5
Pavement Type	CRCP
Slab Thickness	13 in
Construction Date	1991-06-12
Vertical Alignment	Fill
Horizontal Alignment	Curve R
No of Lanes	2
PMIC Surveyed Lane	R1
Shoulder Type	Tied Concrete
Surface Texture	Transverse tining
Concrete CAT	Limestone
Drainage	
GPS (start)	N33°26'41.3"
	W097°09' 50.4"
GPS (end)	N33°26'50.8"
	W097°09' 50.4"
Survey Dates	2007-01-29
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
2.50	2.50	176.67	2.76	351.33	4.25
5.00	2.50	179.08	2.41	353.91	2.58
7.50	2.50	183.83	4.75	356.42	2.51
9.42	1.92	186.58	2.75	358.58	2.16
12.75	3.33	190.17	3.59	361.00	2.42
14.58	1.83	191.67	1.50	364.00	3.00
19.33	4.75	193.83	2.16	365.17	1.17
25.75	6.42	196.33	2.50	367.42	2.25
27.08	1.33	199.00	2.67	373.58	6.16
30.00	2.92	200.42	1.42	378.75	5.17
34.33	4.33	205.00	4.58	380.50	1.75
38.33	4.00	208.00	3.00	383.91	3.41
41.91	3.58	211.42	3.42	387.58	3.67
46.08	4.17	214.17	2.75	393.58	6.00
46.83	0.75	216.42	2.25	403.91	10.33
49.42	2.59	219.00	2.58	406.25	2.34
54.00	4.58	221.25	2.25	412.50	6.25
58.75	4.75	226.17	4.92	417.75	5.25
61.25	2.50	230.42	4.25	424.58	6.83
68.67	7.42	232.08	1.66	428.00	3.42
70.00	1.33	236.67	4.59	430.91	2.91
74.67	4.67	243.00	6.33	433.33	2.42
78.42	3.75	248.42	5.42	437.42	4.09
81.58	3.16	250.91	2.49	440.75	3.33
83.00	1.42	254.83	3.92	443.00	2.25
84.91	1.91	261.25	6.42	446.00	3.00
88.33	3.42	266.83	5.58	450.25	4.25
91.58	3.25	268.67	1.84	452.67	2.42
95.75	4.17	270.67	2.00	455.17	2.50
101.42	5.67	273.08	2.41	458.33	3.16
107.83	6.41	277.08	4.00	460.50	2.17
109.08	1.25	285.00	7.92	465.91	5.41
112.67	3.59	285.67	0.67	470.08	4.17
117.91	5.24	286.83	1.16	474.17	4.09
122.08	4.17	291.50	4.67	477.33	3.16
124.83	2.75	296.17	4.67	480.33	3.00
127.25	2.42	297.50	1.33	484.33	4.00
129.50	2.25	300.08	2.58	490.75	6.42
131.00	1.50	302.75	2.67	496.33	5.58
136.42	5.42	309.17	6.42	497.17	0.84
141.75	5.33	312.08	2.91	500.00	2.83
142.50	0.75	314.83	2.75	**Construction joint**	
147.33	4.83	317.25	2.42	503.17	3.17
149.67	2.34	320.58	3.33	505.75	2.58
154.33	4.66	324.42	3.84	507.00	1.25
155.08	0.75	332.33	7.91	511.08	4.08
162.00	6.92	336.91	4.58	513.75	2.67
169.08	7.08	340.91	4.00	516.08	2.33
171.50	2.42	345.00	4.09	522.17	6.09
173.91	2.41	347.08	2.08	525.91	3.74

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
531.58	5.67	717.75	3.75	914.42	1.51
538.83	7.25	720.58	2.83	915.91	1.49
543.25	4.42	723.42	2.84	923.83	7.92
545.50	2.25	725.67	2.25	929.33	5.50
548.33	2.83	730.08	4.41	933.33	4.00
550.67	2.34	734.33	4.25	939.17	5.84
552.91	2.24	737.25	2.92	942.17	3.00
558.91	6.00	742.83	5.58	946.58	4.41
564.50	5.59	747.50	4.67	949.75	3.17
567.50	3.00	750.58	3.08	952.00	2.25
571.17	3.67	754.50	3.92	956.25	4.25
575.00	3.83	759.58	5.08	959.58	3.33
577.50	2.50	762.50	2.92	964.91	5.33
579.67	2.17	765.00	2.50	970.17	5.26
583.00	3.33	768.08	3.08	976.25	6.08
587.50	4.50	770.17	2.09	977.08	0.83
589.58	2.08	774.67	4.50	977.91	0.83
595.50	5.92	780.00	5.33	979.00	1.09
599.58	4.08	787.17	7.17	981.25	2.25
601.33	1.75	791.08	3.91	984.50	3.25
605.67	4.34	796.58	5.50	990.25	5.75
611.00	5.33	798.75	2.17	992.25	2.00
614.42	3.42	801.33	2.58	993.50	1.25
618.42	4.00	804.42	3.09	996.42	2.92
623.25	4.83	810.75	6.33	1000.00	3.58
625.75	2.50	812.83	2.08		
631.58	5.83	816.75	3.92		
634.17	2.59	820.25	3.50		
637.91	3.74	822.00	1.75		
645.25	7.34	826.50	4.50		
650.08	4.83	830.25	3.75		
652.58	2.50	835.17	4.92		
654.08	1.50	839.08	3.91		
656.08	2.00	840.91	1.83		
658.50	2.42	844.08	3.17		
663.83	5.33	851.33	7.25		
669.50	5.67	856.42	5.09		
673.08	3.58	860.00	3.58		
675.33	2.25	864.00	4.00		
680.42	5.09	866.50	2.50		
685.25	4.83	871.25	4.75		
690.58	5.33	873.08	1.83		
694.42	3.84	877.83	4.75		
696.50	2.08	885.00	7.17		
698.33	1.83	887.33	2.33		
700.58	2.25	892.58	5.25		
705.33	4.75	897.08	4.50		
710.33	5.00	901.83	4.75		
711.67	1.34	909.17	7.34		
714.00	2.33	912.91	3.74		

- **Load Transfer Efficiency**

3I35-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
S-I-1	N 33°26'41.1"	W 097°09'50.6"	2'6"	2'9"
M-I-1	N 33°26'41.4"	W 097°09'50.6"	3'10"	3'5"
L-I-1	N 33°26'42.1"	W 097°09'50.6"	6'2"	6'3"
S-I-2	N 33°26'42.3"	W 097°09'50.6"	2'2"	2'4"
L-I-2	N 33°26'42.7"	W 097°09'50.6"	6'9"	7'5"
M-I-2	N 33°26'43.9"	W 097°09'50.6"	4'3"	4'5"
S-II-1	N 33°26'46.5"	W 097°09'50.6"	2'6"	2'5"
L-II-1	N 33°26'46.6"	W 097°09'50.6"	6'0"	6'5"
M-II-1	N 33°26'47.2"	W 097°09'50.6"	3'11"	5'2"
M-II-2	N 33°26'47.3"	W 097°09'50.6"	5'0"	5'6"
S-II-2	N 33°26'49.0"	W 097°09'50.6"	2'8"	1'7"
L-II-2	N 33°26'49.7"	W 097°09'50.7"	5'9"	5'7"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S-I-1	1.53	1.49	1.61	1.60	104.2	100.3
M-I-1	1.27	1.28	1.67	1.65	99.2	100.8
L-I-1	1.25	1.26	1.62	1.62	99.5	100.0
S-I-2	1.86	1.76	1.94	1.91	105.7	101.5
L-I-2	1.45	1.44	1.73	1.73	100.3	99.7
M-I-2	1.41	1.42	1.80	1.82	99.7	99.0
S-II-1	1.59	1.54	1.86	1.87	103.7	99.5
L-II-1	1.37	1.39	2.42	2.42	99.0	99.9
M-II-1	1.56	1.52	1.60	1.59	102.6	100.6
M-II-2	1.48	1.49	1.76	1.77	99.5	99.7
S-II-2	1.72	1.68	1.95	1.94	102.4	100.8
L-II-2	1.36	1.37	1.71	1.72	98.7	99.2

Test Section : 3-US287-1

GENERAL DESCRIPTION	
Highway	US 287
District	Wichita Falls
County	Wichita
Direction	N
Reference Marker	MP 330
Pavement Type	CRCP
Slab Thickness	8 in
Construction Date	1970-09-01
Vertical Alignment	Grade
Horizontal Alignment	Curve R
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Transverse tining
Concrete CAT	Limestone & SRG
Drainage	
GPS (start)	N33°57'59.7"
	W098°43' 25.8"
GPS (end)	N33°58'03.3"
	W098°43' 36.8"
Survey Dates	2007-01-29
Surveyors	Medina, Suliman, Finley

- Crack Spacing Information

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
9.58	9.58	242.75	9.00	474.00	5.25
19.25	9.67	249.75	7.00	478.75	4.75
24.58	5.33	256.67	6.92	487.25	8.50
26.83	2.25	259.08	2.41	493.67	6.42
29.83	3.00	264.42	5.34	498.75	5.08
34.58	4.75	265.33	0.91	**Construction joint**	
39.33	4.75	272.17	6.84	508.58	8.58
44.67	5.34	282.67	10.50	512.00	3.42
47.17	2.50	286.83	4.16	524.00	12.00
54.75	7.58	292.08	5.25	535.17	11.17
59.75	5.00	300.83	8.75	538.83	3.66
64.00	4.25	301.00	0.17	541.42	2.59
71.75	7.75	311.33	10.33	543.00	1.58
74.91	3.16	314.08	2.75	543.91	0.91
79.08	4.17	319.58	5.50	546.08	2.17
84.42	5.34	321.83	2.25	548.75	2.67
87.33	2.91	323.83	2.00	556.91	8.16
92.17	4.84	331.83	8.00	559.83	2.92
99.58	7.41	339.67	7.84	564.83	5.00
102.58	3.00	349.08	9.41	570.75	5.92
107.42	4.84	349.58	0.50	575.00	4.25
111.83	4.41	357.33	7.75	576.58	1.58
114.67	2.84	362.00	4.67	581.67	5.09
117.42	2.75	366.17	4.17	585.83	4.16
122.58	5.16	368.09	1.92	589.00	3.17
127.58	5.00	371.50	3.41	596.42	7.42
130.08	2.50	374.17	2.67	601.33	4.91
132.75	2.67	377.08	2.91	606.17	4.84
135.00	2.25	383.17	6.09	610.75	4.58
142.25	7.25	386.75	3.58	613.83	3.08
150.00	7.75	389.00	2.25	619.25	5.42
153.33	3.33	393.50	4.50	626.67	7.42
159.58	6.25	396.00	2.50	633.75	7.08
163.91	4.33	399.00	3.00	638.25	4.50
167.91	4.00	404.00	5.00	643.33	5.08
170.00	2.09	408.91	4.91	645.33	2.00
172.91	2.91	412.42	3.51	647.33	2.00
175.91	3.00	413.50	1.08	649.08	1.75
181.42	5.51	416.91	3.41	654.50	5.42
188.17	6.75	423.75	6.84	659.17	4.67
192.50	4.33	431.67	7.92	666.25	7.08
195.00	2.50	439.67	8.00	673.58	7.33
202.17	7.17	443.91	4.24	681.83	8.25
204.33	2.16	446.75	2.84	686.17	4.34
209.67	5.34	449.25	2.50	690.83	4.66
214.67	5.00	454.00	4.75	693.75	2.92
217.91	3.24	456.75	2.75	694.75	1.00
223.33	5.42	461.75	5.00	698.75	4.00
230.08	6.75	464.17	2.42	702.33	3.58
233.75	3.67	468.75	4.58	704.33	2.00

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
706.00	1.67	938.17	5.59
708.33	2.33	946.33	8.16
711.42	3.09	950.67	4.34
715.91	4.49	955.50	4.83
718.75	2.84	963.08	7.58
725.67	6.92	966.00	2.92
730.58	4.91	970.50	4.50
733.75	3.17	976.67	6.17
738.33	4.58	978.42	1.75
743.83	5.50	979.00	0.58
753.33	9.50	992.91	13.91
760.91	7.58	995.50	2.59
766.25	5.34		
771.42	5.17		
775.50	4.08		
781.00	5.50		
786.25	5.25		
788.91	2.66		
793.67	4.76		
798.33	4.66		
803.33	5.00		
807.91	4.58		
813.67	5.76		
815.25	1.58		
818.50	3.25		
823.17	4.67		
830.83	7.66		
838.25	7.42		
843.42	5.17		
845.91	2.49		
848.00	2.09		
851.17	3.17		
858.42	7.25		
865.50	7.08		
866.25	0.75		
875.83	9.58		
883.67	7.84		
888.50	4.83		
897.33	8.83		
901.00	3.67		
905.91	4.91		
908.67	2.76		
913.08	4.41		
916.50	3.42		
918.58	2.08		
923.83	5.25		
925.42	1.59		
928.00	2.58		
930.42	2.42		
932.58	2.16		

- **Load Transfer Efficiency**

3US287-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
S-I-1	N 33°58'59.8"	W 098°43'26.5"	2'6"	2'7"
S-I-2	N 33°58'00.0"	W 098°43'27.4"	2'6"	2'6"
L-I-1	N 33°58'00.2"	W 098°43'28.1"	6'3"	6'3"
L-I-2	N 33°58'00.4"	W 098°43'29.0"	8'1"	8'6"
M-I-1	N 33°58'00.8"	W 098°43'29.9"	5'2"	4'11"
M-I-2	N 33°58'01.0"	W 098°43'30.4"	4'0"	4'3"
S-II-1	N 33°58'01.6"	W 098°43'32.1"	2'5"	2'2"
M-II-1	N 33°58'01.4"	W 098°43'32.3"	4'5"	3'2"
L-II-1	N 33°58'01.4"	W 098°43'32.6"	7'5"	7'4"
S-II-2	N 33°58'01.6"	W 098°43'32.8"	1'10"	1'9"
L-II-2	N 33°58'02.2"	W 098°43'34.2"	9'11"	7'3"
M-II-2	N 33°58'02.7"	W 098°43'35.4"	3'11"	3'7"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S-I-1	3.75	3.53	3.70	3.69	106.3	100.3
S-I-2	4.47	4.15	4.07	4.04	107.8	100.7
L-I-1	4.75	4.29	4.03	3.99	111.0	101.0
L-I-2	4.25	3.99	3.89	3.87	106.6	100.5
M-I-1	3.96	3.63	5.38	5.27	109.0	102.1
M-I-2	3.83	3.55	3.82	3.81	107.8	100.3
S-II-1	3.86	3.83	4.06	4.02	100.7	101.0
M-II-1	4.52	4.01	4.28	4.24	112.6	101.0
L-II-1	4.13	3.87	4.29	4.26	106.7	100.7
S-II-2	3.89	3.91	4.22	4.24	99.7	99.4
L-II-2	4.07	3.59	3.94	3.89	113.5	101.4
M-II-2	4.24	3.64	3.96	3.93	116.4	100.7

Test Section : 3-US287-2

GENERAL DESCRIPTION	
Highway	US 287
District	Wichita Falls
County	Wichita
Direction	N
Reference Marker	
Pavement Type	CRCP
Slab Thickness	8 in
Construction Date	2003-07-01
Vertical Alignment	Grade
Horizontal Alignment	Curve R
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Transverse tining
Concrete CAT	Limestone
Drainage	
GPS (start)	N34°00'28.7"
	W098°50' 46.3"
GPS (end)	N34°00'34.2"
	W098°50' 56.1"
Survey Dates	2007-01-29
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
1.58	1.58	363.50	11.08	677.67	5.59	996.50	3.92
7.17	5.59	371.83	8.33	682.42	4.75	997.91	1.41
16.50	9.33	377.58	5.75	688.33	5.91	1000.00	2.09
22.67	6.17	382.83	5.25	690.33	2.00		
25.17	2.50	392.75	9.92	696.17	5.84		
33.75	8.58	399.50	6.75	701.75	5.58		
47.00	13.25	407.17	7.67	706.91	5.16		
58.83	11.83	411.00	3.83	712.00	5.09		
66.91	8.08	412.83	1.83	717.08	5.08		
77.00	10.09	419.42	6.59	723.75	6.67		
87.00	10.00	429.42	10.00	729.17	5.42		
100.25	13.25	430.58	1.16	734.17	5.00		
109.75	9.50	441.91	11.33	741.42	7.25		
110.58	0.83	443.50	1.59	748.42	7.00		
118.58	8.00	448.83	5.33	756.00	7.58		
127.25	8.67	457.58	8.75	764.91	8.91		
128.91	1.66	461.42	3.84	774.08	9.17		
134.83	5.92	470.83	9.41	783.33	9.25		
143.00	8.17	480.83	10.00	789.42	6.09		
150.08	7.08	495.17	14.34	795.75	6.33		
161.50	11.42	500.00	4.83	799.50	3.75		
162.67	1.17	**Construction joint**		806.42	6.92		
167.33	4.66	500.75	0.75	810.75	4.33		
173.17	5.84	512.58	11.83	819.83	9.08		
177.17	4.00	517.91	5.33	826.58	6.75		
183.83	6.66	520.17	2.26	830.17	3.59		
194.17	10.34	528.75	8.58	831.42	1.25		
194.75	0.58	539.25	10.50	836.17	4.75		
197.75	3.00	548.58	9.33	844.50	8.33		
200.75	3.00	553.91	5.33	857.91	13.41		
204.50	3.75	559.50	5.59	862.50	4.59		
214.00	9.50	566.58	7.08	865.33	2.83		
223.91	9.91	570.25	3.67	871.00	5.67		
233.50	9.59	575.50	5.25	878.08	7.08		
249.17	15.67	581.17	5.67	883.75	5.67		
261.42	12.25	588.25	7.08	889.25	5.50		
268.67	7.25	597.33	9.08	892.75	3.50		
270.25	1.58	602.67	5.34	900.00	7.25		
279.08	8.83	608.58	5.91	914.25	14.25		
286.42	7.34	617.42	8.84	916.33	2.08		
288.91	2.49	623.67	6.25	934.50	18.17		
294.25	5.34	630.00	6.33	938.08	3.58		
307.75	13.50	638.50	8.50	946.08	8.00		
316.42	8.67	645.33	6.83	952.83	6.75		
317.58	1.16	653.17	7.84	962.33	9.50		
323.75	6.17	658.58	5.41	967.58	5.25		
333.00	9.25	664.25	5.67	974.00	6.42		
341.00	8.00	669.25	5.00	982.83	8.83		
343.75	2.75	670.91	1.66	983.25	0.42		
352.42	8.67	672.08	1.17	992.58	9.33		

- **Load Transfer Efficiency**

2US287-2

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
L-I-1	N 34°00'27.7"	W 098°50'46.5"	9'5"	6'1"
M-I-1	N 34°00'29.6"	W 098°50'48.0"	6'1"	3'9"
L-I-2	N 34°00'30.2"	W 098°50'49.0"	7'0"	10'8"
S-I-1	N 34°00'30.6"	W 098°50'49.7"	3'0"	9'0"
M-I-2/S-I-2	N 34°00'31.0"	W 098°50'50.3"	3'11"	1'2"
S-I-2	N 34°00'31.1"	W 098°50'50.6"	1'4"	5'7"
L-I-3	N 34°00'31.2"	W 098°50'50.7"	8'9"	7'4"
M-II-1	N 34°00'31.5"	W 098°50'51.3"	5'6"	3'0"
L-II-1	N 34°00'32.0"	W 098°50'52.0"	6'8"	9'7"
M-II-2	N 34°00'32.6"	W 098°50'53.2"	4'10"	5'6"
L-II-2	N 34°00'32.8"	W 098°50'53.6"	6'11"	7'6"
S-II-1	N 34°00'33.3"	W 098°50'54.4"	3'4"	1'6"
L-II-3	N 34°00'33.3"	W 098°50'54.6"	8'6"	7'3"
M-II-3	N 34°00'33.4"	W 098°50'54.8"	4'2"	3'1"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
L-I-1	1.29	1.28	1.37	1.38	100.35	99.66
M-I-1	1.26	1.25	1.30	1.29	101.38	101.17
L-I-2	1.37	1.36	2.20	2.18	101.43	99.71
S-I-1	1.38	1.36	1.43	1.43	101.26	100.00
M-I-2/S-I-2	1.47	1.43	1.40	1.40	103.03	100.66
S-I-2	1.47	1.47	1.40	1.40	100.28	99.68
L-I-3	1.45	1.43	1.42	1.41	101.18	100.67
M-II-1	1.29	1.28	1.38	1.40	100.79	99.00
L-II-1	1.26	1.25	1.24	1.23	101.41	100.77
M-II-2	1.49	1.48	1.51	1.49	100.29	100.96
L-II-2	1.28	1.28	1.37	1.36	100.35	100.35
S-II-1	1.44	1.41	1.41	1.39	102.25	101.02
L-II-3	1.36	1.35	1.42	1.42	100.76	100.33
M-II-3	1.52	1.50	2.23	2.20	101.62	100.00

Test Section : 4-I40-1

GENERAL DESCRIPTION	
Highway	IH 40
District	Amarillo
County	Oldham
Direction	W
Reference Marker	MP 33+ 287ft.
Pavement Type	CRCP
Slab Thickness	11 in
Construction Date	1997-03-31
Vertical Alignment	Fill
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Transverse tining
Concrete CAT	SRG
Drainage	
GPS (start)	N35°15'17.6"
	W102°28' 57.5"
GPS (end)	N35°15'21.1"
	W102°29' 14.8"
Survey Dates	2006-02-23
Surveyors	Medina, Won, Cho

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00		214.40	3.30	442.00	2.20	659.50	2.90
6.30	6.30	216.80	2.40	445.90	3.90	662.70	3.20
9.30	3.00	222.50	5.70	448.80	2.90	666.60	3.90
12.30	3.00	226.20	3.70	452.00	3.20	668.50	1.90
13.30	1.00	229.20	3.00	460.50	8.50	671.80	3.30
18.40	5.10	233.20	4.00	469.90	9.40	680.60	8.80
21.30	2.90	241.50	8.30	471.10	1.20	681.00	0.40
24.30	3.00	245.10	3.60	474.70	3.60	685.50	4.50
29.50	5.20	250.40	5.30	479.20	4.50	689.80	4.30
32.80	3.30	253.50	3.10	485.10	5.90	692.90	3.10
39.20	6.40	258.30	4.80	486.40	1.30	698.80	5.90
40.10	0.90	261.30	3.00	494.30	7.90	702.00	3.20
42.50	2.40	264.30	3.00	497.20	2.90	704.80	2.80
49.40	6.90	268.80	4.50	498.30	1.10	714.10	9.30
51.80	2.40	274.70	5.90	500.00	1.70	717.10	3.00
59.40	7.60	280.30	5.60	503.10	3.10	723.40	6.30
63.80	4.40	284.20	3.90	507.70	4.60	729.20	5.80
66.60	2.80	286.40	2.20	512.20	4.50	732.30	3.10
69.80	3.20	294.30	7.90	515.10	2.90	734.30	2.00
75.70	5.90	297.90	3.60	518.10	3.00	735.30	1.00
79.70	4.00	301.30	3.40	519.70	1.60	738.20	2.90
84.60	4.90	305.30	4.00	520.30	0.60	744.80	6.60
87.80	3.20	310.30	5.00	524.20	3.90	747.50	2.70
93.80	6.00	315.20	4.90	531.30	7.10	751.30	3.80
97.00	3.20	318.40	3.20	541.30	10.00	756.30	5.00
103.00	6.00	326.30	7.90	548.20	6.90	757.80	1.50
105.60	2.60	334.70	8.40	550.80	2.60	762.30	4.50
107.30	1.70	344.70	10.00	556.60	5.80	766.80	4.50
111.60	4.30	345.20	0.50	560.80	4.20	772.30	5.50
114.60	3.00	346.60	1.40	566.30	5.50	777.40	5.10
118.00	3.40	349.00	2.40	572.00	5.70	780.50	3.10
125.80	7.80	356.00	7.00	575.40	3.40	783.50	3.00
133.10	7.30	358.30	2.30	578.80	3.40	786.30	2.80
136.20	3.10	367.30	9.00	580.30	1.50	792.80	6.50
139.00	2.80	371.00	3.70	586.30	6.00	797.90	5.10
142.00	3.00	373.80	2.80	587.20	0.90	801.60	3.70
145.00	3.00	378.60	4.80	593.30	6.10	803.80	2.20
156.10	11.10	386.80	8.20	598.00	4.70	810.90	7.10
160.00	3.90	391.80	5.00	605.20	7.20	815.30	4.40
166.60	6.60	394.80	3.00	609.10	3.90	819.60	4.30
168.70	2.10	400.70	5.90	617.60	8.50	826.00	6.40
173.10	4.40	403.30	2.60	620.50	2.90	828.50	2.50
187.10	14.00	409.80	6.50	625.00	4.50	835.50	7.00
188.70	1.60	412.70	2.90	626.50	1.50	840.80	5.30
190.00	1.30	417.10	4.40	629.70	3.20	843.30	2.50
191.70	1.70	418.00	0.90	635.20	5.50	849.70	6.40
192.90	1.20	427.20	9.20	635.60	0.40	851.10	1.40
199.00	6.10	430.70	3.50	641.40	5.80	856.60	5.50
205.30	6.30	433.70	3.00	651.30	9.90	858.50	1.90
211.10	5.80	439.80	6.10	656.60	5.30	861.20	2.70

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
868.80	7.60	1087.80	1.40	1327.20	5.20
873.80	5.00	1095.40	7.60	1335.30	8.10
876.80	3.00	1100.80	5.40	1336.50	1.20
878.70	1.90	1102.20	1.40	1340.30	3.80
885.80	7.10	1104.70	2.50	1343.40	3.10
887.30	1.50	1106.90	2.20	1350.90	7.50
893.10	5.80	1108.80	1.90	1353.70	2.80
901.20	8.10	1113.80	5.00	1355.80	2.10
906.90	5.70	1120.20	6.40	1361.80	6.00
909.50	2.60	1120.80	0.60	1366.50	4.70
916.00	6.50	1126.20	5.40	1373.70	7.20
920.30	4.30	1134.80	8.60	1379.30	5.60
922.00	1.70	1136.50	1.70	1382.80	3.50
923.60	1.60	1141.40	4.90	1390.30	7.50
927.80	4.20	1149.80	8.40	1397.10	6.80
931.80	4.00	1150.80	1.00	1398.00	0.90
940.20	8.40	1156.70	5.90	1404.20	6.20
946.20	6.00	1159.40	2.70	1409.00	4.80
947.40	1.20	1164.90	5.50	1410.00	1.00
949.50	2.10	1168.80	3.90	1415.60	5.60
956.80	7.30	1171.60	2.80	1421.80	6.20
966.30	9.50	1182.40	10.80	1427.10	5.30
970.30	4.00	1189.60	7.20	1433.90	6.80
974.10	3.80	1195.40	5.80	1436.40	2.50
976.30	2.20	1198.60	3.20	1439.80	3.40
979.30	3.00	1208.30	9.70	1448.90	9.10
987.80	8.50	1210.90	2.60	1454.80	5.90
989.20	1.40	1213.90	3.00	1457.80	3.00
991.70	2.50	1219.80	5.90	1465.80	8.00
999.00	7.30	1226.00	6.20	1467.00	1.20
1003.30	4.30	1229.00	3.00	1470.00	3.00
1005.10	1.80	1233.00	4.00	1480.00	10.00
1009.20	4.10	1241.80	8.80	1484.90	4.90
1016.10	6.90	1247.40	5.60	1488.30	3.40
1024.40	8.30	1252.40	5.00	1494.30	6.00
1025.00	0.60	1254.70	2.30	1497.30	3.00
1033.70	8.70	1256.40	1.70	1500.00	2.70
1036.70	3.00	1259.30	2.90		
1037.80	1.10	1266.00	6.70		
1040.10	2.30	1267.50	1.50		
1048.30	8.20	1279.60	12.10		
1051.50	3.20	1289.50	9.90		
1052.50	1.00	1295.60	6.10		
1058.30	5.80	1297.30	1.70		
1066.00	7.70	1298.50	1.20		
1069.70	3.70	1300.90	2.40		
1071.30	1.60	1304.30	3.40		
1075.70	4.40	1309.80	5.50		
1082.40	6.70	1313.90	4.10		
1086.40	4.00	1322.00	8.10		

- **Load Transfer Efficiency**

4I40-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
M-I-1	N 35°15'17.7"	W 102°28'57.9"	3'7"	5'4"
M-I-2	N 35°15'17.7"	W 102°28'58.5"	5'8"	2'8"
L-I-1	N 35°15'17.8"	W 102°28'59.1"	7'10"	7'4"
S-I-1	N 35°15'18.0"	W 102°29'01.1"	3'0"	3'11"
S-I-2	N 35°15'18.4"	W 102°29'01.8"	3'3"	4'9"
L-I-2	N 35°15'18.5"	W 102°29'02.5"	8'5"	9'5"
S-II-1	N 35°15'18.6"	W 102°29'03.3"	2'11"	2'10"
L-II-1	N 35°15'18.7"	W 102°29'03.6"	9'10"	6'10"
M-II-1	N 35°15'18.7"	W 102°29'04.0"	5'7"	5'7"
S-II-1	N 35°15'18.9"	W 102°29'05.3"	2'6"	3'3"
M-II-2	N 35°15'19.1"	W 102°29'06.2"	3'9"	4'11"
M-II-3	N 35°15'19.2"	W 102°29'06.9"	4'6"	4'2"
S-II-3	N 35°15'19.6"	W 102°29'08.3"	1'9"	1'6"
M-II-4	N 35°15'19.7"	W 102°29'08.8"	3'9"	3'11"
L-II-2	N 35°15'19.6"	W 102°29'09.4"	6'10"	8'5"
L-II-3	N 35°15'20.0"	W 102°29'11.3"	10'8"	7'4"
M-II-5	N 35°15'20.2"	W 102°29'12.2"	5'7"	5'0"
L-II-4	N 35°15'20.3"	W 102°29'12.3"	12'0"	9'10"
S-II-5	N 35°15'20.5"	W 102°29'12.9"	2'5"	3'5"
M-II-6	N 35°15'20.6"	W 102°29'14.1"	6'2"	5'4"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
M-I-1	2.67	2.94	2.88	2.87	87.97	100.21
M-I-2	2.35	2.21	2.69	2.63	111.92	102.20
L-I-1	2.53	2.52	2.81	2.78	107.34	101.10
S-I-1	2.82	2.63	3.09	3.02	105.52	102.43
S-I-2	2.48	2.38	2.93	2.83	107.53	103.75
L-I-2	no data	no data	no data	no data	no data	no data
S-II-1	3.92	4.27	3.32	3.27	102.06	101.38
L-II-1	2.88	2.74	3.31	3.19	110.70	103.58
M-II-1	3.48	3.36	3.47	3.42	112.31	101.76
S-II-1	2.50	2.46	2.80	2.78	106.05	100.60
M-II-2	2.54	2.51	3.02	2.87	109.67	105.38
M-II-3	2.49	2.32	3.16	3.05	110.62	103.93
S-II-3	no data	no data	2.86	2.86	no data	100.08
M-II-4	2.52	2.39	2.91	2.83	109.79	102.99
L-II-2	2.38	2.35	2.94	2.81	107.53	104.41
L-II-3	2.26	2.24	2.51	2.50	106.76	100.61
M-II-5	2.32	2.26	3.41	3.31	105.63	103.08
L-II-4	2.13	2.08	2.75	2.69	106.89	102.04
S-II-5	2.51	2.48	2.46	2.47	104.01	99.52
M-II-6	2.26	2.18	2.76	2.70	107.49	102.33

Test Section : 5-I27-1

GENERAL DESCRIPTION	
Highway	IH 27
District	Lubbock
County	Hale
Direction	S
Reference Marker	MP 43+0.22
Pavement Type	CRCP
Slab Thickness	9 in
Construction Date	1982-11-01
Vertical Alignment	Grade
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Transverse tining
Concrete CAT	SRG
Drainage	
GPS (start)	N34°06'39.7"
	W101°46' 28.2"
GPS (end)	N34°06'32.9"
	W101°46' 37.1"
Survey Dates	2006-02-24
Surveyors	Medina, Won, Cho

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00		133.60	2.30	286.00	4.80	399.90	2.60
0.80	0.80	136.00	2.40	289.80	3.80	402.30	2.40
3.70	2.90	138.70	2.70	290.90	1.10	405.10	2.80
6.90	3.20	141.20	2.50	293.60	2.70	410.30	5.20
11.10	4.20	143.80	2.60	296.30	2.70	414.00	3.70
12.90	1.80	145.30	1.50	300.60	4.30	417.10	3.10
15.80	2.90	150.10	4.80	302.10	1.50	422.10	5.00
20.50	4.70	153.50	-3.40	303.30	1.20	424.50	2.40
21.30	0.80	156.10	2.60	307.20	3.90	425.80	1.30
25.40	4.10	156.90	6.80	308.70	1.50	426.90	1.10
27.90	2.50	158.50	2.40	309.90	1.20	428.10	1.20
30.10	2.20	160.30	1.80	310.90	1.00	429.70	1.60
31.50	1.40	163.30	3.00	312.00	1.10	432.60	2.90
33.00	1.50	165.10	1.80	313.40	1.40	433.90	1.30
35.10	2.10	170.90	5.80	315.00	1.60	436.80	2.90
37.40	2.30	175.30	4.40	318.20	3.20	442.60	5.80
41.30	3.90	180.90	5.60	321.20	3.00	446.70	4.10
44.90	3.60	186.20	5.30	322.90	1.70	449.30	2.60
47.60	2.70	187.90	1.70	325.90	3.00	451.50	2.20
50.30	2.70	190.40	2.50	328.30	2.40	453.90	2.40
52.50	2.20	191.60	1.20	329.90	1.60	455.50	1.60
55.30	2.80	194.60	3.00	330.90	1.00	456.80	1.30
56.90	1.60	201.90	7.30	331.90	1.00	457.80	1.00
59.80	2.90	204.60	2.70	333.30	1.40	459.80	2.00
62.20	2.40	208.10	3.50	336.60	3.30	461.80	2.00
64.80	2.60	209.20	1.10	341.10	4.50	463.90	2.10
67.30	2.50	212.70	3.50	342.10	1.00	468.30	4.40
68.60	1.30	216.30	3.60	344.50	2.40	473.50	5.20
70.50	1.90	218.00	1.70	345.50	1.00	476.40	2.90
77.40	6.90	220.10	2.10	349.60	4.10	478.40	2.00
79.30	1.90	224.90	4.80	354.70	5.10	479.50	1.10
80.90	1.60	227.50	2.60	357.00	2.30	481.50	2.00
84.20	3.30	230.60	3.10	358.00	1.00	484.30	2.80
86.90	2.70	232.00	1.40	361.50	3.50	486.50	2.20
89.30	2.40	234.50	2.50	365.30	3.80	489.00	2.50
91.90	2.60	237.00	2.50	367.30	2.00	490.30	1.30
94.00	2.10	239.60	2.60	369.00	1.70	493.40	3.10
96.30	2.30	244.70	5.10	370.20	1.20	494.50	1.10
100.70	4.40	249.70	5.00	372.90	2.70	498.60	4.10
102.00	1.30	250.10	0.40	374.30	1.40	**Construction Joint**	
105.40	3.40	256.90	6.80	375.30	1.00	500.00	1.40
106.90	1.50	259.40	2.50	377.30	2.00	500.90	0.90
109.30	2.40	262.00	2.60	381.20	3.90	503.30	2.40
111.80	2.50	266.40	4.40	384.00	2.80	505.60	2.30
114.20	2.40	268.60	2.20	385.10	1.10	506.30	0.70
116.60	2.40	271.50	2.90	386.40	1.30	508.60	2.30
119.60	3.00	273.50	2.00	389.80	3.40	511.70	3.10
126.30	6.70	277.40	3.90	393.40	3.60	513.60	1.90
128.80	2.50	278.90	1.50	394.60	1.20	515.30	1.70
131.30	2.50	281.20	2.30	397.30	2.70	517.20	1.90

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
518.80	1.60	642.80	1.10	772.50	2.80	906.20	1.30
521.00	2.20	646.30	3.50	775.30	2.80	908.80	2.60
522.00	1.00	649.40	3.10	777.40	2.10	909.90	1.10
524.60	2.60	650.90	1.50	783.00	5.60	911.20	1.30
528.90	4.30	654.20	3.30	785.90	2.90	913.30	2.10
530.80	1.90	656.60	2.40	789.90	4.00	914.80	1.50
533.00	2.20	660.30	3.70	797.80	7.90	916.00	1.20
534.50	1.50	665.90	5.60	797.90	0.10	918.30	2.30
535.90	1.40	666.70	0.80	800.00	2.10	920.90	2.60
538.80	2.90	667.40	0.70	801.50	1.50	924.80	3.90
541.90	3.10	669.10	1.70	802.60	1.10	928.20	3.40
546.50	4.60	672.40	3.30	804.90	2.30	930.80	2.60
548.30	1.80	674.20	1.80	808.80	3.90	936.90	6.10
549.40	1.10	678.90	4.70	812.20	3.40	937.10	0.20
550.60	1.20	681.20	2.30	814.90	2.70	939.90	2.80
552.80	2.20	684.00	2.80	817.10	2.20	940.90	1.00
555.80	3.00	685.70	1.70	820.90	3.80	944.00	3.10
559.70	3.90	690.20	4.50	824.60	3.70	945.70	1.70
561.30	1.60	696.30	6.10	827.00	2.40	949.60	3.90
564.30	3.00	699.00	2.70	828.30	1.30	952.70	3.10
565.70	1.40	699.90	0.90	829.60	1.30	955.20	2.50
568.60	2.90	703.30	3.40	833.10	3.50	957.70	2.50
572.80	4.20	705.30	2.00	834.20	1.10	960.30	2.60
575.70	2.90	708.40	3.10	836.90	2.70	963.50	3.20
577.60	1.90	711.50	3.10	840.30	3.40	965.40	1.90
579.90	2.30	713.20	1.70	844.30	4.00	968.40	3.00
582.40	2.50	716.30	3.10	846.60	2.30	972.70	4.30
586.30	3.90	719.60	3.30	849.80	3.20	975.40	2.70
588.90	2.60	721.50	1.90	852.00	2.20	980.90	5.50
590.40	1.50	722.90	1.40	854.10	2.10	983.60	2.70
592.70	2.30	724.90	2.00	857.30	3.20	985.20	1.60
595.10	2.40	725.90	1.00	858.80	1.50	987.60	2.40
596.90	1.80	727.70	1.80	862.70	3.90	988.80	1.20
598.20	1.30	730.90	3.20	864.30	1.60	992.60	3.80
602.40	4.20	733.30	2.40	866.40	2.10	996.10	3.50
605.30	2.90	735.70	2.40	868.80	2.40	998.20	2.10
609.90	4.60	737.70	2.00	873.20	4.40		
610.90	1.00	740.90	3.20	876.10	2.90		
612.50	1.60	743.70	2.80	877.80	1.70		
616.80	4.30	745.40	0.00	881.00	3.20		
618.90	2.10	745.40	1.70	883.60	2.60		
620.90	2.00	749.20	3.80	884.70	1.10		
622.50	1.60	755.20	6.00	886.40	1.70		
624.70	2.20	757.90	2.70	891.40	5.00		
627.50	2.80	760.30	2.40	893.80	2.40		
633.20	5.70	762.10	1.80	896.20	2.40		
637.00	3.80	764.90	2.80	898.40	2.20		
638.90	1.90	766.00	1.10	900.30	1.90		
639.90	1.00	767.50	1.50	903.90	3.60		
641.70	1.80	769.70	2.20	904.90	1.00		

- **Load Transfer Efficiency**

5I27-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
M-I-1	N 34°06'39.4"	W 101°46'28.7"	3'7"	3'6"
S-I-1	N 34°06'39.0"	W 101°46'29.2"	2'5"	2'5"
M-I-2	N 34°06'38.5"	W 101°46'29.5"	5'0"	4'4"
L-I-1	N 34°06'38.6"	W 101°46'29.9"	5'7"	5'7"
S-I-2	N 34°06'38.3"	W 101°46'30.1"	2'5"	2'7"
L-I-2	N 34°06'38.1"	W 101°46'30.3"	5'1"	4'7"
S-II-1	N 34°06'35.5"	W 101°46'33.0"	2'5"	2'2"
L-II-1	N 34°06'35.5"	W 101°46'33.8"	5'6"	4'2"
L-II-2	N 34°06'35.2"	W 101°46'34.2"	4'9"	6'0"
M-II-1	N 34°06'34.4"	W 101°46'35.2"	3'9"	3'4"
S-II-2	N 34°06'33.8"	W 101°46'36.1"	2'10"	2'2"
M-II-2	N 34°06'33.6"	W 101°46'36.4"	3'8"	3'11"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
M-I-1	1.90	1.86	2.51	2.48	103.55	100.97
S-I-1	2.03	2.01	2.65	2.64	101.44	100.56
M-I-2	2.09	2.06	2.67	2.68	101.42	99.77
L-I-1	2.08	2.07	2.72	2.73	100.72	99.83
S-I-2	1.69	1.66	2.28	2.26	100.64	101.14
L-I-2	1.59	1.59	2.09	2.09	101.14	100.21
S-II-1	no data	no data	2.49	2.50	no data	99.56
L-II-1	1.84	1.83	2.40	2.39	101.00	100.06
L-II-2	2.72	3.22	2.47	2.47	105.38	100.05
M-II-1	1.84	1.84	2.30	2.31	101.20	99.68
S-II-2	1.77	1.75	2.15	2.17	99.59	99.38
M-II-2	1.83	1.84	2.28	2.27	100.87	100.58

Test Section : 5-Loop_289-1

GENERAL DESCRIPTION	
Highway	Loop 289
District	Lubbock
County	Lubbock
Direction	N
Reference Marker	
Pavement Type	CRCP
Slab Thickness	10 in
Construction Date	2004-10-13
Vertical Alignment	Grade
Horizontal Alignment	Tangent
No of Lanes	4
PMIC Surveyed Lane	R4
Shoulder Type	Tied Concrete
Surface Texture	Transverse tining
Concrete CAT	
Drainage	
GPS (start)	N33°32'31.7"
	W101°56' 04.5"
GPS (end)	N33°32' 40.3"
	W101°56'08.4"
Survey Dates	2006-02-24
Surveyors	Medina, Won, Cho

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
3.60		402.10	0.60	746.10	5.80
15.40	11.80	407.50	5.40	755.90	9.80
27.10	11.70	417.20	9.70	764.10	8.20
41.00	13.90	419.50	2.30	768.10	4.00
44.40	3.40	420.50	1.00	773.30	5.20
55.80	11.40	425.60	5.10	780.30	7.00
72.70	16.90	429.10	3.50	793.80	13.50
74.30	1.60	433.10	4.00	801.20	7.40
79.10	4.80	440.50	7.40	809.10	7.90
87.50	8.40	449.50	9.00	818.80	9.70
101.20	13.70	454.80	5.30	824.40	5.60
104.10	2.90	465.80	11.00	825.70	1.30
114.70	10.60	467.00	1.20	837.80	12.10
123.20	8.50	480.80	13.80	842.20	4.40
135.70	12.50	483.00	2.20	847.00	4.80
149.00	13.30	494.30	11.30	856.40	9.40
160.70	11.70	497.20	2.90	869.30	12.90
173.90	13.20	**Construction Joint**		879.40	10.10
177.90	4.00	500.00		882.30	2.90
180.70	2.80	507.10	7.10	887.20	4.90
191.70	11.00	523.10	16.00	893.80	6.60
192.40	0.70	546.90	23.80	901.80	8.00
193.90	1.50	549.20	2.30	910.40	8.60
209.20	15.30	555.10	5.90	912.00	1.60
216.00	6.80	561.60	6.50	923.80	11.80
222.30	6.30	565.10	3.50	933.30	9.50
223.60	1.30	571.00	5.90	943.80	10.50
228.40	4.80	581.30	10.30	955.70	11.90
237.20	8.80	590.60	9.30	963.80	8.10
249.50	12.30	592.30	1.70	975.60	11.80
251.20	1.70	599.20	6.90	988.60	13.00
262.20	11.00	614.90	15.70	995.40	6.80
265.80	3.60	623.00	8.10	997.50	2.10
273.70	7.90	628.10	5.10		
283.10	9.40	635.90	7.80		
289.90	6.80	641.50	5.60		
299.70	9.80	644.40	2.90		
309.60	9.90	648.30	3.90		
319.00	9.40	655.70	7.40		
338.50	19.50	666.70	11.00		
348.10	9.60	677.70	11.00		
351.90	3.80	694.80	28.10		
359.20	7.30	707.50	12.70		
364.30	5.10	714.20	6.70		
371.10	6.80	716.90	2.70		
378.50	7.40	720.10	3.20		
381.50	3.00	728.00	7.90		
391.70	10.20	729.30	1.30		
392.70	1.00	730.30	1.00		
401.50	8.80	740.30	10.00		

- **Load Transfer Efficiency**

5Loop289-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
L-I-1	N 33°32'32.6"	W 101°56'05.2"	8'6"	7'4"
S-I-1	N 33°32'32.7"	W 101°56'05.2"	1'7"	2'10"
M-I-1	N 33°32'33.7"	W 101°56'05.4"	3'8"	4'8"
L-I-2	N 33°32'34.0"	W 101°56'05.6"	9'7"	9'11"
S-I-2	N 33°32'34.9"	W 101°56'06.0"	1'3"	4'9"
M-I-2	N 33°32'35.0"	W 101°56'05.9"	4'6"	3'6"
L-II-1	N 33°32'35.9"	W 101°56'06.6"	15'8"	7'4"
M-II-1	N 33°32'36.2"	W 101°56'06.7"	2'8"	5'10"
L-II-2	N 33°32'36.4"	W 101°56'07.0"	10'5"	9'3"
M-II-2	N 33°32'37.3"	W 101°56'07.2"	5'5"	3'0"
S-II-1	N 33°32'37.8"	W 101°56'07.4"	2'7"	3'0"
M-II-3	N 33°32'38.9"	W 101°56'07.8"	4'7"	4'11"
S-II-2	N 33°32'39.2"	W 101°56'08.0"	2'10"	4'4"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
L-I-1	2.54	2.61	3.21	3.22	103.72	99.87
S-I-1	2.58	2.49	3.12	3.13	100.15	99.73
M-I-1	2.23	2.12	2.50	2.48	105.41	101.46
L-I-2	2.45	2.44	2.49	2.48	106.30	100.56
S-I-2	2.21	2.13	3.08	3.12	103.06	98.96
M-I-2	2.15	2.10	2.78	2.78	104.86	100.00
L-II-1	2.02	2.06	2.57	2.59	95.88	99.19
M-II-1	2.09	2.07	2.82	2.82	101.53	100.25
L-II-2	2.27	2.27	3.39	3.42	102.20	99.27
M-II-2	2.27	2.31	3.60	3.59	101.65	100.44
S-II-1	2.32	2.34	2.85	2.84	103.31	100.43
M-II-3	1.92	1.86	2.36	2.36	106.59	100.04
S-II-2	1.80	1.78	2.28	2.29	103.29	99.62

Test Section : 9-I35-1

GENERAL DESCRIPTION	
Highway	IH 35
District	Waco
County	Hill
Direction	S
Reference Marker	MP 361-0.2
Pavement Type	CRCP
Slab Thickness	14 in
Construction Date	2004-09-17
Vertical Alignment	Fill
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Carpet Drag
Concrete CAT	SRG
Drainage	
GPS (start)	N31°55'36.4"
	W097°06' 07.9"
GPS (end)	N31°55' 27.3"
	W097°06' 04.1"
Survey Dates	2007-01-30
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
13.33	13.33	359.75	16.25	733.00	0.83
15.33	2.00	376.00	16.25	740.42	7.42
20.00	4.67	380.83	4.83	749.08	8.66
29.33	9.33	385.17	4.34	759.58	10.50
36.00	6.67	389.83	4.66	767.83	8.25
47.58	11.58	399.75	9.92	772.83	5.00
55.25	7.67	407.58	7.83	782.91	10.08
62.33	7.08	412.91	5.33	784.25	1.34
70.91	8.58	419.08	6.17	795.33	11.08
83.08	12.17	425.91	6.83	800.91	5.58
96.17	13.09	434.33	8.42	811.08	10.17
99.00	2.83	442.75	8.42	812.58	1.50
103.00	4.00	447.42	4.67	813.67	1.09
109.00	6.00	451.17	3.75	821.58	7.91
116.17	7.17	455.33	4.16	834.58	13.00
125.50	9.33	461.83	6.50	841.00	6.42
134.25	8.75	470.25	8.42	841.83	0.83
135.17	0.92	477.91	7.66	843.08	1.25
137.25	2.08	488.75	10.84	850.58	7.50
141.33	4.08	499.42	10.67	864.42	13.84
145.17	3.84	**Construction joint**		873.42	9.00
155.17	10.00	504.00	4.00	883.00	9.58
167.17	12.00	510.91	6.91	891.25	8.25
169.42	2.25	521.08	10.17	902.91	11.66
174.42	5.00	534.42	13.34	912.08	9.17
176.75	2.33	537.58	3.16	914.17	2.09
181.08	4.33	545.25	7.67	919.67	5.50
184.58	3.50	553.00	7.75	930.25	10.58
192.17	7.59	566.17	13.17	940.42	10.17
205.67	13.50	585.00	18.83	954.91	14.49
210.83	5.16	592.00	7.00	969.50	14.59
211.75	0.92	594.75	2.75	975.17	5.67
220.50	8.75	602.08	7.33	982.83	7.66
230.58	10.08	608.00	5.92	987.42	4.59
238.00	7.42	620.50	12.50	994.42	7.00
251.67	13.67	631.08	10.58		
261.75	10.08	635.75	4.67		
263.00	1.25	645.91	10.16		
266.42	3.42	651.33	5.42		
278.00	11.58	660.83	9.50		
289.50	11.50	667.00	6.17		
296.25	6.75	672.08	5.08		
305.25	9.00	678.42	6.34		
306.17	0.92	687.42	9.00		
317.17	11.00	701.83	14.41		
321.50	4.33	702.83	1.00		
323.25	1.75	711.83	9.00		
325.50	2.25	722.00	10.17		
332.83	7.33	731.08	9.08		
343.50	10.67	732.17	1.09		

- **Load Transfer Efficiency**

9I35-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
L-I-1	N 31°55'35.8"	W 97°06'07.9"	11'8"	7'11"
M-I-1	N 31°55'34.6"	W 97°06'07.3"	3'1"	3'11"
Special	N 31°55'34.3"	W 97°06'07.1"	5'9"	9'3"
S-I-1	N 31°55'33.8"	W 97°06'06.9"	11"	2'6"
L-I-2	N 31°55'33.5"	W 97°06'06.7"	6'3"	8'10"
S-I-2	N 31°55'33.2"	W 97°06'06.7"	1'5"	2'8"
M-I-2	N 31°55'32.1"	W 97°06'06.5"	5'0"	4'2"
L-II-1	N 31°55'31.1"	W 97°06'05.7"	7'8"	7'8"
M-II-1	N 31°55'30.0"	W 97°06'05.3"	5'8"	9'11"
M-II-2	N 31°55'29.9"	W 97°06'05.2"	5'0"	2'11"
L-II-2	N 31°55'29.1"	W 97°06'04.8"	9'2"	10'8"
S-II-1	N 31°55'27.9"	W 97°06'04.5"	2'9"	6'1"
M-II-3	N 31°55'27.1"	W 97°06'04.1"	4'3"	7'5"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
L-I-1	0.77	0.77	0.89	0.88	101.21	101.09
M-I-1	0.82	0.82	0.96	0.95	100.53	100.49
Special	0.86	0.83	1.31	1.31	104.18	99.03
S-I-1	0.81	0.79	1.37	1.35	103.48	100.00
L-I-2	0.79	0.79	0.89	0.89	100.57	99.49
S-I-2	0.88	0.87	1.39	1.39	101.11	99.51
M-I-2	0.85	0.83	0.91	0.90	102.72	101.05
L-II-1	0.76	0.76	0.89	0.87	100.68	102.14
M-II-1	0.82	0.82	0.91	0.91	100.07	99.49
M-II-2	0.85	0.85	0.88	0.89	99.45	98.96
L-II-2	0.97	0.97	0.88	0.88	100.03	100.53
S-II-1	0.92	0.90	1.09	1.07	101.56	101.75
M-II-3	0.89	0.89	1.06	1.05	100.03	100.44

Test Section : 9-I35-2

GENERAL DESCRIPTION	
Highway	IH 35
District	Waco
County	McLennan
Direction	N
Reference Marker	Exit 333 B
Pavement Type	CRCP
Slab Thickness	15
Construction Date	1998-07-10
Vertical Alignment	Grade
Horizontal Alignment	Tangent
No of Lanes	3
PMIC Surveyed Lane	R1
Shoulder Type	Tied Concrete
Surface Texture	Trans.Tining
Concrete CAT	SRG
Drainage	
GPS (start)	N31°31'24.4"
	W097°08' 03.7"
GPS (end)	N31°31' 33.7"
	W097°07' 59.4"
Survey Dates	2007-01-30
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
1.83	1.83	179.42	4.75	342.58	4.58
4.83	3.00	180.75	1.33	347.42	4.84
12.58	7.75	182.83	2.08	351.91	4.49
16.17	3.59	186.91	4.08	355.75	3.84
17.58	1.41	188.33	1.42	357.67	1.92
19.17	1.59	191.42	3.09	360.50	2.83
20.08	0.91	193.67	2.25	363.33	2.83
29.33	9.25	199.91	6.24	364.91	1.58
31.17	1.84	200.17	0.26	366.58	1.67
36.17	5.00	201.08	0.91	367.33	0.75
39.17	3.00	202.33	1.25	368.00	0.67
42.42	3.25	208.67	6.34	374.08	6.08
44.17	1.75	209.58	0.91	377.00	2.92
49.42	5.25	210.83	1.25	380.50	3.50
51.17	1.75	216.58	5.75	386.58	6.08
55.33	4.16	217.42	0.84	395.08	8.50
56.67	1.34	227.42	10.00	398.25	3.17
64.25	7.58	228.42	1.00	399.00	0.75
65.08	0.83	236.42	8.00	404.58	5.58
71.42	6.34	237.67	1.25	407.67	3.09
77.91	6.49	244.17	6.50	408.42	0.75
79.58	1.67	245.83	1.66	410.50	2.08
82.50	2.92	250.00	4.17	411.33	0.83
83.91	1.41	259.25	9.25	417.08	5.75
87.91	4.00	260.83	1.58	424.25	7.17
89.08	1.17	263.58	2.75	427.83	3.58
95.58	6.50	265.42	1.84	428.83	1.00
98.42	2.84	267.91	2.49	429.91	1.08
101.17	2.75	270.00	2.09	430.83	0.92
104.17	3.00	271.17	1.17	433.50	2.67
107.67	3.50	275.67	4.50	439.17	5.67
109.17	1.50	276.50	0.83	443.17	4.00
111.50	2.33	277.42	0.92	444.08	0.91
113.50	2.00	280.83	3.41	449.58	5.50
116.91	3.41	283.58	2.75	450.42	0.84
122.58	5.67	284.17	0.59	451.08	0.66
123.42	0.84	286.00	1.83	453.25	2.17
125.58	2.16	288.42	2.42	459.00	5.75
128.75	3.17	291.50	3.08	465.17	6.17
133.50	4.75	292.42	0.92	474.17	9.00
140.25	6.75	300.67	8.25	478.83	4.66
142.00	1.75	301.42	0.75	487.75	8.92
147.58	5.58	307.91	6.49	488.58	0.83
152.00	4.42	308.67	0.76	498.17	9.59
156.00	4.00	316.83	8.16	500.00	1.83
157.75	1.75	321.50	4.67	**Construction Joint**	
159.25	1.50	322.67	1.17	502.25	2.25
165.42	6.17	326.42	3.75	510.91	8.66
172.17	6.75	330.83	4.41	512.75	1.84
174.67	2.50	338.00	7.17	516.75	4.00

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
518.67	1.92	716.25	6.92	935.33	7.25
521.33	2.66	717.58	1.33	944.58	9.25
527.58	6.25	720.58	3.00	955.42	10.84
528.91	1.33	728.83	8.25	965.91	10.49
532.67	3.76	734.08	5.25	968.83	2.92
536.08	3.41	736.33	2.25	969.25	0.42
540.08	4.00	742.00	5.67	977.91	8.66
543.00	2.92	746.50	4.50	987.83	9.92
548.42	5.42	756.17	9.67	991.00	3.17
549.33	0.91	761.08	4.91	997.17	6.17
552.33	3.00	765.42	4.34		
553.25	0.92	770.25	4.83		
557.67	4.42	771.42	1.17		
564.17	6.50	773.17	1.75		
567.58	3.41	778.58	5.41		
571.50	3.92	781.25	2.67		
573.00	1.50	783.83	2.58		
574.00	1.00	789.58	5.75		
580.25	6.25	791.33	1.75		
582.58	2.33	796.50	5.17		
585.91	3.33	797.67	1.17		
591.00	5.09	804.33	6.66		
593.33	2.33	806.58	2.25		
596.83	3.50	810.00	3.42		
602.17	5.34	811.58	1.58		
602.50	0.33	817.00	5.42		
609.83	7.33	819.25	2.25		
615.91	6.08	823.75	4.50		
617.17	1.26	826.67	2.92		
622.42	5.25	829.33	2.66		
624.25	1.83	832.50	3.17		
625.00	0.75	837.25	4.75		
626.91	1.91	838.58	1.33		
633.67	6.76	843.42	4.84		
634.42	0.75	845.50	2.08		
643.33	8.91	852.67	7.17		
645.50	2.17	856.67	4.00		
649.67	4.17	863.75	7.08		
661.42	11.75	865.00	1.25		
666.00	4.58	866.25	1.25		
669.42	3.42	871.33	5.08		
671.08	1.66	876.58	5.25		
672.83	1.75	879.67	3.09		
676.75	3.92	886.83	7.16		
682.00	5.25	896.75	9.92		
684.17	2.17	899.42	2.67		
693.67	9.50	904.75	5.33		
698.08	4.41	911.58	6.83		
703.08	5.00	919.25	7.67		
709.33	6.25	928.08	8.83		

- **Load Transfer Efficiency**

9I35-2

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
S-I-1	N 31°31'25.4"	W 97°08'03.1"	2'8"	2'10"
L-I-1	N 31°31'25.6"	W 97°08'03.1"	4'8"	6'4"
S-I-2	N 31°31'26.1"	W 97°08'02.9"	2'1"	2'4"
M-I-1	N 31°31'27.3"	W 97°08'02.3"	4'11"	3'3"
L-I-2	N 31°31'27.5"	W 97°08'02.3"	8'8"	6'5"
M-I-2	N 31°31'27.6"	W 97°08'02.2"	3'11"	4'8"
S-II-1	N 31°31'29.6"	W 97°08'01.2"	1'10"	3'0"
M-II-1	N 31°31'29.5"	W 97°08'01.3"	4'3"	3'9"
L-II-1	N 31°31'29.6"	W 97°08'01.4"	4'6"	6'2"
S-II-2	N 31°31'29.8"	W 97°08'01.3"	2'4"	2'11"
L-II-2	N 31°31'30.2"	W 97°08'01.1"	7'5"	6'0"
M-II-2	N 31°31'30.7"	W 97°08'00.8"	4'6"	3'3"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S-I-1	1.15	1.15	1.04	1.04	99.64	100.00
L-I-1	1.11	1.12	1.00	1.01	98.97	98.66
S-I-2	1.13	1.12	1.06	1.06	100.86	100.02
M-I-1	1.08	1.09	1.01	1.01	99.42	100.02
L-I-2	1.22	1.18	1.04	1.04	103.38	99.99
M-I-2	1.22	1.22	1.09	1.08	100.38	100.84
S-II-1	1.07	1.09	1.06	1.06	98.39	100.01
M-II-1	1.24	1.21	1.17	1.16	102.28	101.20
L-II-1	1.24	1.23	1.21	1.20	101.11	100.78
S-II-2	1.28	1.27	1.22	1.22	100.73	100.00
L-II-2	1.40	1.37	1.20	1.20	101.74	100.39
M-II-2	1.41	1.42	1.31	1.31	99.53	100.00

Test Section : 12-441-1-2

12-441-1 (subsections EFG&H) 12-441-2 (subsections ABCD)	
GENERAL DESCRIPTION	
Highway	IH 45
District	Houston
County	Montgomery
Direction	N
Reference Marker	Exit 72B
Pavement Type	CRCP
Slab Thickness	15 in
Construction Date	1990-01-21
Vertical Alignment	
Horizontal Alignment	Tangent
No of Lanes	5
PMIC Surveyed Lane	R5
Shoulder Type	Tied Concrete
Surface Texture	Trans.Tining
Concrete CAT	Limestone (441-1) SRG (441-2)
Drainage	
GPS (start)	N30°06'53.6"
	W095°26' 18.7"
GPS (end)	N30°07' 11.6"
	W095°26' 30.0"
Survey Dates	2007-01-13
Surveyors	Medina, Suliman, Finley

- Crack Spacing Information

Section E		Section F		Section G		Section H	
Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
27.50	27.50	2.00	2.00	0.67	0.67	3.75	3.75
29.00	1.50	7.08	5.08	10.50	9.83	12.42	8.67
31.25	2.25	15.75	8.67	14.00	3.50	21.17	8.75
54.58	23.33	19.33	3.58	18.67	4.67	28.58	7.41
70.33	15.75	25.58	6.25	24.91	6.24	29.67	1.09
71.00	0.67	32.42	6.84	27.33	2.42	33.17	3.50
73.00	2.00	37.25	4.83	34.50	7.17	35.17	2.00
77.58	4.58	39.17	1.92	36.50	2.00	41.08	5.91
86.67	9.09	40.91	1.74	43.25	6.75	46.00	4.92
94.42	7.75	49.91	9.00	48.33	5.08	46.67	0.67
95.00	0.58	54.50	4.59	55.67	7.34	55.08	8.41
98.42	3.42	55.33	0.83	59.91	4.24	58.58	3.50
101.42	3.00	58.50	3.17	63.75	3.84	67.00	8.42
102.08	0.66	71.17	12.67	73.17	9.42	71.33	4.33
106.58	4.50	80.42	9.25	74.08	0.91	79.83	8.50
108.50	1.92	94.58	14.16	84.42	10.34	86.75	6.92
117.09	8.59	99.75	5.17	90.33	5.91	90.08	3.33
119.17	2.08	105.00	5.25	97.58	7.25	91.91	1.83
120.09	0.92	110.33	5.33	101.67	4.09	97.83	5.92
122.50	2.41	114.25	3.92	107.00	5.33	100.75	2.92
125.00	-1.50	119.33	5.08	115.08	8.08	103.58	2.83
126.50	4.00	128.75	9.42	115.80	0.72	104.33	0.75
126.58	1.58	131.33	2.58	120.75	4.95	110.75	6.42
128.33	1.75	138.80	7.47	125.17	4.42	115.00	4.25
137.17	8.84	159.08	20.28	128.75	3.58	122.33	7.33
		167.75	8.67	131.83	3.08	133.33	11.00
		171.91	4.16	134.91	3.08	143.91	10.58
		178.80	6.89	139.42	4.51	150.67	6.76
		188.00	9.20	142.83	3.41	152.33	1.66
		192.25	4.25	144.00	1.17	157.83	5.50
		196.33	4.08	148.58	4.58	162.00	4.17
		205.33	9.00	152.67	4.09	166.67	4.67
		208.58	3.25	158.00	5.33	169.67	3.00
		214.17	5.59	163.83	5.83	172.33	2.66
		217.80	3.63	165.75	1.92	178.91	6.58
		220.58	2.78	169.50	3.75	184.58	5.67
		226.33	5.75	173.67	4.17	185.17	0.59
		228.67	2.34	179.75	6.08	193.58	8.41
				186.08	6.33	200.42	6.84
				191.42	5.34	210.33	9.91
				194.08	2.66	212.33	2.00
				197.33	3.25	219.33	7.00
				200.67	3.34	225.67	6.34
				205.75	5.08		
				210.33	4.58		
				213.33	3.00		
				214.91	1.58		
				222.67	7.76		

Section A		Section B		Section C		Section D	
Crack (ft.)	**Space (ft.)**	**Crack (ft.)**	**Space (ft.)**	**Crack (ft.)**	**Space (ft.)**	**Crack (ft.)**	**Space (ft.)**
1.00	1.00	2.00	2.00	2.08	2.08	5.17	5.17
7.42	6.42	11.75	9.75	3.58	1.50	9.67	4.50
14.25	6.83	19.08	7.33	7.91	4.33	17.67	8.00
22.08	7.83	22.08	3.00	15.33	7.42	22.25	4.58
31.83	9.75	30.83	8.75	18.67	3.34	24.00	1.75
33.50	1.67	34.25	3.42	22.00	3.33	31.08	7.08
35.08	1.58	35.91	1.66	28.67	6.67	35.25	4.17
38.25	3.17	44.75	8.84	30.33	1.66	39.67	4.42
41.17	2.92	47.25	2.50	37.42	7.09	46.08	6.41
52.17	11.00	52.83	5.58	39.00	1.58	56.08	10.00
61.17	9.00	56.67	3.84	45.67	6.67	60.00	3.92
68.75	7.58	62.91	6.24	51.75	6.08	65.00	5.00
75.25	6.50	64.08	1.17	62.83	11.08	72.25	7.25
78.50	3.25	73.50	9.42	68.83	6.00	75.08	2.83
88.17	9.67	77.58	4.08	80.00	11.17	82.25	7.17
96.83	8.66	81.75	4.17	89.58	9.58	83.25	1.00
106.67	9.84	84.67	2.92	96.17	6.59	87.83	4.58
116.67	10.00	89.58	4.91	99.50	3.33	91.91	4.08
117.58	0.91	97.17	7.59	105.33	5.83	101.67	9.76
127.50	9.92	106.58	9.41	111.33	6.00	108.33	6.66
135.50	8.00	110.17	3.59	115.42	4.09	112.83	4.50
138.00	2.50	115.58	5.41	117.00	1.58	113.83	1.00
140.83	2.83	116.91	1.33	120.58	3.58	117.83	4.00
149.33	8.50	123.50	6.59	128.58	8.00	125.58	7.75
157.58	8.25	125.17	1.67	131.17	2.59	127.00	1.42
166.67	9.09	132.25	7.08	132.50	1.33	133.50	6.50
174.08	7.41	139.91	7.66	141.33	8.83	141.33	7.83
176.25	2.17	143.50	3.59	149.50	8.17	151.17	9.84
177.58	1.33	148.17	4.67	152.42	2.92	154.50	3.33
186.50	8.92	157.08	8.91	160.17	7.75	157.33	2.83
191.58	5.08	168.17	11.09	167.00	6.83	162.83	5.50
199.08	7.50	174.33	6.16	175.91	8.91	167.17	4.34
205.01	5.93	190.42	16.09	185.91	10.00	170.58	3.41
207.00	1.99	196.58	6.16	191.50	5.59	176.33	5.75
214.42	7.42	199.33	2.75	194.25	2.75	177.91	1.58
216.67	2.25	206.42	7.09	199.50	5.25	180.33	2.42
223.17	6.50	214.17	7.75	201.58	2.08	186.91	6.58
226.33	3.16	217.50	3.33	202.83	1.25	189.42	2.51
		220.33	2.83	210.08	7.25	192.08	2.66
				213.75	3.67	195.91	3.83
				217.08	3.33	202.75	6.84
				218.42	1.34	210.91	8.16
				220.00	1.58	216.08	5.17
				224.17	4.17	218.42	2.34
				228.25	4.08	225.91	7.49

- **Load Transfer Efficiency**

12-441-1				
Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
M1	N 30°06'54.2"	W 95°26'18.5"	2'9"	3'11"
S1	N 30°06'54.4"	W 95°26'18.6"	2'8.5"	2'1"
M2	N 30°06'54.7"	W 95°26'18.9"	3'10"	2'5"
L1	N 30°06'54.7"	W 95°26'19.0"	6'1"	7'1"
S2	N 30°06'55.1"	W 95°26'19.1"	3'7"	2'8"
L2	N 30°06'55.3"	W 95°26'19.3"	11'0"	6'5"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
M1	1.07	1.07	0.86	0.87	100.62	98.45
S1	0.90	0.89	1.40	1.40	101.00	100.04
M2	0.69	0.69	1.38	1.39	100.66	100.08
L1	1.09	1.05	1.47	1.50	103.43	100.96
S2	0.86	0.86	1.35	1.36	100.66	99.99
L2	0.81	0.78	1.31	1.32	102.91	101.15

12-441-2

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
S1	N 30°07'03.7"	W 95°26'25.4"	2'9"	2'4"
L1	N 30°07'04.2"	W 95°26'25.9"	8'4"	6'2"
M1	N 30°07'04.4"	W 95°26'26.3"	5'3"	5'8"
S2	N 30°07'04.5"	W 95°26'26.3"	1'10"	1'2"
L2	N 30°07'05.3"	W 95°26'27.0"	7'10"	8'4"
M2	N 30°07'05.7"	W 95°26'27.1"	5'5"	5'5"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S1	0.80	0.81	0.83	0.83	99.08	100.63
L1	0.83	0.80	0.97	0.98	103.73	99.07
M1	0.81	0.81	0.82	0.83	100.05	98.93
S2	0.95	0.94	0.84	0.86	101.20	97.83
L2	0.78	0.77	0.82	0.83	100.96	99.58
M2	0.81	0.81	0.97	0.96	99.97	100.96

Test Section : 12-US290-1

GENERAL DESCRIPTION	
Highway	US 290
District	Houston
County	Waller
Direction	E
Reference Marker	
Pavement Type	preformed/ sawcut CRCP
Slab Thickness	10 in
Construction Date	1992
Vertical Alignment	Cut
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	R1
Shoulder Type	Tied Concrete
Surface Texture	Trans.Tining
Concrete CAT	SRG
Drainage	Culvert at side
GPS (start)	N30°05'24.6"
	W096°01' 29.7"
GPS (end)	N30°05' 24.6"
	W096°01' 20.8"
Survey Dates	2007-01-12
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
3.67	3.67	294.91	3.41	630.91	6.24	857.67	4.25
9.33	5.66	300.67	5.76	637.67	6.76	859.58	1.91
21.50	12.17	304.17	3.50	643.17	5.50	862.33	2.75
27.17	5.67	325.25	21.08	649.75	6.58	865.00	2.67
33.67	6.50	331.00	5.75	655.25	5.50	871.58	6.58
39.83	6.16	340.33	9.33	660.83	5.58	874.58	3.00
47.08	7.25	343.42	3.09	667.25	6.42	877.67	3.09
52.09	5.01	346.58	3.16	673.17	5.92	879.58	1.91
59.25	7.16	352.50	5.92	679.08	5.91	881.00	1.42
65.00	5.75	355.67	3.17	685.33	6.25	883.83	2.83
71.25	6.25	358.83	3.16	691.25	5.92	887.50	3.67
76.75	5.50	365.08	6.25	697.33	6.08	891.67	4.17
83.42	6.67	368.17	3.09	703.25	5.92	895.91	4.24
89.33	5.91	376.91	8.74	709.17	5.92	898.91	3.00
95.58	6.25	383.91	7.00	721.17	12.00	901.42	2.51
101.67	6.09	389.25	5.34	724.08	2.91	904.58	3.16
107.08	5.41	395.33	6.08	727.33	3.25	907.08	2.50
113.33	6.25	401.17	5.84	733.33	6.00	910.33	3.25
119.42	6.09	407.08	5.91	739.42	6.09	913.75	3.42
125.50	6.08	413.33	6.25	745.08	5.66	915.58	1.83
131.50	6.00	419.17	5.84	754.42	9.34	919.33	3.75
137.58	6.08	431.00	11.83	763.58	9.16	922.08	2.75
143.75	6.17	437.08	6.08	766.50	2.92	925.67	3.59
149.33	5.58	443.17	6.09	772.08	5.58	929.75	4.08
155.58	6.25	449.33	6.16	775.42	3.34	937.67	7.92
161.91	6.33	455.00	5.67	778.33	2.91	940.67	3.00
168.00	6.09	461.08	6.08	790.08	11.75	943.42	2.75
173.33	5.33	467.50	6.42	792.08	2.00	946.67	3.25
174.25	0.92	473.50	6.00	796.25	4.17	951.17	4.50
179.75	5.50	479.42	5.92	797.67	1.42	953.00	1.83
185.91	6.16	485.67	6.25	799.00	1.33	957.08	4.08
192.00	6.09	497.42	11.75	800.08	1.08	961.83	4.75
198.00	6.00	**Construction Joint**		802.08	2.00	965.75	3.92
210.08	12.08	509.67	12.25	806.00	3.92	968.25	2.50
216.17	6.09	515.83	6.16	808.50	2.50	971.08	2.83
222.25	6.08	521.75	5.92	811.33	2.83	974.08	3.00
229.08	6.83	527.67	5.92	814.67	3.34	976.00	1.92
234.58	5.50	534.08	6.41	816.25	1.58	977.33	1.33
240.08	5.50	546.33	12.25	817.58	1.33	980.17	2.84
249.33	9.25	552.50	6.17	819.91	2.33	983.91	3.74
252.42	3.09	558.50	6.00	823.83	3.92	986.17	2.26
255.42	3.00	564.58	6.08	826.75	2.92	990.50	4.33
258.33	2.91	570.58	6.00	828.08	1.33	992.00	1.50
265.08	6.75	576.50	5.92	833.75	5.67	993.08	1.08
270.75	5.67	582.58	6.08	835.75	2.00	995.08	2.00
273.08	2.33	588.58	6.00	841.25	5.50	998.33	3.25
276.67	3.59	600.42	11.84	844.25	3.00		
282.50	5.83	606.91	6.49	847.50	3.25		
286.17	3.67	618.67	11.76	850.17	2.67		
291.50	5.33	624.67	6.00	853.42	3.25		

- **Load Transfer Efficiency**

12US290-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
J1	N 30°05'24.7"	W 96°01'27.1"	3'7"	2'3"
C1	N 30°05'24.7"	W 96°01'26.9"	2'3"	3'9"
J2	N 30°05'24.7"	W 96°01'28.8"	1'1"	1'9"
C2	N 30°05'24.7"	W 96°01'26.0"	1'5"	4'8"
J3	N 30°05'24.7"	W 96°01'25.0"	2'6"	3'6"
C3	N 30°05'24.7"	W 96°01'24.6"	3'4"	2'9"
J4	N 30°05'24.7"	W 96°01'23.9"	3'3"	2'11"
C4	N 30°05'24.7"	W 96°01'23.5"	2'9"	3'4"
J5	N 30°05'24.7"	W 96°01'21.8"	4'2"	3'4"
C5	N 30°05'24.7"	W 96°01'21.4"	1'11"	4'1"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
J1	2.58	2.50	2.52	2.49	103.40	101.10
C1	2.58	2.53	2.76	2.77	102.02	99.51
J2	2.62	2.62	3.03	3.05	100.16	99.55
C2	3.11	3.07	3.63	3.61	101.48	99.63
J3	1.93	1.93	1.92	1.89	100.00	101.20
C3	1.97	1.91	2.06	2.05	102.99	100.27
J4	2.45	2.34	2.26	2.25	104.66	100.84
C4	2.22	2.14	2.22	2.20	103.40	101.09
J5	1.83	1.81	1.84	1.82	101.35	100.78
C5	1.94	2.00	2.18	2.16	96.91	100.85

Test Section : 12-US290-2

GENERAL DESCRIPTION	
Highway	US 290
District	Houston
County	Waller
Direction	W
Reference Marker	
Pavement Type	CRCP
Slab Thickness	10 in
Construction Date	1992
Vertical Alignment	Fill
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Trans.Tining
Concrete CAT	Limestone
Drainage	
GPS (start)	N30°04'14.6"
	W095°56' 05.8"
GPS (end)	N30°04' 15.5"
	W095°56' 16.9"
Survey Dates	2007-01-12
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
68.25	68.25	271.08	2.00	**Construction joint**		784.58	7.33
75.42	7.17	272.33	1.25	506.25	6.25	790.00	5.42
83.50	8.08	278.67	6.34	509.50	3.25	796.50	6.50
91.75	8.25	282.83	4.16	514.75	5.25	800.91	4.41
95.67	3.92	286.91	4.08	515.91	1.16	806.83	5.92
101.00	5.33	292.67	5.76	518.08	2.17	811.08	4.25
107.91	6.91	296.91	4.24	521.17	3.09	817.42	6.34
117.17	9.26	298.08	1.17	523.42	2.25	819.83	2.41
125.33	8.16	301.42	3.34	532.67	9.25	828.75	8.92
132.25	6.92	304.67	3.25	539.67	7.00	837.67	8.92
133.08	0.83	310.83	6.16	548.50	8.83	844.08	6.41
134.58	1.50	316.58	5.75	556.58	8.08	850.17	6.09
141.17	6.59	317.58	1.00	557.83	1.25	852.50	2.33
144.25	3.08	318.83	1.25	564.67	6.84	859.08	6.58
145.08	0.83	319.75	0.92	575.75	11.08	865.33	6.25
147.33	2.25	328.25	8.50	578.25	2.50	871.08	5.75
153.08	5.75	331.08	2.83	581.17	2.92	874.91	3.83
159.25	6.17	333.58	2.50	590.42	9.25	880.25	5.34
162.91	3.66	340.25	6.67	596.08	5.66	891.75	11.50
164.08	1.17	346.42	6.17	598.33	2.25	901.50	9.75
165.08	1.00	350.50	4.08	605.91	7.58	904.17	2.67
167.91	2.83	351.75	1.25	611.17	5.26	905.67	1.50
170.00	2.09	356.91	5.16	614.00	2.83	909.33	3.66
176.00	6.00	361.25	4.34	616.17	2.17	913.42	4.09
180.00	4.00	364.00	2.75	622.50	6.33	914.75	1.33
182.33	2.33	371.91	7.91	629.67	7.17	918.42	3.67
187.25	4.92	377.67	5.76	641.67	12.00	923.25	4.83
196.08	8.83	382.50	4.83	650.08	8.41	924.50	1.25
196.67	0.59	385.25	2.75	654.17	4.09	933.33	8.83
204.50	7.83	390.08	4.83	660.08	5.91	939.25	5.92
213.83	9.33	392.25	2.17	667.17	7.09	940.91	1.66
215.00	1.17	398.33	6.08	669.00	1.83	943.58	2.67
219.33	4.33	403.67	5.34	675.25	6.25	945.83	2.25
221.00	1.67	410.00	6.33	679.25	4.00	950.75	4.92
227.17	6.17	415.08	5.08	681.08	1.83	958.83	8.08
235.67	8.50	427.25	12.17	685.75	4.67	959.91	1.08
237.25	1.58	430.50	3.25	689.08	3.33	965.58	5.67
243.25	6.00	436.83	6.33	701.75	12.67	971.75	6.17
246.25	3.00	439.83	3.00	705.17	3.42	973.75	2.00
251.00	4.75	440.67	0.84	706.17	1.00	982.42	8.67
252.17	1.17	443.83	3.16	712.67	6.50	989.91	7.49
253.50	1.33	455.00	11.17	719.67	7.00	996.08	6.17
257.25	3.75	458.67	3.67	724.08	4.41	996.67	0.59
259.50	2.25	463.83	5.16	732.67	8.59	1000.00	3.33
260.25	0.75	467.67	3.84	741.75	9.08		
261.58	1.33	475.67	8.00	748.58	6.83		
264.08	2.50	478.91	3.24	750.00	1.42		
266.58	2.50	482.83	3.92	760.25	10.25		
268.33	1.75	490.75	7.92	770.58	10.33		
269.08	0.75	500.00	9.25	777.25	6.67		

- **Load Transfer Efficiency**

12US290-2

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
L-I-1	N 30°04'14.5"	W 95°56'06.6"	7'3"	7'9"
M-I-1	N 30°04'14.5"	W 95°56'06.9"	3'1"	5'8"
S-I-1	N 30°04'14.5"	W 95°56'07.3"	10"	1'6"
S-I-2	N 30°04'14.7"	W 95°56'08.7"	1'4"	1'2"
M-I-2	N 30°04'14.6"	W 95°56'09.8"	3'7"	5'2"
L-I-2	N 30°04'14.8"	W 95°56'10.0"	7'0"	6'1"
S-II-1	N 30°04'14.9"	W 95°56'11.6"	2'11"	2'9"
M-II-1	N 30°04'14.9"	W 95°56'12.2"	4'0"	2'1"
L-II-1	N 30°04'14.9"	W 95°56'13.0"	11'3"	9'3"
M-II-2	N 30°04'15.1"	W 95°56'13.4"	4'2"	3'8"
L-II-2	N 30°04'15.3"	W 95°56'14.5"	6'6"	6'3"
S-II-2	N 30°04'15.5"	W 95°56'16.4"	2'0"	2'6"

Crack .	Deflections (Winter)		Deflections (Sum		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
L-I-1	1.99	1.96	2.13	2.13	101.71	99.78
M-I-1	2.02	2.03	2.06	2.06	99.84	99.77
S-I-1	2.21	2.17	3.39	3.37	101.67	99.47
S-I-2	2.42	2.38	3.93	3.90	101.83	99.08
M-I-2	2.24	2.14	2.24	2.22	104.85	99.16
L-I-2	2.08	2.02	2.02	2.02	103.18	99.54
S-II-1	2.39	2.29	2.53	2.48	104.46	98.12
M-II-1	3.68	3.42	2.19	2.20	107.85	100.21
L-II-1	2.41	2.29	2.31	2.28	105.29	98.79
M-II-2	2.10	2.03	2.20	2.21	103.41	100.43
L-II-2	1.86	1.83	1.91	1.89	101.94	99.01
S-II-2	2.57	2.47	2.61	2.60	104.10	99.63

Test Section : 12-US290-3

GENERAL DESCRIPTION	
Highway	US 290
District	Houston
County	Waller
Direction	E
Reference Marker	
Pavement Type	CRCP
Slab Thickness	10 in
Construction Date	1992
Vertical Alignment	Fill
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	R1
Shoulder Type	Tied Concrete
Surface Texture	Trans.Tining
Concrete CAT	SRG
Drainage	
GPS (start)	N30°04'23.1"
	W095°57' 16.0"
GPS (end)	N30°04' 20.5"
	W095°57' 05.0"
Survey Dates	2007-01-12
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
3.58	3.58	199.50	2.83	369.08	3.17
6.91	3.33	205.50	6.00	372.42	3.34
10.58	3.67	208.67	3.17	374.67	2.25
12.42	1.84	210.83	2.16	377.83	3.16
15.08	2.66	214.75	3.92	381.17	3.34
17.58	2.50	218.17	3.42	383.83	2.66
21.83	4.25	221.25	3.08	386.25	2.42
24.83	3.00	224.83	3.58	390.25	4.00
27.91	3.08	229.75	4.92	393.42	3.17
29.33	1.42	232.67	2.92	396.42	3.00
38.91	9.58	235.75	3.08	399.17	2.75
47.17	8.26	243.00	7.25	401.00	1.83
48.75	1.58	246.00	3.00	402.25	1.25
52.08	3.33	248.17	2.17	408.33	6.08
54.25	2.17	253.67	5.50	411.42	3.09
60.83	6.58	254.58	0.91	414.33	2.91
62.08	1.25	257.25	2.67	417.08	2.75
68.00	5.92	259.91	2.66	419.58	2.50
70.42	2.42	263.08	3.17	423.08	3.50
76.25	5.83	266.91	3.83	425.67	2.59
79.17	2.92	269.25	2.34	429.08	3.41
80.33	1.16	273.42	4.17	435.08	6.00
82.42	2.09	275.42	2.00	438.67	3.59
88.25	5.83	278.17	2.75	441.42	2.75
91.08	2.83	279.17	1.00	444.50	3.08
94.08	3.00	281.25	2.08	446.75	2.25
97.08	3.00	287.00	5.75	450.08	3.33
98.67	1.59	293.50	6.50	453.17	3.09
106.00	7.33	296.33	2.83	456.33	3.16
109.33	3.33	299.00	2.67	459.17	2.84
110.58	1.25	302.67	3.67	462.42	3.25
112.17	1.59	305.17	2.50	465.25	2.83
119.00	6.83	307.58	2.41	469.25	4.00
124.25	5.25	311.50	3.92	471.83	2.58
127.42	3.17	314.75	3.25	474.42	2.59
129.08	1.66	315.00	0.25	477.25	2.83
136.25	7.17	320.67	5.67	480.42	3.17
139.00	2.75	323.75	3.08	481.42	1.00
143.42	4.42	333.67	9.92	483.17	1.75
148.25	4.83	335.67	2.00	483.75	0.58
151.25	3.00	342.00	6.33	486.42	2.67
155.58	4.33	343.25	1.25	489.50	3.08
159.17	3.59	345.00	1.75	492.91	3.41
163.58	4.41	348.00	3.00	496.25	3.34
175.42	11.84	350.91	2.91	498.42	2.17
176.67	1.25	354.91	4.00	500.00	1.58
181.33	4.66	357.17	2.26	**Construction Joint**	
187.08	5.75	360.08	2.91	507.00	7.00
190.58	3.50	362.00	1.92	515.33	8.33
196.67	6.09	365.91	3.91	518.00	2.67

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
522.25	4.25	697.83	3.58	887.58	3.25
528.17	5.92	703.08	5.25	890.25	2.67
531.33	3.16	706.67	3.59	893.42	3.17
539.75	8.42	715.00	8.33	896.42	3.00
541.67	1.92	718.17	3.17	899.42	3.00
546.75	5.08	721.58	3.41	907.58	8.16
549.25	2.50	727.50	5.92	911.25	3.67
552.08	2.83	729.25	1.75	914.75	3.50
555.08	3.00	737.75	8.50	920.67	5.92
558.83	3.75	743.25	5.50	921.08	0.41
561.33	2.50	744.91	1.66	923.75	2.67
564.00	2.67	748.33	3.42	927.00	3.25
566.83	2.83	749.75	1.42	930.91	3.91
570.75	3.92	751.42	1.67	933.08	2.17
572.42	1.67	757.75	6.33	938.83	5.75
573.42	1.00	763.75	6.00	944.91	6.08
576.42	3.00	767.83	4.08	948.17	3.26
579.42	3.00	772.75	4.92	950.67	2.50
582.25	2.83	775.17	2.42	955.83	5.16
585.08	2.83	779.00	3.83	960.08	4.25
588.08	3.00	784.58	5.58	963.08	3.00
590.08	2.00	788.00	3.42	966.25	3.17
596.42	6.34	792.25	4.25	972.00	5.75
600.75	4.33	794.08	1.83	981.25	9.25
607.33	6.58	796.83	2.75	984.83	3.58
610.00	2.67	800.67	3.84	987.42	2.59
611.33	1.33	803.00	2.33	990.08	2.66
615.83	4.50	806.75	3.75	998.83	8.75
618.83	3.00	808.91	2.16		
620.58	1.75	813.75	4.84		
624.83	4.25	818.00	4.25		
628.91	4.08	820.83	2.83		
631.08	2.17	823.08	2.25		
633.83	2.75	827.17	4.09		
637.17	3.34	831.00	3.83		
639.91	2.74	836.25	5.25		
641.67	1.76	842.42	6.17		
645.91	4.24	843.50	1.08		
649.08	3.17	849.08	5.58		
651.75	2.67	854.67	5.59		
658.17	6.42	857.50	2.83		
661.50	3.33	861.50	4.00		
666.91	5.41	863.17	1.67		
669.08	2.17	866.50	3.33		
675.83	6.75	869.50	3.00		
682.25	6.42	871.58	2.08		
685.33	3.08	874.00	2.42		
687.33	2.00	878.00	4.00		
691.17	3.84	881.75	3.75		
694.25	3.08	884.33	2.58		

- **Load Transfer Efficiency**

12US290-3

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
L-I-1	N 30°04'23.0"	W 95°57'15.4"	8'8"	7'5"
M-I-1	N 30°04'22.9"	W 95°57'14.8"	3'4'	3'2"
M-I-2	N 30°04'22.7"	W 95°57'14.2"	2'9"	4'5"
S-I-1	N 30°04'22.5"	W 95°57'13.5"	2'11"	2'8"
L-I-2	N 30°04'22.3"	W 95°57'12.7"	6'0"	6'3"
S-I-2	N 30°04'22.2"	W 95°57'12.1"	2'2"	1'6"
L-II-1	N 30°04'21.8"	W 95°57'10.2"	4'10"	4'6"
M-II-1	N 30°04'21.6"	W 95°57'09.7"	3'7"	2'9"
M-II-2	N 30°04'21.5"	W 95°57'09.1"	1'6"	2'0"
S-II-1	N 30°04'21.3"	W 95°57'08.4"	7'4"	5'9"
L-II-2	N 30°04'21.2"	W 95°57'08.0"	4'0"	4'0"
S-II-2	N 30°04'20.7"	W 95°57'05.5"	3'5"	2'10"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
L-I-1	2.40	2.38	2.72	2.71	100.87	100.34
M-I-1	2.13	2.08	2.49	2.47	102.85	100.86
M-I-2	3.71	3.48	3.66	3.59	106.65	101.76
S-I-1	2.74	2.70	3.42	3.39	101.62	100.71
L-I-2	2.83	2.76	2.95	2.93	102.63	101.05
S-I-2	2.73	2.65	3.10	4.52	103.12	100.16
L-II-1	2.63	2.62	2.82	2.80	100.43	100.66
M-II-1	3.10	3.09	3.48	3.52	100.72	98.71
M-II-2	3.22	3.16	3.88	3.88	101.86	100.00
S-II-1	4.08	4.05	3.43	3.40	101.00	100.97
L-II-2	2.92	2.78	2.80	2.78	105.27	100.70
S-II-2	3.44	3.38	3.35	3.35	101.92	100.04

Test Section : 18-I30-1

GENERAL DESCRIPTION	
Highway	IH 30
District	Dallas
County	Dallas
Direction	W
Reference Marker	MP 8.8
Pavement Type	CRCP
Slab Thickness	13 in
Construction Date	
Vertical Alignment	Fill/ Grade
Horizontal Alignment	Tangent
No of Lanes	4
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Trans.Tining+Diamond Grinding
Concrete CAT	Gravel
Drainage	
GPS (start)	N32°46'02.5"
	W096°51' 49.6"
GPS (end)	N32°46' 02.6"
	W096°52' 01.2"
Survey Dates	2006-09-14
Surveyors	Medina, Womack

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00	0.00	216.08	3.00	510.58	10.58	735.09	4.84
3.58	3.58	226.42	10.33	514.50	3.92	737.17	2.08
7.17	3.58	229.08	2.67	530.08	15.58	745.50	8.33
9.67	2.50	233.17	4.08	538.58	8.50	748.08	2.58
14.08	4.42	236.42	3.25	542.67	4.08	757.00	8.92
27.17	13.08	240.08	3.67	550.42	7.75	759.75	2.75
30.25	3.08	246.08	6.00	561.58	11.17	770.00	10.25
34.00	3.75	249.50	3.42	563.42	1.83	776.17	6.17
37.08	3.08	253.09	3.59	565.33	1.92	785.75	9.58
39.08	2.00	255.09	2.00	572.00	6.67	788.17	2.42
43.08	4.00	259.33	4.24	575.33	3.33	789.42	1.25
47.50	4.42	262.58	3.25	579.75	4.42	793.50	4.08
50.42	2.92	265.33	2.75	587.09	7.34	799.50	6.00
53.08	2.67	272.67	7.33	590.25	3.16	807.33	7.83
57.33	4.25	278.08	5.42	591.08	0.83	810.58	3.25
59.33	2.00	289.33	11.25	598.17	7.08	814.33	3.75
61.08	1.75	292.25	2.92	599.58	1.42	827.08	12.75
69.58	8.50	295.50	3.25	600.09	0.51	828.67	1.58
71.09	1.51	298.67	3.17	609.58	9.49	829.58	0.92
78.50	7.41	312.00	13.33	612.09	2.51	830.09	0.51
80.67	2.17	315.42	3.42	620.08	7.99	833.50	3.41
87.42	6.75	322.25	6.83	622.75	2.67	838.08	4.58
90.58	3.17	325.17	2.92	629.58	6.83	844.08	6.00
93.08	2.50	328.25	3.08	631.08	1.50	853.17	9.08
100.42	7.33	337.75	9.50	636.58	5.50	856.17	3.00
102.42	2.00	341.75	4.00	639.08	2.50	859.00	2.83
110.00	7.58	344.67	2.92	642.33	3.25	866.67	7.67
113.75	3.75	348.75	4.08	645.08	2.75	871.17	4.50
116.67	2.92	351.09	2.34	651.75	6.67	876.08	4.92
124.42	7.75	358.17	7.07	652.08	0.33	886.17	10.08
127.08	2.67	364.33	6.17	657.50	5.42	899.17	13.00
132.42	5.33	367.09	2.76	661.67	4.17	902.00	2.83
137.42	5.00	371.33	4.24	667.08	5.42	903.67	1.67
140.25	2.83	374.58	3.25	671.17	4.08	910.75	7.08
146.42	6.17	384.33	9.75	673.75	2.58	914.50	3.75
154.42	8.00	387.50	3.17	676.25	2.50	921.67	7.17
158.17	3.75	393.75	6.25	677.42	1.17	927.75	6.08
161.00	2.83	400.67	6.92	679.08	1.67	936.33	8.58
164.17	3.17	409.33	8.67	684.08	5.00	938.25	1.92
167.00	2.83	410.67	1.33	687.50	3.42	945.67	7.42
170.58	3.58	418.75	8.08	688.42	0.92	947.42	1.75
173.58	3.00	429.00	10.25	691.09	2.68	949.25	1.83
177.17	3.58	430.58	1.58	694.67	3.57	953.00	3.75
180.67	3.50	437.17	6.58	701.25	6.58	957.75	4.75
189.42	8.75	450.33	13.17	710.17	8.92	963.58	5.83
190.33	0.92	451.08	0.75	712.67	2.50	964.58	1.00
193.67	3.33	462.08	11.00	718.42	5.75	972.75	8.17
199.67	6.00	479.17	17.08	721.00	2.58	975.75	3.00
201.75	2.08	**Construction Joint**		722.25	1.25	984.58	8.83
213.08	11.33	500.00	20.83	730.25	8.00	997.58	13.00

- **Load Transfer Efficiency**

18I30-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
S-I-1	N 32°46'02.4"	W 96°51'50.2"	3'1"	3'5"
M-I-1	N 32°46'02.4"	W 96°51'50.6"	6'9"	3'5"
S-I-2	N 32°46'02.4"	W 96°51'50.9"	3'7"	2'10"
M-I-2	N 32°46'02.4"	W 96°51'51.2"	3'6"	3'1"
L-I-1	N 32°46'02.4"	W 96°51'51.3"	5'8"	8'3"
L-I-2	N 32°46'02.5"	W 96°51'55.1"	10'8"	16'7"
L-II-1	N 32°46'02.5"	W 96°51'56.2"	11'7"	11'2"
S-II-1	N 32°46'02.5"	W 96°51'56.3"	1'10"	2'0"
M-II-1	N 32°46'02.5"	W 96°51'56.4"	3'7"	4'5"
S-II-2	N 32°46'02.5"	W 96°51'57.1"	3'0"	3'1"
M-II-2	N 32°46'02.6"	W 96°51'57.3"	4'6"	4'5"
L-II-2	N 32°46'02.6"	W 96°51'57.8"	6'6"	9'0"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S-I-1	1.57	1.57	no data	no data	100.0	no data
M-I-1	1.53	1.44	no data	no data	106.7	no data
S-I-2	1.31	1.34	no data	no data	97.9	no data
M-I-2	1.37	1.28	no data	no data	107.2	no data
L-I-1	1.33	1.33	no data	no data	99.9	no data
L-I-2	1.02	1.01	no data	no data	100.5	no data
L-II-1	1.02	1.01	no data	no data	101.0	no data
S-II-1	1.16	1.22	no data	no data	95.2	no data
M-II-1	1.18	1.17	no data	no data	100.5	no data
S-II-2	1.10	1.10	no data	no data	100.0	no data
M-II-2	0.99	1.02	no data	no data	97.0	no data
L-II-2	1.03	0.98	no data	no data	105.3	no data

Test Section : 19-US59-1

GENERAL DESCRIPTION	
Highway	US 59
District	Atlanta
County	Bowie
Direction	S
Reference Marker	MP 218-.4
Pavement Type	CRCP
Slab Thickness	12 in
Construction Date	
Vertical Alignment	Fill
Horizontal Alignment	Curve L / Tangent
No of Lanes	2
PMIC Surveyed Lane	K1
Shoulder Type	Tied Concrete
Surface Texture	Transverse Tining
Concrete CAT	Gravel
Drainage	
GPS (start)	N33°20'03.0"
	W094°09' 03.5"
GPS (end)	N33°19' 53.0"
	W094°09' 04.1"
Survey Dates	2006-09-12
Surveyors	Medina, Beck,Ryan, Du

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00	0.00	193.42	1.17	427.08	6.99
1.58	1.58	199.00	5.58	430.09	3.01
6.08	4.50	205.17	6.17	432.50	2.41
9.09	3.01	208.17	3.00	436.09	3.59
15.17	6.08	215.17	7.00	438.08	1.99
17.09	1.93	216.33	1.17	440.08	2.00
22.08	4.99	224.33	8.00	446.08	6.00
24.50	2.42	231.08	6.75	454.25	8.17
30.75	6.25	233.17	82.25	455.00	0.75
36.08	5.33	242.08	8.92	456.25	1.25
45.08	9.00	247.33	5.25	457.09	0.84
46.75	1.67	256.67	9.33	460.33	3.24
48.75	2.00	258.75	2.08	464.08	3.75
51.75	3.00	266.67	7.92	474.42	10.33
52.58	0.83	268.58	1.92	477.09	2.68
54.08	1.50	276.50	7.92	482.17	5.07
62.00	7.92	277.67	1.17	484.00	1.83
66.09	4.09	279.17	1.50	485.33	1.33
74.25	8.16	283.58	4.42	488.58	3.25
79.09	4.84	287.33	3.75	491.25	2.67
81.08	1.99	293.25	5.92	493.75	2.50
85.00	3.92	298.67	5.42	494.17	0.42
89.33	4.33	303.33	4.67	497.17	3.00
95.17	5.83	307.75	4.42	**Construction Joint**	
97.25	2.08	308.42	0.67	500.00	2.83
99.58	2.33	310.25	1.83	509.09	9.09
105.00	5.42	323.17	12.92	513.67	4.57
108.00	3.00	327.42	4.25	514.50	0.83
115.00	7.00	331.58	4.17	518.75	4.25
118.42	3.42	337.09	5.51	526.00	7.25
121.58	3.17	340.75	3.66	536.17	10.17
123.17	1.58	345.09	4.34	537.25	1.08
127.08	3.92	347.08	1.99	547.08	9.83
135.00	7.92	353.42	6.33	548.50	1.42
143.17	8.17	355.25	1.83	553.67	5.17
145.09	1.93	365.67	10.42	554.33	0.67
150.92	-80.16	367.08	1.42	564.08	9.75
151.42	6.32	370.09	3.01	566.17	2.08
156.58	5.17	375.50	5.41	573.50	7.33
159.08	2.50	377.00	1.50	577.42	3.92
163.58	4.50	379.08	2.08	578.67	1.25
166.17	2.58	389.17	10.08	581.75	3.08
169.25	3.08	394.75	5.58	588.25	6.50
174.50	5.25	398.08	3.33	595.67	7.42
176.08	1.58	401.17	3.08	608.58	12.92
179.33	3.25	408.08	6.92	609.58	1.00
180.75	1.42	410.42	2.33	612.42	2.83
184.00	3.25	411.75	1.33	615.42	3.00
187.33	3.33	415.67	3.92	618.33	2.92
192.25	4.92	420.09	4.43	621.08	2.75

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
629.50	8.42	875.67	5.67
632.50	3.00	878.08	2.42
636.42	3.92	883.08	5.00
641.09	4.68	888.33	5.25
648.58	7.49	890.00	1.67
650.67	2.08	895.33	5.33
651.67	1.00	904.42	9.08
652.50	0.83	907.33	2.92
661.25	8.75	910.50	3.17
670.33	9.08	914.00	3.50
674.58	4.25	919.00	5.00
681.58	7.00	930.42	11.42
687.58	6.00	931.50	1.08
688.50	0.92	936.67	5.17
693.58	5.08	941.67	5.00
696.50	2.92	945.25	3.58
699.08	2.58	952.42	7.17
706.58	7.50	957.75	5.33
714.75	8.17	961.08	3.33
717.00	2.25	970.08	9.00
725.08	8.08	980.17	10.08
731.17	6.08	982.08	1.92
740.00	8.83	990.67	8.58
745.75	5.75		
747.00	1.25		
749.00	2.00		
750.08	1.08		
759.09	9.01		
768.67	9.57		
776.09	7.43		
780.17	4.08		
786.75	6.58		
790.75	4.00		
793.33	2.58		
798.00	4.67		
802.33	4.33		
806.67	4.33		
811.50	4.83		
812.67	1.17		
815.25	2.58		
822.50	7.25		
830.75	8.25		
832.33	1.58		
840.42	8.08		
845.17	4.75		
847.58	2.42		
851.67	4.08		
858.67	7.00		
863.50	4.83		
870.00	6.50		

- **Load Transfer Efficiency**

19US59-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
M-I-1	N 33°20'02.8"	W 94°09'03.6"	4'6"	3'11"
L-I-1	N 33°20'02.5"	W 94°09'03.7"	5'0"	8'10"
L-I-2	N 33°20'02.2"	W 94°09'03.7"	4'9"	5'9"
S-I-1	N 33°20'02.1"	W 94°09'03.8"	1'11"	3'1"
S-I-2	N 33°20'01.9"	W 94°09'03.9"	2'1"	2'6"
M-I-2	N 33°20'00.9"	W 94°09'03.9"	3'4"	2'9"
L-II-1	N 33°19'57.0"	W 94°09'03.7'	7'3"	12'11"
M-II-1	N 33°19'56.8"	W 94°09'03.8"	2'10"	2'10"
M-II-2	N 33°19'56.6"	W 94°09'03.8"	2'9"	4'4"
L-II-2	N 33°19'56.4"	W 94°09'03.8"	8'9"	9'3"
S-II-1	N 33°19'56.1"	W 94°09'03.8"	2'11"	2'5"
S-II-2	N 33°19'54.0"	W 94°09'03.8"	3'1"	3'1"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
M-I-1	1.51	1.42	no data	no data	106.1%	no data
L-I-1	1.43	1.42	no data	no data	100.3%	no data
L-I-2	1.43	1.31	no data	no data	108.9%	no data
S-I-1	1.57	1.53	no data	no data	102.6%	no data
S-I-2	1.63	1.56	no data	no data	104.7%	no data
M-I-2	1.59	1.54	no data	no data	103.7%	no data
L-II-1	1.49	1.41	no data	no data	106.0%	no data
M-II-1	1.90	1.83	no data	no data	103.6%	no data
M-II-2	1.61	1.65	no data	no data	97.9%	no data
L-II-2	1.65	1.64	no data	no data	100.1%	no data
S-II-1	1.87	1.89	no data	no data	99.5%	no data
S-II-2	1.39	1.39	no data	no data	100.4%	no data

Test Section : 19-US59-2

GENERAL DESCRIPTION	
Highway	US 59
District	Atlanta
County	Cass
Direction	S
Reference Marker	MP 218-.4
Pavement Type	CRCP
Slab Thickness	12 in
Construction Date	
Vertical Alignment	Fill
Horizontal Alignment	Curve L / Tangent
No of Lanes	2
PMIC Surveyed Lane	K1
Shoulder Type	Tied Concrete
Surface Texture	Transverse Tining
Concrete CAT	Gravel
Drainage	Poor/ capillarity
GPS (start)	N33°03'36.1"
	W094°16' 54.4"
GPS (end)	N33°03' 30.2"
	W094°17' 04.0"
Survey Dates	2006-09-12
Surveyors	Medina, Beck,Ryan, Du

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00	0.00	224.50	5.50	387.33	5.83
7.42	7.42	228.00	3.50	388.67	1.33
9.17	1.75	228.09	0.09	393.67	5.00
11.25	2.08	229.08	0.99	395.67	2.00
13.67	2.42	239.00	9.92	404.08	8.42
22.67	9.00	244.42	5.42	409.33	5.25
23.09	0.42	251.50	7.08	413.50	4.17
29.08	-0.25	253.33	1.83	418.58	5.08
29.33	6.24	257.17	3.83	427.00	8.42
40.00	10.92	261.75	4.58	428.33	1.33
45.67	5.67	265.09	3.34	429.67	1.33
50.00	4.33	268.08	2.99	430.08	0.42
50.08	0.08	274.17	6.08	438.33	8.25
52.08	2.00	277.00	70.75	439.67	1.33
54.67	2.58	280.25	6.08	446.08	6.42
58.33	3.67	284.75	4.50	447.33	1.25
67.00	8.67	286.00	1.25	453.08	5.75
76.08	9.08	287.50	1.50	459.33	6.25
77.33	1.25	290.58	3.08	464.33	5.00
79.17	1.83	293.50	2.92	465.17	0.83
83.08	3.92	299.58	6.08	466.50	1.33
85.58	2.50	301.08	1.50	469.25	2.75
87.50	1.92	307.17	6.08	473.08	3.83
95.08	7.58	309.67	2.50	477.42	4.33
98.00	2.92	313.33	3.67	481.42	4.00
99.67	1.67	314.42	1.08	483.67	2.25
106.58	6.92	316.42	2.00	488.08	4.42
107.50	0.92	317.08	0.67	491.33	3.25
114.67	7.17	324.75	7.67	495.08	3.75
116.09	1.43	326.58	1.83	498.25	3.17
121.50	5.41	332.08	5.50	500.00	1.75
123.17	1.67	335.08	3.00	503.09	3.09
131.17	8.00	337.00	1.92	508.17	5.07
139.08	7.92	341.42	4.42	512.42	4.25
147.33	8.25	343.33	1.92	517.00	4.58
157.08	9.75	348.08	4.75	518.25	1.25
161.08	4.00	349.75	1.67	521.42	3.17
169.42	8.33	350.33	0.58	523.17	1.75
171.75	2.33	357.00	6.67	530.08	6.92
175.58	3.83	358.08	1.08	533.00	2.92
176.75	1.17	363.42	5.33	534.67	1.67
186.09	9.34	364.50	1.08	540.09	5.43
188.50	2.41	366.08	1.58	541.00	0.91
197.42	8.92	374.33	8.25	544.42	3.42
198.33	0.92	375.50	1.17	546.08	1.67
206.25	7.92	376.58	1.08	549.00	-24.08
213.17	-63.83	378.08	1.50	550.25	4.17
214.00	0.83	379.50	1.42	553.42	3.17
214.09	0.09	380.67	1.17	556.00	2.58
219.00	4.91	381.50	0.83	560.67	4.67

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
566.58	5.92	753.67	8.25	951.75	1.00
573.08	6.50	754.75	1.08	953.17	1.42
581.58	32.58	757.58	2.83	954.00	0.83
585.67	4.08	759.08	1.50	959.33	5.33
590.33	4.67	762.50	3.42	967.58	8.25
593.58	3.25	768.08	5.58	973.09	5.51
596.33	2.75	772.75	4.67	976.17	3.08
597.33	1.00	778.75	6.00	977.09	0.92
599.17	1.83	781.25	2.50	982.08	4.99
600.67	1.50	782.33	1.08	984.25	2.17
602.42	1.75	785.25	2.92	988.58	4.33
604.58	2.17	792.33	7.08	990.33	1.75
611.00	6.42	793.67	1.33	998.67	8.33
616.00	5.00	799.75	6.08	1000.00	1.33
617.33	1.33	801.50	1.75		
618.42	1.08	807.67	6.17		
619.67	1.25	810.08	2.42		
621.42	1.75	814.33	4.25		
624.17	2.75	820.58	6.25		
625.58	1.42	822.67	2.08		
628.42	2.83	826.67	4.00		
629.58	1.17	830.00	3.33		
630.08	0.50	838.75	8.75		
633.67	3.58	840.75	2.00		
634.09	0.43	845.08	4.33		
635.09	1.00	847.58	2.50		
640.75	5.66	857.50	9.92		
641.09	0.34	862.17	4.67		
652.08	10.99	866.08	3.92		
662.50	10.42	868.08	2.00		
664.42	1.92	871.67	3.58		
669.67	5.25	880.00	8.33		
677.08	7.42	880.75	0.75		
679.50	2.42	884.67	3.92		
683.08	3.58	890.17	5.50		
691.75	8.67	896.09	5.92		
694.50	2.75	899.08	2.99		
700.00	5.50	905.08	6.00		
704.17	4.17	911.58	6.50		
710.17	6.00	913.58	2.00		
717.00	6.83	915.08	1.50		
718.67	1.67	917.09	2.01		
719.08	0.42	921.08	3.99		
721.25	2.17	926.17	5.08		
730.08	8.83	930.50	4.33		
737.09	7.01	934.08	3.58		
738.08	0.99	938.67	4.58		
739.42	1.33	942.50	3.83		
741.08	1.67	947.00	4.50		
745.42	4.33	950.75	3.75		

- **Load Transfer Efficiency**

19US59-2

Crack .	GPS Coordinates	Crack Spacing		
I.D.	Latitude	Longitude	Before	After
S-I-1	N 33°03'35.5"	W 94°16'55.6"	2'5"	1'10"
M-I-1	N 33°03'34.5"	W 94°16'57.4"	3'3"	2'11"
S-I-2	N 33°03'34.2"	W 94°16'57.9"	2'1"	2'0"
L-I-1	N 33°03'33.7"	W 94°16'58.7"	5'3"	8'5"
L-I-2	N 33°03'33.6"	W 94°16'58.9"	7'9"	6'5"
M-I-2	N 33°03'33.4"	W 94°16'59.3"	4'6"	3'5"
L-II-1	N 33°03'32.2"	W 94°17'01.2"	4'4"	5'11"
L-II-2	N 33°03'32.0"	W 94°17'01.5"	9'10"	7'0"
S-II-1	N 33°03'31.8"	W 94°17'01.7"	2'2"	2'9"
M-II-1	N 33°03'31.7'	W 94°17'01.7"	5'8"	4'8"
S-II-2	N 33°03'31.7"	W 94°17'01.9"	2'3"	1'7"
M-II-2	N 33°03'31.4"	W 94°17'02.3"	4'0"	3'6"

Crack .	Deflections (Winter)	Deflections (Summer)			%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S-I-1	1.61	1.56	no data	no data	102.8	no data
M-I-1	1.32	1.34	no data	no data	98.5	no data
S-I-2	1.52	1.51	no data	no data	100.4	no data
L-I-1	1.46	1.43	no data	no data	101.7	no data
L-I-2	1.32	1.29	no data	no data	102.3	no data
M-I-2	1.47	1.42	no data	no data	103.5	no data
L-II-1	1.20	1.17	no data	no data	102.6	no data
L-II-2	1.16	1.15	no data	no data	100.9	no data
S-II-1	1.19	1.19	no data	no data	99.6	no data
M-II-1	1.21	1.19	no data	no data	101.4	no data
S-II-2	1.15	1.14	no data	no data	100.4	no data
M-II-2	1.18	1.18	no data	no data	100.0	no data

Test Section : 20-I10-1

GENERAL DESCRIPTION	
Highway	IH 10
District	Beaumont
County	Orange
Direction	E
Reference Marker	MP 858+0.2
Pavement Type	CRCP
Slab Thickness	15 in
Construction Date	2007
Vertical Alignment	Fill
Horizontal Alignment	Tangent
No of Lanes	3
PMIC Surveyed Lane	R1
Shoulder Type	Tied Concrete
Surface Texture	Transverse Tining
Concrete CAT	Limestone
Drainage	
GPS (start)	N30°06'24.7"
	W094°03' 10.9"
GPS (end)	N30°06' 30.6"
	W094°03' 01.7"
Survey Dates	2007-01-13
Surveyors	Medina, Suliman, Finley

- Crack Spacing Information

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
3.08	3.08	500.00	10.83	819.00	3.00
13.67	10.59	**Construction Joint**		827.33	8.33
24.50	10.83	520.08	20.08	831.08	3.75
28.17	3.67	527.58	7.50	833.00	1.92
35.75	7.58	528.83	1.25	843.42	10.42
43.91	8.16	541.58	12.75	845.00	1.58
50.91	7.00	559.00	17.42	846.67	1.67
56.17	5.26	572.58	13.58	848.17	1.50
60.91	4.74	576.50	3.92	861.83	13.66
69.67	8.76	590.08	13.58	864.67	2.84
71.50	1.83	592.08	2.00	869.33	4.66
77.67	6.17	593.50	1.42	872.42	3.09
80.83	3.16	603.67	10.17	876.00	3.58
83.67	2.84	605.25	1.58	877.42	1.42
89.33	5.66	615.17	9.92	884.58	7.16
97.75	8.42	619.58	4.41	892.50	7.92
99.67	1.92	621.67	2.09	896.42	3.92
109.58	9.91	626.33	4.66	898.25	1.83
131.17	21.59	637.67	11.34	900.42	2.17
162.00	30.83	639.25	1.58	902.00	1.58
175.67	13.67	652.08	12.83	905.42	3.42
185.67	10.00	659.08	7.00	907.25	1.83
202.91	17.24	662.17	3.09	908.50	1.25
217.58	14.67	671.67	9.50	922.17	13.67
230.08	12.50	675.42	3.75	924.67	2.50
242.00	11.92	680.00	4.58	938.42	13.75
254.83	12.83	693.33	13.33	940.91	2.49
269.08	14.25	704.67	11.34	953.83	12.92
272.08	3.00	707.83	3.16	956.17	2.34
282.08	10.00	711.17	3.34	957.42	1.25
287.25	5.17	714.67	3.50	964.50	7.08
289.08	1.83	726.00	11.33	965.67	1.17
302.42	13.34	727.33	1.33	968.42	2.75
316.08	13.66	731.17	3.84	980.50	12.08
319.00	2.92	734.25	3.08	983.58	3.08
324.83	5.83	743.91	9.66	985.25	1.67
333.58	8.75	745.58	1.67	997.91	12.66
358.67	25.09	751.50	5.92		
374.17	15.50	755.50	4.00		
380.50	6.33	765.17	9.67		
382.91	2.41	766.50	1.33		
392.91	10.00	768.33	1.83		
408.33	15.42	778.33	10.00		
421.67	13.34	791.00	12.67		
433.67	12.00	793.00	2.00		
451.00	17.33	794.58	1.58		
453.33	2.33	799.42	4.84		
473.42	20.09	801.25	1.83		
480.33	6.91	802.50	1.25		
489.17	8.84	816.00	13.50		

- **Load Transfer Efficiency**

20I10-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
L-I-1	N 30°06'24.9"	W 94°03'10.3"	4'7"	9'0"
L-I-2	N 30°06'25.1"	W 94°03'09.6"	6'9"	5'0"
S-I-1	N 30°06'26.1"	W 94°03'08.6"	1'6"	2'11"
M-I-1	N 30°06'26.1"	W 94°03'08.6"	3'2"	4'8"
M-I-2	N 30°06'26.3"	W 94°03'08.4"	5'4"	4'3"
S-I-2	N 30°06'26.8"	W 94°03'07.3"	2'10"	2'7"
M-I-3	N 30°06'27.3"	W 94°03'07.0"	4'10"	3'3"
L-I-3	N 30°06'27.4"	W 94°03'06.9"	6'8"	9'4"
S-II-1	N 30°06'27.8"	W 94°03'06.3"	2'4"	1'7"
S-II-2	N 30°06'28.3"	W 94°03'05.6"	1'10"	1'9"
M-II-1	N 30°06'28.8"	W 94°03'04.8"	3'8"	4'8"
M-II-2	N 30°06'29.0"	W 94°03'04.5"	3'4"	3'3"
L-II-1	N 30°06'29.3"	W 94°03'04.0"	9'11"	12'10"
S-II-3	N 30°06'29.5"	W 94°03'03.5"	1'9"	1'9"
M-II-3	N 30°06'29.8"	W 94°03'03.2"	3'0"	4'8"
L-II-2	N 30°06'29.9"	W 94°03'03.0"	7'3"	7'10"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
L-I-1	1.27	1.24	1.30	1.30	101.9	100.4
L-I-2	1.24	1.24	1.20	1.19	99.6	100.8
S-I-1	1.30	1.30	1.71	1.71	100.1	100.4
M-I-1	1.27	1.27	1.36	1.37	100.0	99.3
M-I-2	1.25	1.25	1.22	1.21	100.2	100.4
S-I-2	1.15	1.15	1.24	1.24	99.6	100.0
M-I-3	1.12	1.12	1.21	1.21	99.7	100.0
L-I-3	1.29	1.29	1.25	1.24	99.7	100.8
S-II-1	1.29	1.29	1.30	1.30	100.0	100.0
S-II-2	1.29	1.27	1.28	1.26	101.6	101.8
M-II-1	1.25	1.26	1.32	1.31	99.4	100.7
M-II-2	1.31	1.30	1.33	1.33	100.3	99.7
L-II-1	1.27	1.25	1.34	1.34	101.6	100.4
S-II-3	1.02	1.02	1.22	1.21	99.6	100.5
M-II-3	0.92	0.92	1.10	1.08	100.6	101.7
L-II-2	0.76	0.75	1.04	1.06	100.6	98.3

Test Section : 24-I10-1

GENERAL DESCRIPTION	
Highway	IH 10
District	El Paso
County	El Paso
Direction	E
Reference Marker	MP 36+0.3
Pavement Type	CRCP
Slab Thickness	13 in
Construction Date	1995
Vertical Alignment	Fill
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	R1
Shoulder Type	Tied Concrete
Surface Texture	Transverse Tining
Concrete CAT	Limestone
Drainage	
GPS (start)	N31°40'36.5"
	W106°15' 24.7"
GPS (end)	N31°40' 29.5"
	W106°15' 16.7"
Survey Dates	2007-02-01
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00		191.08	6.66	394.00	2.83
3.42	3.42	194.33	3.25	402.17	8.17
6.83	3.41	196.42	2.09	403.67	1.50
9.08	2.25	197.67	1.25	409.08	5.41
14.58	5.50	202.83	5.16	410.33	1.25
18.67	4.09	209.17	6.34	418.58	8.25
25.67	7.00	215.42	6.25	419.25	0.67
27.58	1.91	216.50	1.08	423.67	4.42
29.33	1.75	221.25	4.75	427.17	3.50
36.00	6.67	222.75	1.50	437.42	10.25
43.08	7.08	224.08	1.33	439.42	2.00
45.67	2.59	231.17	7.09	449.42	10.00
49.00	3.33	236.42	5.25	454.25	4.83
52.00	3.00	238.42	2.00	457.42	3.17
55.17	3.17	245.58	7.16	462.58	5.16
56.91	1.74	246.91	1.33	466.83	4.25
58.42	1.51	251.91	5.00	470.83	4.00
64.25	5.83	254.83	2.92	471.75	0.92
67.75	3.50	256.08	1.25	479.58	7.83
70.17	2.42	269.67	13.59	482.08	2.50
73.91	3.74	271.25	1.58	488.42	6.34
79.42	5.51	272.75	1.50	493.75	5.33
80.17	0.75	276.08	3.33	**Construction Joint**	
85.50	5.33	281.50	5.42	503.33	9.58
88.25	2.75	284.91	3.41	508.50	5.17
90.00	1.75	291.08	6.17	511.25	2.75
94.08	4.08	292.50	1.42	516.12	4.87
100.33	6.25	294.17	1.67	517.67	1.55
101.58	1.25	300.17	6.00	524.58	6.91
105.83	4.25	305.08	4.91	525.17	0.59
109.91	4.08	312.42	7.34	526.17	1.00
111.58	1.67	314.33	1.91	530.33	4.16
119.17	7.59	318.50	4.17	535.75	5.42
120.50	1.33	320.17	1.67	538.50	2.75
125.67	5.17	327.91	7.74	541.33	2.83
127.42	1.75	329.42	1.51	545.91	4.58
133.25	5.83	333.75	4.33	546.50	0.59
144.83	11.58	337.42	3.67	550.81	4.31
146.42	1.59	339.81	2.39	553.81	3.00
148.50	2.08	345.58	5.77	557.00	3.19
154.67	6.17	347.08	1.50	561.75	4.75
157.33	2.66	352.00	4.92	563.25	1.50
160.75	3.42	357.58	5.58	572.42	9.17
163.58	2.83	358.75	1.17	574.08	1.66
165.42	1.84	366.58	7.83	579.91	5.83
169.91	4.49	371.67	5.09	581.08	1.17
173.91	4.00	373.00	1.33	586.17	5.09
175.50	1.59	379.00	6.00	591.50	5.33
179.25	3.75	389.91	10.91	599.33	7.83
184.42	5.17	391.17	1.26	602.00	2.67

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
605.33	3.33	771.83	3.25	971.83	2.92
609.67	4.34	777.75	5.92	975.58	3.75
611.00	1.33	781.50	3.75	976.50	0.92
618.91	7.91	787.50	6.00	983.58	7.08
620.17	1.26	790.17	2.67	986.83	3.25
623.25	3.08	794.67	4.50	992.67	5.84
627.91	4.66	795.83	1.16	996.25	3.58
632.50	4.59	798.75	2.92	999.00	2.75
635.67	3.17	805.50	6.75		
637.17	1.50	808.50	3.00		
644.08	6.91	809.75	1.25		
646.00	1.92	814.42	4.67		
647.00	1.00	817.17	2.75		
652.08	5.08	819.17	2.00		
654.75	2.67	820.58	1.41		
659.83	5.08	822.58	2.00		
663.08	3.25	829.67	7.09		
664.83	1.75	830.17	0.50		
672.33	7.50	835.42	5.25		
674.58	2.25	836.91	1.49		
676.17	1.59	839.50	2.59		
678.67	2.50	840.91	1.41		
680.91	2.24	848.50	7.59		
683.67	2.76	852.17	3.67		
686.50	2.83	858.08	5.91		
689.75	3.25	862.25	4.17		
693.00	3.25	865.33	3.08		
694.67	1.67	873.33	8.00		
696.50	1.83	882.75	9.42		
699.33	2.83	884.17	1.42		
700.50	1.17	890.25	6.08		
701.83	1.33	898.75	8.50		
705.17	3.34	900.50	1.75		
708.25	3.08	904.58	4.08		
713.75	5.50	910.91	6.33		
720.83	7.08	916.91	6.00		
723.17	2.34	924.91	8.00		
729.83	6.66	926.50	1.59		
731.83	2.00	929.33	2.83		
737.67	5.84	930.58	1.25		
743.91	6.24	935.33	4.75		
744.67	0.76	937.17	1.84		
747.42	2.75	943.83	6.66		
750.08	2.66	950.83	7.00		
753.25	3.17	951.83	1.00		
756.50	3.25	953.25	1.42		
759.00	2.50	956.50	3.25		
762.91	3.91	959.00	2.50		
767.42	4.51	962.75	3.75		
768.58	1.16	968.91	6.16		

- **Load Transfer Efficiency**

24I10-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
S-I-1	N 31°40'36.6"	W 106°15'24.5"	1'11"	2'2"
S-I-2	N 31°40'36.3"	W 106°15'24.4"	3'4"	2'4"
L-I-1	N 31°40'36.0"	W 106°15'24.0"	4'8"	6'1"
M-I-1	N 31°40'35.5"	W 106°15'23.5"	3'0"	3'2"
L-I-2	N 31°40'35.3"	W 106°15'23.3"	5'8"	6'2"
M-I-2	N 31°40'34.4"	W 106°15'22.2"	2'7"	3'7"
S-II-1	N 31°40'33.1"	W 106°15'20.7"	3'5"	2'11"
L-II-1	N 31°40'33.1"	W 106°15'20.5"	6'9"	5'7"
S-II-2	N 31°40'32.8"	W 106°15'20.3"	3'1"	2'9"
M-II-1	N 31°40'32.5"	W 106°15'20.0"	5'11"	3'9"
M-II-2	N 31°40'32.1"	W 106°15'19.8"	4'3"	3'1"
L-II-2	N 31°40'31.6"	W 106°15'19.1"	5'10"	6'0"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S-I-1	1.24	1.21	1.20	1.22	101.7	98.9
S-I-2	1.20	1.21	1.20	1.20	99.4	100.0
L-I-1	1.11	1.12	1.17	1.17	98.9	100.0
M-I-1	1.13	1.13	1.72	1.71	99.8	99.2
L-I-2	1.11	1.11	1.14	1.15	100.0	98.8
M-I-2	1.11	1.09	1.24	1.22	101.7	101.5
S-II-1	1.08	1.09	1.33	1.32	99.3	101.1
L-II-1	1.04	1.03	1.64	1.62	100.6	101.3
S-II-2	1.03	1.05	1.17	1.17	98.3	100.0
M-II-1	1.02	1.02	1.13	1.14	100.1	99.6
M-II-2	1.05	1.06	1.13	1.14	98.8	99.6
L-II-2	1.00	1.00	1.12	1.12	99.7	99.6

Test Section : 24-I10-2

GENERAL DESCRIPTION	
Highway	IH 10
District	El Paso
County	El Paso
Direction	E
Reference Marker	MP 39+0.3
Pavement Type	CRCP
Slab Thickness	13 in
Construction Date	1995
Vertical Alignment	Fill
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	R1
Shoulder Type	Tied Concrete
Surface Texture	Transverse Tining
Concrete CAT	Limestone + Gravel
Drainage	
GPS (start)	N31°38'36.7"
	W106°13' 39.1"
GPS (end)	N31°38' 28.6"
	W106°13' 32.8"
Survey Dates	2007-02-01
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00		356.00	1.09	697.83	7.58
1.00	1.00	360.83	4.83	705.58	7.75
5.50	4.50	371.08	10.25	714.50	8.92
12.58	7.08	379.00	7.92	721.58	7.08
21.42	8.84	387.33	8.33	728.75	7.17
25.33	3.91	391.33	4.00	734.25	5.50
33.67	8.34	397.91	6.58	737.75	3.50
39.17	5.50	407.75	9.84	745.83	8.08
44.00	4.83	416.08	8.33	755.75	9.92
48.75	4.75	423.25	7.17	764.08	8.33
58.42	9.67	432.00	8.75	765.00	0.92
66.42	8.00	442.75	10.75	774.33	9.33
74.00	7.58	450.83	8.08	780.42	6.09
82.33	8.33	460.67	9.84	786.75	6.33
88.17	5.84	470.42	9.75	791.17	4.42
93.67	5.50	474.00	3.58	802.00	10.83
95.58	1.91	484.42	10.42	807.58	5.58
105.91	10.33	494.58	10.16	814.17	6.59
115.08	9.17	**Construction Joint**		822.33	8.16
118.83	3.75	501.17	501.17	823.00	0.67
129.00	10.17	511.75	10.58	826.83	3.83
141.58	12.58	521.75	10.00	832.50	5.67
148.83	7.25	525.17	3.42	833.58	1.08
159.08	10.25	531.83	6.66	837.42	3.84
175.33	16.25	539.33	7.50	838.42	1.00
178.33	3.00	547.08	7.75	846.67	8.25
189.00	10.67	552.58	5.50	852.33	5.66
197.83	8.83	556.50	3.92	853.83	1.50
207.58	9.75	557.50	1.00	858.33	4.50
216.42	8.84	560.25	2.75	859.25	0.92
224.91	8.49	566.58	6.33	863.25	4.00
230.42	5.51	573.17	6.59	871.58	8.33
235.67	5.25	576.58	3.41	875.67	4.09
237.42	1.75	581.75	5.17	882.42	6.75
248.50	11.08	593.58	11.83	888.17	5.75
252.42	3.92	602.08	8.50	892.91	4.74
257.83	5.41	610.33	8.25	894.91	2.00
263.00	5.17	620.25	9.92	900.08	5.17
269.58	6.58	624.83	4.58	907.17	7.09
273.50	3.92	627.83	3.00	911.91	4.74
281.75	8.25	635.67	7.84	918.83	6.92
294.83	13.08	644.67	9.00	927.67	8.84
303.08	8.25	651.50	6.83	936.33	8.66
315.33	12.25	658.91	7.41	944.25	7.92
323.75	8.42	664.17	5.26	956.42	12.17
327.25	3.50	669.75	5.58	963.33	6.91
333.00	5.75	672.50	2.75	972.58	9.25
343.08	10.08	679.58	7.08	994.17	21.59
348.08	5.00	688.33	8.75		
354.91	6.83	690.25	1.92		

- **Load Transfer Efficiency**

24I10-2

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
L-I-1	N 31°38'36.5"	W 106°13'38.8"	8'0"	5'8"
L-I-2	N 31°38'36.3"	W 106°13'38.6"	7'11.5"	8'0"
M-I-1	N 31°38'34.7 "	W 106°13'37.4"	3'6"	5'0"
M-I-2	N 31°38'34.5"	W 106°13'37.4"	6'5"	3'4"
S-I-1	N 31°38'33.8"	W 106°13'36.7"	2'6"	5'8"
M-I-3	N 31°38'32.8"	W 106°13'36.2"	8'3"	4'1"
L-II-1	N 31°38'32.5"	W 106°13'35.8"	9'5"	8'0"
M-II-1	N 31°38'32.3"	W 106°13'35.7"	5'4"	4'9"
M-II-2	N 31°38'31.5"	W 106°13'34.9"	4'9"	2'11"
L-II-2	N 31°38'30.9"	W 106°13'34.5"	8'11"	6'8"
M-II-3	N 31°38'31.0"	W 106°13'34.4"	5'2"	3'0"
L-II-3	N 31°38'30.2"	W 106°13'33.9"	6'10"	8'4"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
L-I-1	1.90	1.78	1.51	1.49	107.0	101.5
L-I-2	1.75	1.70	1.49	1.47	102.7	101.2
M-I-1	2.02	1.93	1.56	1.55	104.6	100.9
M-I-2	1.74	1.67	1.48	1.46	104.2	100.9
S-I-1	1.70	1.71	1.56	1.54	99.5	101.2
M-I-3	1.74	1.69	1.54	1.51	103.5	101.8
L-II-1	1.82	1.75	1.41	1.40	104.3	100.7
M-II-1	1.94	1.85	1.57	1.53	105.1	102.7
M-II-2	1.79	1.80	1.52	1.50	99.4	101.5
L-II-2	1.94	1.84	1.42	1.40	105.8	101.7
M-II-3	1.89	1.85	1.47	1.44	102.1	101.6
L-II-3	2.09	2.00	1.54	1.51	104.2	101.8

Test Section : 24-I10-3

GENERAL DESCRIPTION	
Highway	IH 10
District	El Paso
County	El Paso
Direction	W
Reference Marker	MP 45+ 0.1
Pavement Type	CRCP
Slab Thickness	13 in
Construction Date	1995
Vertical Alignment	Fill
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Transverse Tining
Concrete CAT	Limestone + Gravel
Drainage	
GPS (start)	N31°34' 21.5"
	W106°10' 19.7"
GPS (end)	N31°34' 30.1"
	W106°10' 26.2"
Survey Dates	2007-02-01
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00	0.00	160.50	2.42	284.42	2.42
6.33	6.33	164.75	4.25	285.17	0.75
9.25	2.92	165.00	0.75	287.91	1.93
12.42	3.17	168.83	2.58	289.75	2.66
16.91	3.68	170.67	2.58	291.25	1.50
22.50	6.41	173.00	2.33	293.91	1.84
27.33	4.83	176.25	3.25	295.50	2.41
28.83	0.75	178.50	2.25	296.42	0.92
30.91	2.01	181.25	2.75	298.75	2.33
34.33	4.24	182.42	1.17	301.00	2.25
37.67	3.33	185.08	2.67	304.17	3.17
40.00	2.33	186.25	1.17	306.75	2.58
42.75	2.75	188.00	1.75	308.91	1.34
46.33	3.58	189.93	1.08	311.17	3.07
51.58	5.25	191.42	2.33	312.67	1.50
55.25	3.67	195.91	3.68	314.83	1.42
59.33	4.08	197.58	2.49	320.17	6.08
62.08	2.75	201.42	3.83	321.75	1.58
64.58	2.50	202.83	0.67	326.08	4.33
67.33	2.75	206.17	4.08	327.83	1.00
68.75	1.42	209.33	3.17	330.83	3.00
74.50	5.75	211.50	2.17	333.83	3.00
81.17	6.67	212.91	0.59	336.17	3.08
83.91	1.93	216.42	4.32	338.33	2.17
85.42	2.33	218.91	1.68	339.58	1.25
87.67	2.25	220.58	2.49	342.67	3.08
91.33	3.67	222.67	2.08	345.42	2.75
93.91	1.76	224.42	1.75	350.17	4.75
95.58	2.49	226.75	2.33	354.67	4.50
98.00	2.42	228.42	1.67	358.83	3.42
101.75	3.75	230.67	2.25	363.00	4.92
107.71	2.08	234.08	3.42	364.58	1.58
109.00	1.83	236.91	2.01	367.08	2.50
112.50	3.50	237.67	1.58	372.50	5.42
114.83	1.58	243.58	5.92	375.00	2.50
116.83	2.00	246.00	2.42	383.75	8.75
118.91	2.01	248.25	2.25	389.58	5.83
122.58	4.49	251.58	3.33	394.42	4.83
126.42	3.83	253.75	2.17	403.58	9.17
129.00	2.58	255.75	2.00	411.75	8.17
131.08	2.08	256.58	0.83	413.25	1.50
135.83	4.00	258.58	2.00	417.67	4.42
139.33	4.25	261.33	2.75	421.83	3.42
142.33	3.00	264.67	3.33	424.08	3.00
145.17	2.83	266.58	1.92	430.58	6.50
148.17	3.00	269.08	2.50	441.42	10.83
150.91	3.34	272.75	3.67	444.50	3.08
152.42	4.25	277.00	4.25	451.17	6.67
155.08	2.67	278.58	1.58	458.25	7.08
158.08	3.00	282.00	3.42	465.08	6.83

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
474.75	9.67	929.91	0.59
480.17	5.42	936.75	7.66
489.33	9.17	946.91	9.34
504.42	4.42	956.58	10.49
529.58	25.17	963.67	7.08
541.67	12.08	970.33	6.67
567.58	25.92	977.42	7.08
576.58	9.00	985.42	8.00
582.00	5.42	989.33	3.92
594.00	12.00	1000.00	10.67
597.91	3.09		
603.42	6.32		
612.25	8.83		
623.50	11.25		
638.58	15.08		
652.17	13.58		
653.75	1.58		
659.50	5.75		
666.50	7.00		
671.42	4.92		
686.33	14.92		
699.17	12.83		
707.33	8.17		
718.83	10.75		
730.67	12.58		
740.91	9.43		
744.75	4.66		
753.17	8.42		
764.33	11.17		
772.33	8.00		
782.75	10.42		
787.67	4.92		
798.50	10.83		
800.33	1.83		
807.58	7.25		
821.17	13.58		
829.67	8.50		
838.17	8.50		
844.42	6.25		
850.50	6.08		
858.00	7.50		
864.67	6.67		
866.83	1.42		
873.00	6.92		
881.00	8.00		
890.42	9.42		
901.00	10.58		
911.00	10.00		
917.67	6.67		
928.50	10.83		

- **Load Transfer Efficiency**

24I10-3

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
M-I-1	N 31°34'22.2"	W 106°10'20.1"	5'5"	3'9"
S-I-1	N 31°34'22.2"	W 106°10'20.2"	2'1"	2'4"
S-I-2	N 31°34'22.2"	W 106°10'20.6"	1'4"	1'9"
M-I-2	N 31°34'22.2"	W 106°10'20.9"	3'1"	2'8"
L-I-1	N 31°34'22.2"	W 106°10'22.1"	4'6"	4'7"
L-I-2	N 31°34'22.2"	W 106°10'22.3"	8'3"	5'11"
L-II-1	N 31°34'22.2"	W 106°10'23.3"	17'0"	11'10"
L-II-2	N 31°34'22.2"	W 106°10'23.9"	11'1"	14'11"
M-II-1	N 31°34'22.2"	W 106°10'24.7"	3'5"	3'10"
M-II-2	N 31°34'22.2"	W 106°10'25.0"	5'2"	3'8"
S-II-1	N 31°34'22.2"	W 106°10'25.0"	2'0"	7'1"
M-II-3	N 31°34'22.2"	W 106°10'26.1"	7'11"	3'10"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
M-I-1	1.65	1.65	1.60	1.59	100.3	100.6
S-I-1	1.64	1.65	1.69	1.68	99.3	100.5
S-I-2	1.70	1.68	1.61	1.60	101.1	100.6
M-I-2	1.80	1.79	1.76	1.74	100.6	101.1
L-I-1	1.42	1.43	1.27	1.27	99.8	100.0
L-I-2	1.47	1.45	1.41	1.41	101.2	100.3
L-II-1	1.01	1.02	1.07	1.09	101.0	98.7
L-II-2	1.52	1.51	1.55	1.54	100.6	100.6
M-II-1	1.44	1.45	1.44	1.45	99.5	99.4
M-II-2	1.48	1.46	1.51	1.51	101.5	100.3
S-II-1	1.47	1.46	1.49	1.49	100.9	100.0
M-II-3	1.53	1.50	1.60	1.59	101.8	100.9

Test Section : 24-I10-4

GENERAL DESCRIPTION	
Highway	IH 10
District	El Paso
County	Hudspeth
Direction	W
Reference Marker	MP 85
Pavement Type	CRCP
Slab Thickness	13 in
Construction Date	1995
Vertical Alignment	Fill
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Transverse Tining
Concrete CAT	Gravel
Drainage	
GPS (start)	N31°10' 51.0"
	W105°42' 48.3"
GPS (end)	N31°10' 57.4"
	W105°42'56.8"
Survey Dates	2007-02-01
Surveyors	Medina, Suliman, Finley

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00	0.00	183.58	4.75	351.25	4.58
3.58	3.58	186.00	2.42	356.42	5.17
7.75	4.17	190.50	4.50	359.17	2.75
12.17	4.42	193.08	2.58	365.67	6.50
19.00	6.83	197.91	4.83	370.08	4.41
20.75	1.75	201.75	3.84	374.58	4.50
23.25	2.50	204.91	3.16	376.42	1.84
25.83	2.58	208.17	3.26	381.08	4.66
29.83	4.00	211.25	3.08	382.75	1.67
32.58	2.75	214.25	3.00	386.75	4.00
33.83	1.25	217.67	3.42	390.75	4.00
41.75	7.92	219.83	2.16	395.58	4.83
44.00	2.25	223.50	3.67	398.83	3.25
47.33	3.33	226.00	2.50	401.67	2.84
48.67	1.34	227.67	1.67	405.08	3.41
52.25	3.58	231.75	4.08	407.09	2.01
58.25	6.00	236.17	4.42	414.75	7.66
61.50	3.25	238.08	1.91	416.83	2.08
64.25	2.75	241.00	2.92	419.58	2.75
72.25	8.00	242.91	1.91	423.08	3.50
77.91	5.66	247.25	4.34	429.08	6.00
80.00	2.09	253.17	5.92	430.00	0.92
81.17	1.17	255.25	2.08	434.08	4.08
87.75	6.58	259.00	3.75	437.67	3.59
90.08	2.33	263.58	4.58	441.33	3.66
92.91	2.83	264.58	1.00	443.33	2.00
98.33	5.42	268.17	3.59	447.25	3.92
102.67	4.34	271.25	3.08	450.50	3.25
103.83	1.16	274.25	3.00	454.08	3.58
111.42	7.59	277.08	2.83	458.42	4.34
113.83	2.41	280.00	2.92	462.58	4.16
117.17	3.34	283.58	3.58	464.83	2.25
119.42	2.25	284.83	1.25	468.08	3.25
123.67	4.25	289.17	4.34	471.50	3.42
127.42	3.75	290.08	0.91	473.42	1.92
128.75	1.33	295.08	5.00	477.50	4.08
132.25	3.50	303.42	8.34	480.17	2.67
135.33	3.08	307.17	3.75	483.33	3.16
142.00	6.67	309.25	2.08	485.58	2.25
144.33	2.33	315.58	6.33	489.17	3.59
148.08	3.75	319.42	3.84	497.83	8.66
151.33	3.25	322.58	3.16	**Construction Joint**	
156.75	5.42	325.00	2.42	502.50	5.42
159.58	2.83	326.25	1.25	507.75	5.25
162.58	3.00	329.17	2.92	510.67	2.92
165.08	2.50	332.08	2.91	514.17	3.50
167.67	2.59	335.00	2.92	517.25	3.08
171.67	4.00	338.58	3.58	520.00	2.75
174.75	3.08	341.91	3.33	523.00	3.00
178.83	4.08	346.67	4.76	525.75	2.75

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
531.83	5.33	695.00	2.50	855.08	3.00
535.08	4.00	698.33	3.33	858.25	3.17
538.00	2.92	701.42	3.08	861.42	3.17
541.00	3.00	703.17	1.75	867.83	5.67
544.33	3.33	707.42	4.25	869.75	2.67
547.00	2.67	710.17	2.75	871.08	1.33
549.17	2.17	713.17	3.00	873.50	2.42
553.17	4.00	719.58	6.42	876.58	3.08
559.58	3.42	722.91	2.51	880.75	4.17
561.00	4.42	726.17	4.08	883.00	2.25
565.67	4.67	728.83	1.92	887.58	4.58
566.83	0.42	732.25	4.17	888.67	1.08
568.75	2.67	734.58	2.33	892.75	4.08
572.42	3.67	737.50	2.92	896.91	3.34
575.33	2.92	741.91	3.59	897.91	1.00
577.33	2.00	743.67	2.57	904.83	6.99
579.75	2.42	745.50	1.83	906.75	2.67
583.67	3.92	749.67	4.17	910.67	3.92
586.58	2.92	753.08	3.42	913.25	2.58
591.83	4.50	755.17	2.08	917.08	3.83
595.58	4.50	758.91	2.92	918.58	1.50
597.83	1.50	759.17	1.08	921.91	2.51
598.42	1.33	764.75	5.58	925.17	4.08
601.75	3.33	768.08	3.33	928.42	3.25
604.58	2.83	768.83	0.00	930.58	2.17
608.25	3.67	773.83	5.00	936.50	5.92
609.58	1.33	779.83	6.00	940.33	3.83
614.00	4.42	782.83	3.00	943.17	2.83
616.67	2.67	786.67	4.58	945.25	2.08
617.67	1.00	789.91	2.43	949.08	3.83
622.67	5.00	792.17	3.08	952.25	3.17
625.67	3.00	795.33	3.17	954.91	1.84
628.67	3.00	797.33	2.00	958.25	4.16
632.00	3.33	798.58	1.25	961.17	2.92
636.33	4.33	801.25	2.67	964.17	3.00
637.67	1.33	805.67	4.42	966.91	1.92
644.08	6.42	807.00	1.33	970.25	4.16
648.91	4.01	815.17	8.17	976.00	5.75
652.67	4.57	816.17	1.00	979.58	3.58
655.25	2.58	821.75	5.58	982.42	2.83
658.50	3.25	824.83	2.33	985.58	3.17
665.67	7.17	828.00	3.92	988.58	3.00
668.67	3.00	831.50	3.50	991.91	2.51
670.58	1.92	834.58	3.08	994.50	3.41
674.50	3.92	839.08	4.50	997.67	3.17
677.67	3.17	840.08	1.00	998.75	1.08
679.25	1.58	843.33	3.25	1000.00	1.25
689.33	10.08	845.09	1.76		
689.42	0.08	848.08	2.99		
692.50	3.08	852.08	4.00		

- **Load Transfer Efficiency**

24I10-4

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
S-I-1	N 31°10'51.1"	W 105°42'48.4"	2'3"	2'0"
L-I-1	N 31°10'51.4"	W 105°42'48.6"	6'11"	6'4"
S-I-2	N 31°10'51.5"	W 105°42'48.8"	2'7"	3'0"
M-I-1	N 31°10'51.7"	W 105°42'49.3"	3'9"	4'1"
M-I-2	N 31°10'52.0"	W 105°42'49.4"	3'5"	3'3"
L-I-2	N 31°10'52.7"	W 105°42'50.1"	4'4"	6'0"
M-II-1	N 31°10'54.3"	W 105°42'52.4"	3'10"	3'3"
M-II-2	N 31°10'54.5"	W 105°42'52.8"	3'0"	3'2"
S-II-1	N 31°10'54.7"	W 105°42'53.0"	1'1"	1'11"
S-II-2	N 31°10'55.3"	W 105°42'53.5"	1'8"	1'7"
L-II-1	N 31°10'55.3"	W 105°42'53.7"	2'0"	7'0"
L-II-2	N 31°10'57.0"	W 105°42'56.4"	5'4"	3'8"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S-I-1	1.33	1.33	1.56	1.56	100.4	99.7
L-I-1	1.19	1.20	1.19	1.17	99.3	102.5
S-I-2	1.17	1.16	1.17	1.15	101.2	101.2
M-I-1	1.46	1.44	1.37	1.37	101.3	99.7
M-I-2	1.45	1.47	1.47	1.46	99.1	100.6
L-I-2	1.77	1.75	1.91	1.85	101.5	103.1
M-II-1	1.55	1.52	1.67	1.64	101.9	102.0
M-II-2	1.62	1.61	1.60	1.57	100.8	101.5
S-II-1	1.73	1.73	1.98	1.97	100.4	100.7
S-II-2	1.59	1.61	1.74	1.77	98.9	98.4
L-II-1	2.03	1.98	2.33	2.29	102.4	101.7
L-II-2	1.76	1.74	1.53	1.52	101.2	100.6

Test Section : 25-I40-1

GENERAL DESCRIPTION	
Highway	IH 40
District	Childress
County	Wheeler
Direction	W
Reference Marker	MP 158.52
Pavement Type	CRCP
Slab Thickness	10 in
Construction Date	2000-12-06
Vertical Alignment	Grade
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Transverse Tining
Concrete CAT	Granite
Drainage	Shallow side ditch
GPS (start)	N35°13' 37.5"
	W100°19' 20.1"
GPS (end)	N35°13' 37.5"
	W100°19' 32.1"
Survey Dates	2006-07-21
Surveyors	Medina, Won, Ho

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00	0.00	262.42	6.25	496.08	5.42
2.50	2.50	267.58	5.17	**Construction Joint**	
6.00	3.50	267.92	0.34	500.00	3.92
11.33	5.33	275.25	7.33	503.00	3.00
14.50	3.17	279.42	4.17	509.50	6.50
17.17	2.67	286.83	7.41	513.50	4.00
24.33	7.17	290.17	3.34	516.00	2.50
31.17	6.83	291.25	1.08	523.17	7.17
33.17	2.00	298.58	7.33	525.42	2.25
40.67	7.50	301.42	2.83	533.42	8.00
42.33	1.67	304.42	3.00	538.42	5.00
46.67	4.33	308.33	3.92	543.67	5.25
53.67	7.00	314.25	5.92	546.92	3.25
58.83	5.16	321.67	7.42	553.75	6.83
64.67	5.84	330.00	8.33	559.42	5.67
71.67	7.00	334.25	4.25	568.58	9.17
76.83	5.16	337.67	3.42	574.67	6.08
82.92	6.09	341.58	3.92	578.17	3.50
90.50	7.58	345.25	3.67	584.00	5.83
99.58	9.08	352.50	7.25	585.33	1.33
100.58	1.00	358.42	5.92	590.42	5.08
103.42	2.83	362.17	3.75	594.92	4.50
110.33	6.92	368.75	6.58	601.08	6.16
115.83	5.50	369.17	0.42	607.75	6.67
124.00	8.17	376.58	7.42	612.33	4.58
124.83	0.83	377.50	0.92	612.83	0.50
132.33	7.50	378.92	1.42	619.67	6.84
141.42	9.08	386.75	7.83	626.92	7.25
144.33	2.92	387.92	1.17	633.42	6.50
147.58	3.25	389.92	2.00	636.67	3.25
151.08	3.50	396.58	6.66	639.58	2.92
159.50	8.42	400.42	3.83	649.17	9.58
170.58	11.08	413.33	12.92	650.00	0.83
178.33	7.75	424.33	11.00	652.92	2.92
181.50	3.17	428.83	4.50	654.00	1.08
182.75	1.25	432.75	3.92	656.92	2.92
186.42	3.67	435.08	2.33	664.17	7.25
186.83	0.41	440.50	5.42	673.50	9.33
191.08	4.25	442.83	2.33	677.42	3.92
194.58	3.50	450.08	7.25	682.92	5.50
201.08	6.50	455.08	5.00	684.58	1.66
207.75	6.67	459.17	4.08	691.00	6.42
211.00	3.25	460.17	1.00	694.17	3.17
216.75	5.75	461.75	1.58	697.00	2.83
224.58	7.83	465.33	3.58	702.08	5.08
235.25	10.67	471.50	6.17	708.08	6.00
241.67	6.42	473.67	2.17	712.42	4.33
246.08	4.42	479.58	5.92	715.08	2.67
249.25	3.17	484.75	5.17	722.25	7.17
256.17	6.92	490.67	5.92	727.75	5.50

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
734.33	6.58	951.42	5.83
736.00	1.67	953.33	1.92
738.83	2.83	960.50	7.17
740.92	2.09	961.58	1.08
742.75	1.83	965.92	4.34
749.17	6.42	971.42	5.50
757.33	8.17	976.25	4.83
761.33	4.00	976.75	0.50
767.08	5.75	981.33	4.58
769.67	2.58	988.42	7.08
776.58	6.92	990.25	1.83
781.17	4.58	995.08	4.83
786.42	5.25	1000.00	4.92
789.75	3.33		
793.25	3.50		
798.75	5.50		
807.08	8.33		
810.25	3.17		
816.92	6.67		
823.33	6.41		
829.50	6.17		
833.42	3.92		
837.00	3.58		
842.42	5.42		
849.58	7.17		
850.83	1.25		
854.83	4.00		
855.67	0.84		
856.50	0.83		
861.83	5.33		
866.92	5.09		
873.42	6.50		
878.75	5.33		
881.67	2.92		
883.50	1.83		
887.42	3.92		
890.25	2.83		
896.08	5.83		
901.17	5.08		
903.25	2.08		
904.08	0.83		
910.00	5.92		
915.33	5.33		
923.33	8.00		
925.17	1.83		
929.42	4.25		
930.25	0.83		
934.50	4.25		
942.50	8.00		
945.58	3.08		

- **Load Transfer Efficiency**

24I40-1

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
S-I-1	N 35°13'37.4"	W 100°19'20.1"	3'6"	2'6"
L-I-1	N 35°13'37.5"	W 100°19'21.1"	7'4"	9'6"
L-I-2	N 35°13'37.5"	W 100°19'22.1"	11'0"	7'8"
M-I-1	N 35°13'37.7"	W 100°19'22.9"	4'2"	3'9"
M-I-2	N 35°13'37.8"	W 100°19'23.3"	6'8"	6'2"
L-I-3	N 35°13'37.2"	W 100°19'23.8"	7'7"	7'5"
M-I-3	N 35°13'37.5"	W 100°19'24.7"	6'7"	4'0"
S-I-2	N 35°13'37.5"	W 100°19'25.2"	2'11"	3'0"
M-I-4	N 35°13'37.6"	W 100°19'25.8"	6'1"	5'3"
M-II-1	N 35°13'37.4"	W 100°19'27.0"	5'2"	4'9"
S-II-1	N 35°13'37.4"	W 100°19'27.6"	3'8"	2'11"
S-II-2	N 35°13'37.5"	W 100°19'28.4"	2'11"	3'3"
L-II-1	N 35°13'37.5"	W 100°19'28.7"	6'10"	6'6"
S-II-3	N 35°13'37.5"	W 100°19'29.5"	3'3"	3'3"
M-II-2	N 35°13'37.5"	W 100°19'30.3"	?	5'7"
S-II-4	N 35°13'37.5"	W 100°19'30.6"	3'0"	1'9"
L-II-2	N 35°13'37.5"	W 100°19'31.2"	6'3"	8'0"
M-II-3	N 35°13'37.6"	W 100°19'31.6"	5'6"	4'9"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
S-I-1	1.02	1.02	1.35	1.32	99.4	101.9
L-I-1	0.97	0.99	1.39	1.40	98.5	99.3
L-I-2	1.21	1.21	1.59	1.60	100.1	99.5
M-I-1	1.10	1.11	1.42	1.43	99.8	99.6
M-I-2	1.15	1.12	1.45	1.43	103.0	101.2
L-I-3	1.15	1.15	1.44	1.43	100.1	100.7
M-I-3	1.21	1.22	1.61	1.54	98.5	105.0
S-I-2	1.24	1.21	1.54	1.54	102.2	100.0
M-I-4	1.17	1.16	1.48	1.48	101.6	100.1
M-II-1	1.17	1.21	1.42	1.42	96.5	100.4
S-II-1	0.96	0.97	1.24	1.26	98.9	99.2
S-II-2	1.14	1.12	1.32	1.28	101.7	102.8
L-II-1	1.12	1.12	1.26	1.23	100.0	102.5
S-II-3	1.11	1.13	1.31	1.32	98.5	99.4
M-II-2	1.22	1.22	1.41	1.40	100.0	100.7
S-II-4	1.07	1.09	1.33	1.30	97.8	102.3
L-II-2	1.02	1.01	1.39	1.39	101.2	100.3
M-II-3	1.13	1.13	1.30	1.31	99.9	99.3

Test Section : 25-I40-2

GENERAL INFORMATION	
Highway	IH 40
District	Childress
County	Wheeler
Direction	N
Reference Marker	MP 147-0.15
Pavement Type	CRCP
Slab Thickness	10 in
Construction Date	1999-07-22
Vertical Alignment	Grade
Horizontal Alignment	Tangent
No of Lanes	2
PMIC Surveyed Lane	L1
Shoulder Type	Tied Concrete
Surface Texture	Transverse Tining
Concrete CAT	
Drainage	Shallow side ditch
GPS (start)	N35°13' 37.8"
	W100°31' 37.1"
GPS (end)	N35°13' 37.3"
	W100°31' 49.6"
Survey Dates	2006-07-21
Surveyors	Medina, Jie, Cho

- **Crack Spacing Information**

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
0.00	0.00	244.83	8.33	494.33	3.67
1.75	1.75	249.92	5.09	497.58	3.25
5.25	3.50	253.92	4.00	500.75	3.17
11.50	6.25	262.00	8.08	503.00	2.25
15.00	3.50	266.08	4.08	509.75	6.75
18.33	3.33	268.75	2.67	511.67	1.92
22.00	3.67	274.08	5.33	517.67	6.00
28.00	6.00	281.75	7.67	518.00	0.33
33.58	5.58	283.33	1.58	526.17	8.17
40.83	7.25	288.92	5.59	526.83	0.66
46.08	5.25	292.17	3.25	532.58	5.75
53.42	7.33	296.92	4.75	542.08	9.50
63.00	9.58	301.92	5.00	542.83	0.75
66.83	3.83	304.33	2.41	544.00	1.17
71.17	4.34	311.25	6.92	550.67	6.67
74.25	3.08	316.42	5.17	560.83	10.16
80.00	5.75	317.58	1.17	561.25	0.42
88.00	8.00	327.75	10.17	567.75	6.50
90.33	2.33	336.00	8.25	568.50	0.75
93.33	3.00	338.83	2.83	574.50	6.00
96.83	3.50	341.00	2.17	575.67	1.17
100.08	3.25	348.75	7.75	579.08	3.42
103.00	2.92	356.08	7.33	585.17	6.08
106.58	3.58	360.50	4.42	593.25	8.08
112.92	6.34	361.67	1.17	598.58	5.33
119.67	6.75	362.83	1.16	601.50	2.92
126.92	7.25	369.75	6.92	603.08	1.58
129.75	2.83	375.58	5.83	610.58	7.50
132.50	2.75	380.50	4.92	615.42	4.83
136.08	3.58	386.50	6.00	617.67	2.25
138.67	2.58	393.42	6.92	618.42	0.75
142.50	3.83	395.83	2.41	624.33	5.92
143.50	1.00	406.92	11.09	625.00	0.67
150.25	6.75	409.00	2.08	627.67	2.67
152.08	1.83	412.75	3.75	634.83	7.16
158.08	6.00	416.08	3.33	636.92	2.09
168.33	10.25	422.00	5.92	638.08	1.16
174.17	5.83	428.83	6.83	640.08	2.00
178.17	4.00	435.67	6.84	647.08	7.00
185.17	7.00	442.33	6.67	649.67	2.58
188.00	2.83	446.25	3.92	655.42	5.75
196.25	8.25	453.00	6.75	660.83	5.41
200.08	3.83	455.42	2.42	666.33	5.50
201.08	1.00	461.58	6.17	670.00	3.67
204.17	3.08	465.67	4.08	676.75	6.75
211.92	7.75	469.33	3.67	677.42	0.67
217.17	5.25	478.83	9.50	679.83	2.41
223.42	6.25	484.58	5.75	682.58	2.75
230.00	6.58	487.83	3.25	688.50	5.92
236.50	6.50	490.67	2.84	693.25	4.75

Crack (ft.)	Space (ft.)	Crack (ft.)	Space (ft.)
700.92	7.67	911.50	3.83
702.92	2.00	915.00	3.50
709.50	6.58	919.25	4.25
713.33	3.83	924.50	5.25
715.17	1.83	932.17	7.67
719.17	4.00	941.17	9.00
723.17	4.00	944.42	3.25
725.25	2.08	945.33	0.92
736.58	11.33	950.50	5.17
745.33	8.75	955.00	4.50
753.33	8.00	958.17	3.17
757.25	3.92	967.17	9.00
760.25	3.00	972.42	5.25
761.75	1.50	981.25	8.83
768.00	6.25	983.00	1.75
773.17	5.17	986.42	3.42
774.83	1.66	987.67	1.25
779.58	4.75	992.33	4.67
784.33	4.75	995.58	3.25
789.42	5.08	998.75	3.17
793.00	3.58	1003.25	4.50
795.83	2.83		
804.08	8.25		
807.25	3.17		
811.00	3.75		
814.08	3.08		
819.00	4.92		
819.75	0.75		
823.67	3.92		
827.00	3.33		
830.58	3.58		
833.33	2.75		
835.67	2.33		
842.33	6.67		
842.92	0.59		
850.42	7.50		
852.83	2.41		
859.42	6.59		
861.33	1.92		
866.00	4.67		
870.50	4.50		
878.83	8.33		
885.42	6.59		
891.42	6.00		
892.00	0.58		
893.92	1.92		
894.33	0.41		
898.58	4.25		
901.75	3.17		
907.67	5.92		

- **Load Transfer Efficiency**

25I40-2

Crack .	GPS Coordinates		Crack Spacing	
I.D.	Latitude	Longitude	Before	After
M-I-1	N35°13'37.8"	W100°31'37.6"	3'5"	3'9"
M-I-2	N35°13'37.8"	W100°31'37.6"	4'0"	4'1"
L-I-1	N35°13'37.8"	W100°31'37.6"	6'4"	8'2"
S-I-1	N35°13'37.8"	W100°31'37.6"	3'0"	2'1"
L-I-2	N35°13'37.8"	W100°31'37.6"	6'8"	6'7"
S-I-2	N35°13'37.8"	W100°31'37.6"	3'8"	3'4"
L-II-1	N35°13'37.8"	W100°31'37.6"	7'8"	8'7"
M-II-1	N35°13'37.8"	W100°31'37.6"	4'10"	4'10"
S-II-1	N35°13'37.8"	W100°31'37.6"	3'7"	3'7"
L-II-2	N35°13'37.8"	W100°31'37.6"	6'0"	6'0"
S-II-2	N35°13'37.8"	W100°31'37.6"	3'5"	3'5"
M-II-2	N35°13'37.8"	W100°31'37.6"	3'2"	3'2"

Crack .	Deflections (Winter)		Deflections (Summer)		%LTE	
I.D.	du	dl	dl	du	Winter	Summer
M-I-1	no data	no data	no data	no data	no data	no data
M-I-2	no data	no data	no data	no data	no data	no data
L-I-1	no data	no data	no data	no data	no data	no data
S-I-1	no data	no data	no data	no data	no data	no data
L-I-2	no data	no data	no data	no data	no data	no data
S-I-2	no data	no data	no data	no data	no data	no data
L-II-1	no data	no data	no data	no data	no data	no data
M-II-1	no data	no data	no data	no data	no data	no data
S-II-1	no data	no data	no data	no data	no data	no data
L-II-2	no data	no data	no data	no data	no data	no data
S-II-2	no data	no data	no data	no data	no data	no data
M-II-2	no data	no data	no data	no data	no data	no data