

TEXAS TRANSPORTATION COMMISSION

TRAVIS and WILLIAMSON Counties

MINUTE ORDER

Page 1 of 1

AUSTIN District

In TRAVIS and WILLIAMSON COUNTIES, STATE HIGHWAY 130 has been designated a toll project and a controlled-access state highway from I-35 north of Georgetown to a southern terminus at US 183.

In TRAVIS and WILLIAMSON COUNTIES, STATE HIGHWAY 45N has been designated a toll project and a controlled-access state highway from west of US 183 to SH 130.

In TRAVIS and WILLIAMSON COUNTIES, STATE HIGHWAY LOOP 1 has been designated a toll project and a controlled-access state highway from FM 734 (Parmer Lane) in Austin to the intersection of Loop 1 and SH 45N.

The Texas Transportation Commission (commission) has issued toll revenue bonds and other obligations to finance a portion of the costs of the 2002 Project of the Central Texas Turnpike System (system), a toll project composed of the SH 130, SH 45N, and Loop 1 project elements, and has entered into an Indenture of Trust dated July 15, 2002, with Bank One, National Association, as Trustee to secure the revenue bonds and other obligations issued for the 2002 Project.

In Section 707 of the Indenture of Trust, the commission covenants that it shall cause the general engineering consultant to make an inspection of the system at least once in the fiscal year following the substantial completion of the 2002 Project and in each fiscal year thereafter.

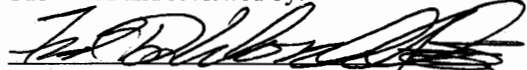
Following each inspection and on or before the 90th day prior to the end of each fiscal year, the general engineering consultant shall submit to the commission a report concerning the inspection, setting forth (a) their findings as to whether the system has been maintained in good repair, working order and condition; (b) their advice and recommendations as to the proper maintenance, repair and operation of the system during the ensuing fiscal year; and (c) an estimate of the amount of money necessary for such purposes, including their recommendations, as to the total amounts and classifications of items and amounts that should be provided for in the annual operating budget, the annual maintenance budget and annual capital budget for the next ensuing fiscal year.

Section 707 of the Indenture of Trust requires copies of the report to be filed with the U.S. Department of Transportation and the Trustee.


The commission has previously engaged PBS&J to serve as general engineering consultant in accordance with the Indenture of Trust. The FY 2012 Central Texas Turnpike Project Annual Inspection Report, attached as Exhibit A, has been prepared by Atkins North America, Inc. (formerly PBS&J) in accordance with Section 707 of the Indenture of Trust.

IT IS THEREFORE ORDERED by the commission that the general engineering consultant's FY 2012 Central Texas Turnpike Project Annual Inspection Report attached as Exhibit A is accepted.

Submitted and reviewed by:

  
Interim Director, Toll Operations Division

Recommended by:

  
Executive Director

**113140 MAY 31 12**

Minute  
Number

Date  
Passed

## Central Texas Turnpike System 2002 Project



# Annual Inspection Report Fiscal Year 2012



PREPARED BY

**ATKINS**  
GENERAL ENGINEERING CONSULTANT

# Annual Inspection Report

For the fiscal Year ending August 31, 2012

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## Executive Summary

As General Engineering Consultant to the Central Texas Turnpike System, 2002 Project, herein referred to as the CTTS, and in accordance with Section 7.07 of the Indenture of Trust, dated July 15, 2002 between the Texas Transportation Commission and Bank One, National Association, as Trustee, Atkins North America, Inc. is pleased to submit the Central Texas Turnpike System Annual Inspection Report for the Fiscal Year ending August 31, 2012. The findings contained in this report are based upon the assessment of inspection data compiled for the roadway, facilities, and structures components; in coordination with the Texas Department of Transportation (TxDOT) Maintenance and Finance Offices and the Toll Operations Division; and Atkins' general knowledge of the condition of CTTS facilities.

This is the fifth annual inspection of the CTTS since it opened to traffic. The overall condition of the CTTS is excellent. The system's primary feature, its 65 miles of roadway, is in like new condition with only minor deficiencies noted. The CTTS achieved an overall score of 95. No single element achieved a score less than 80, with the exception of cracking which rated a score of 79 overall. Most of the cracking observed was not in excess of what is expected and allowable in the pavement method utilized on these roadways.

The FY 2012 annual inspection also revealed that all facilities (buildings) are in very good condition overall. The majority of the deficiencies found are cosmetic in nature. Bridges, which are inspected under the Federal Bridge Inspection Program, are reported in good condition. High mast light towers and overhead signs were inspected this year on Loop 1 and SH 130 and are in very good condition with only minor deficiencies noted. The summary of the bridge, high mast light tower and overhead sign reports are included in the appendices.

TxDOT has programmed approximately \$10.05 million in FY 2012 for routine and periodic maintenance for the CTTS. These funds are used for maintenance of all highway and structure assets and other safety related upgrades. Funding for routine and periodic maintenance for FY 2013, sufficient to address all deficiencies noted in this report, will be determined for approval by the Texas Transportation Commission in August 2012.

In addition to the analysis of inspection results, this report presents the status of the CTTS with respect to the Texas Condition Assessment Program (TxCAP). The TxDOT commitment to system improvement and preservation is obvious. By continually monitoring system conditions and ensuring that its facilities are maintained in top condition, TxDOT is better able to provide for the safety and convenience of its patrons while maintaining a safe investment for bondholders.

# SECTION 1: Introduction

# 1. Introduction

## 1.1 General Description and Procedure of Inspection

The CTTS annual inspection is conducted based on the three major categories of the system: roadways, facilities, and structures. The roadway inspection features three general categories of roadway elements: pavement, traffic operations and roadside. The facilities inspection is based on three general building types: the Customer Service Center Building, toll plaza administration buildings (mainline plazas), and toll plaza buildings (ramps). In addition to the three building types, canopy structures are present at each mainline and ramp plaza. The major elements in each of the three building types are subdivided into four categories and are detailed in Section 2.3 Facilities. All roadways and facilities were inspected by Atkins, the CTTS General Engineering Consultant. This report reflects the findings of the roadway and building inspections that were accomplished for FY 2012. Additional selected photographs of roadway and facility components are included in Appendix A.

The visual inspection of all structures was conducted during this year's field inspection. The structures inspection includes bridges, overhead/cantilever signs, and High Mast Light Towers (HMLTs). A summary of all the Federal Bridge Inspection Reports for bridges within the CTTS indicates no major deficiencies with any of the CTTS's bridges. The bridge summary is located in Appendix C.

All three roadways within the CTTTP were inspected utilizing the TxCAP scoring system. The TxCAP program combines data from three different divisions' reporting systems: The Texas Maintenance Assessment Program (TxMAP), the Pavement Management Information System (PMIS) and the Texas Traffic Assessment Program (TxTAP) to assess the CTTS's assets. The development of TxCAP eliminates duplication of the three separate scoring systems and provides a simplified and concise scoring scale. The system is based on a 5-point rating scale.

The TxCAP rating, which supports the findings of the annual inspection, allows a comparison of the CTTS roadway conditions to the statewide standard. The ratings assigned to the CTTS can be used to make general recommendations on system components needing improvement. A summary of the TxCAP rating system is described in more detail and the scores are included in the roadway section of this report. The rating system utilized by the CTTS is defined in detail in Section 2, Subsection 2.2, Roadways.

All inspections are conducted in accordance with standard procedures developed by the Federal Highway Administration and Texas Department of Transportation (TxDOT) and involve an extensive visual examination of all elements relative to the category of inspection. A detailed tabulation of the conditions observed on the date of the field inspection is prepared in the form of inspection worksheets. The



worksheets are spot-checked in the field to verify accuracy and consistency and the results are reviewed and summarized for presentation in Appendix B.

## 1.2 Description of Central Texas Turnpike System

In FY 2012, the CTTS is comprised of three main roadway components. The first component, the Loop 1 Extension, is approximately three miles in length and runs north from FM 734 (Parmer Lane) to the SH 45 interchange. SH 45, the second of CTTS's three highways, currently begins west of US 183 at Ridgeline Blvd. and extends east approximately 13 miles to the SH 130/SH 45 interchange north of Pflugerville. The third component, SH 130 currently begins north of Georgetown, Texas and extends 49 miles south to US 183 in southeast Travis County. All three of the CTTS highways are multi-lane, limited access toll facilities. The three highways combined provide 65 centerline miles to Texas' Intrastate Highway System, and include 204 structures (bridges and major culverts) and 57 buildings. The system's main roadway components are summarized in Table 1 and illustrated in Figure 1.

| Table 1<br>Central Texas Turnpike System Components |                         |
|---|-------------------------|
| Component   | Centerline Mile Lengths |
|   | Mi.                     |
| Loop 1  | 3                       |
| State Highway 45                                    | 13                      |
| State Highway 130                                   | 49                      |
| <b>Total</b>  | <b>65</b>               |

An additional 41 miles of SH 130, Segments 5 and 6, are currently under construction by the SH 130 Concession Company. This will connect SH 130 to I-10 northeast of Seguin and is scheduled to be open to traffic in late 2012. This extension is not a part of the CTTS.

# CENTRAL TEXAS TURNPIKE SYSTEM

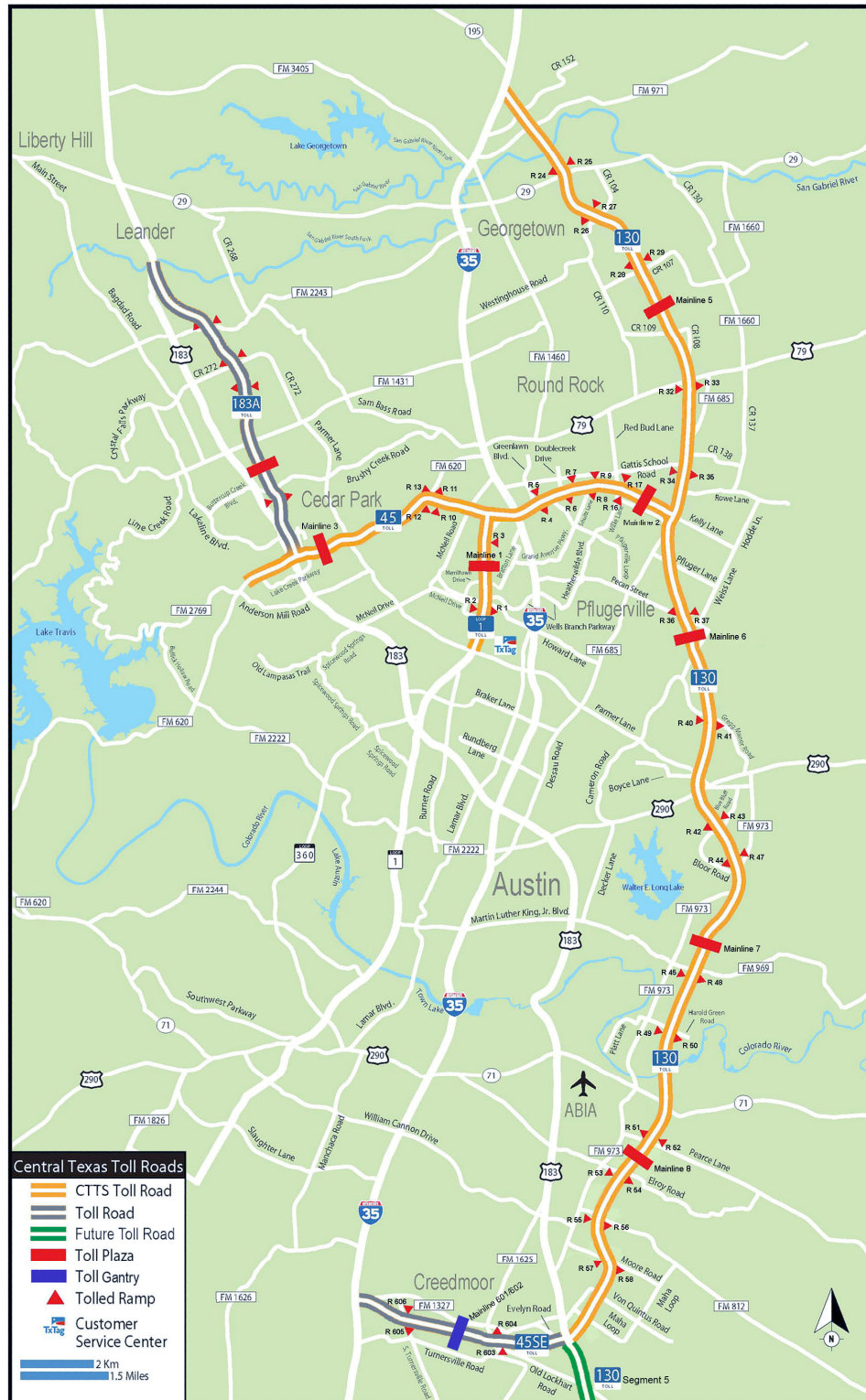


Figure 1 - Central Texas Toll Roads

# SECTION 2: FY 2012 Maintenance Inspection Results

Section 2:  
FY 2012 Maintenance  
Inspection Results

## 2. FY 2012 Maintenance Inspection Results

### 2.1 Introduction

The findings of the FY 2012 Annual Inspection of the Central Texas Turnpike System are based on an extensive evaluation of the roadway, facility, and structures inspections and are outlined in the following paragraphs. The TxDOT ratings assigned to the various roadway elements are presented, along with a general description of the condition of the system's roadways, buildings and structures at the time of inspection.

No major deficiencies were found in any of the three categories of the 2012 inspection; roadways, facilities or structures that have been completed and are in service.

The CTTS inspection does not take into account the criticality of the elements in relationship to each other. When reviewing deficiencies, one should remember that a number of considerations influence the desired level of service. These include safety, protection of private and public investment, comfort, economics, environmental impact, aesthetics, and funding constraints. A pavement failure, for example, would receive priority over a deficiency in litter removal because it may have an immediate impact on the safety of the patron.

### 2.2 Roadways

The roadway inspection is divided into three general categories of roadway elements: pavement, traffic operations and roadside features. A sketch identifying the major elements of a typical roadway is included as Figure 2.

Atkins utilized a Roadway Rating Procedure (RRP) based on using the original 25 roadway elements outlined in the TxCAP document. The ratings and descriptions of the numerical grading system are based on a five-point system, as used in the TxCAP system, as shown in Table 2. The 5-point system is converted to a percentage by multiplying each rating by twenty. The resulting score is then weighted by applying the TxCAP values outlined in Table 3 to determine the overall score for each category. Each category's overall score is then weighted according to appropriate TxCAP values to obtain a total composite score for the entire roadway system.



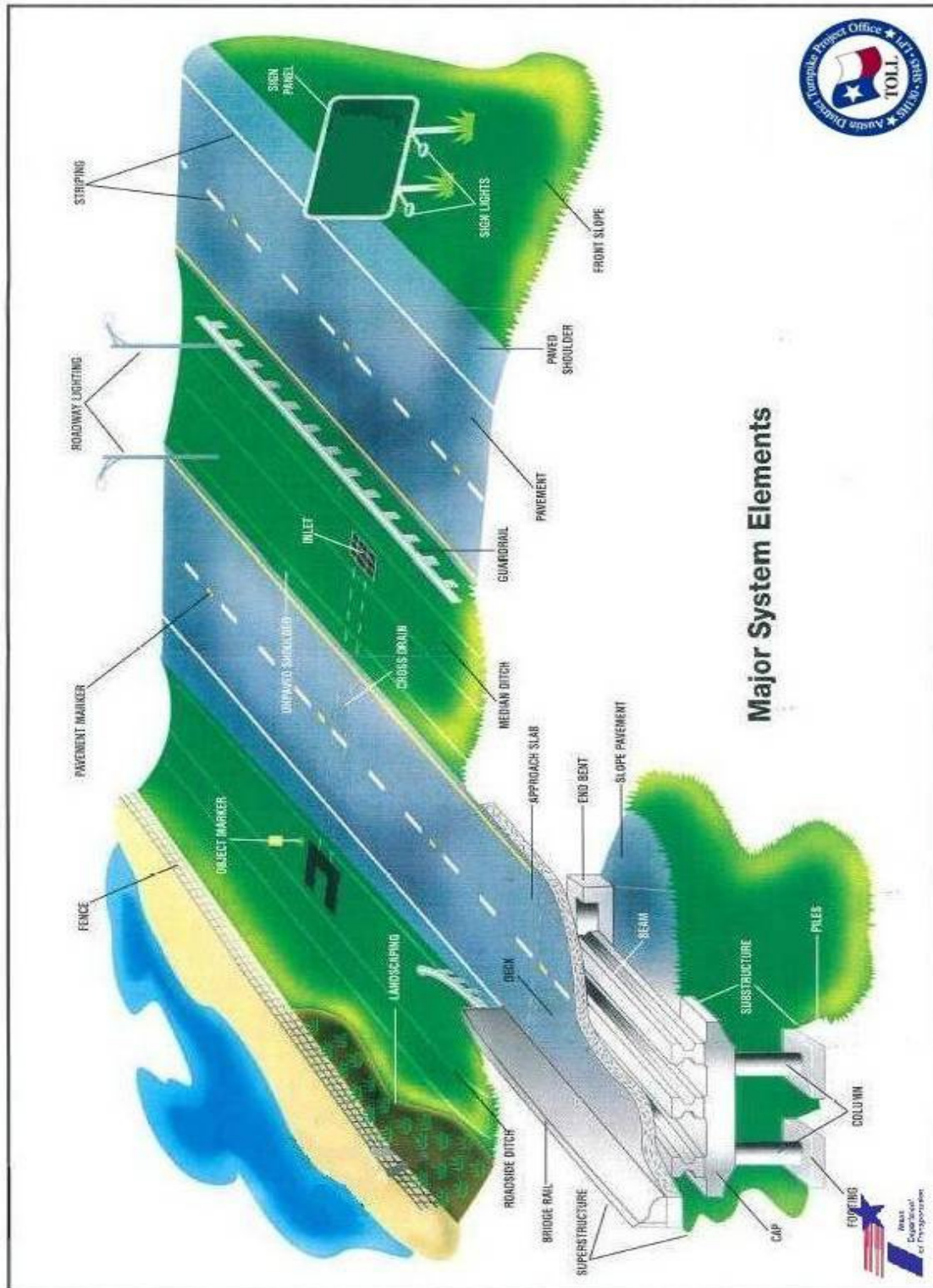


Figure 2 – Major System Elements



| Table 2<br>CTTS Roadway Inspection Rating Scale |                |   |
|---|----------------|---|
| Grade   | Rating         | Description   |
| 5   | Excellent      | No deficiencies noted. Feature is in like new condition   |
| 4   | Good           | No maintenance is necessary. Feature appearance and functionality/operability are good.   |
| 3   | Degraded       | Maintenance is required to protect public or system. Feature appearance and functionality/operability are below average.          |
| 2   | Unsatisfactory | Immediate repair is required to protect public or system. Feature appearance and functionality/operability are substandard.       |
| 1   | Emergency      | Immediate maintenance is required to protect public or system. Feature appearance and functionality/operability are unacceptable. |

One element, mailboxes, contained in the roadside category was not applicable to this project and is not scored in this year's inspection. The TxCAP weighted scores of the remaining elements were increased proportionally to obtain the 100-point maximum as shown in Table 3. The percentages included in this year's report reflect the recent revisions made to these factors by TxDOT. The weightings of the three categories were also revised this year to be consistent with the revised TxDOT weightings..

This information is entered directly into a database located on laptop computers in the field for later compilation and reporting for each roadway. Inspection results are separated by roadway/ramp segment and lane direction.

All of the major elements contained within each category are in Tables 4 through 6. In addition, the scores for each major element are included. A rating of three or below on the field inspection worksheets indicates that the portion of the element is degraded and reported as deficient. All three roadways contained within the CTTS are summarized in Table 7. The inspection results shown include all major

categories of Turnpike roadway facilities: mainline roadways, ramps and interchanges.

The results of this year's annual inspection indicate that the Turnpike System roadway facilities are in like new condition and are being maintained in an overall excellent condition. No major roadway deficiencies were identified by the Turnpike Systems annual inspection.

| Table 3<br>TxCAP Roadway Weighted Scoring Values |                     |                     |
|--|---------------------|---------------------|
| Pavement Score                                   | Original Percentage | Adjusted Percentage |
| Rutting  | 18.18%              | 18.18%              |
| Cracking   | 18.18%              | 18.18%              |
| Failures   | 21.82%              | 21.82%              |
| Ride   | 12.73%              | 12.73%              |
| Edges  | 14.55%              | 14.55%              |
| Shoulders  | 14.55%              | 14.55%              |
| Traffic Operations Score                         |                     |                     |
| Raised Pavement Markers                          | 16.00%              | 16.00%              |
| Signs – Large                                    | 16.00%              | 16.00%              |
| Signs – Small                                    | 16.00%              | 16.00%              |
| Striping, Pavement Graphics                      | 20.00%              | 20.00%              |
| Attenuators                                      | 12.00%              | 12.00%              |
| Delineators                                      | 12.00%              | 12.00%              |
| Shoulder Texturing                               | 8.00%               | 8.00%               |
| Roadside Score                                   |                     |                     |
| Vegetation Management                            | 15.00%              | 16.67%              |
| Litter   | 10.00%              | 11.11%              |
| Sweeping   | 10.00%              | 11.11%              |
| Trees and Brush                                  | 10.00%              | 11.11%              |
| Drainage   | 15.00%              | 16.67%              |
| Encroachments                                    | 5.00%               | 5.56%               |
| Guardrails                                       | 15.00%              | 16.67%              |
| Guardrail End Treatments                         | 10.00%              | 11.11%              |
| Mailboxes  | N/A (10.00%)        | 0.00%               |
| Overall Score                                    |                     |                     |
| Pavement   | 55.00%              | 55.00%              |
| Traffic Operations                               | 25.00%              | 25.00%              |
| Roadside   | 20.00%              | 20.00%              |

### 2.2.1 Pavement

The pavement category includes; rutting, cracking, pavement failures, ride rating, edges and shoulders. Pavement throughout the CTTS was generally found in like new condition and achieved an overall score of 95. The lowest pavement element score, cracking, received a score of 77 and was noted on Loop 1. There were no major deficiencies on any of the three roadway systems reported by the annual inspection.



**Figure 3 - Typical Roadway Section**



**Figure 4 – Pavement Crack on Loop 1**

As noted in prior year's report, the pavement north of the ML 1 toll plaza on Loop 1 was in need of repair. These repairs were made during calendar year 2011 by the TxDOT Austin District Maintenance Office. This section of roadway is continually monitored by the District and there is sufficient funding to make repairs as necessary.

### **2.2.2 Traffic Operations**

The Traffic Operations category ratings are based on the condition of all features that guide, protect, and assist the patron while traveling the Turnpike System's roadways and interchanges. A Traffic Operations score rating of 94 was achieved. No single element on any of the three roadways was found to be in less than good condition.

The TxCAP rating system does not include an evaluation of lighting systems, but as has been done in previous years, a nighttime inspection of the CTTS was performed in order to assess the overall condition of the system lights. High mast light towers and cobra head streetlights were examined as part of this inspection. The majority of

the system was in working order. However, many lights were found to be in need of service.

High mast light towers are present at the major interchanges within the CTTS. The SH 45/US 183 interchange had two towers that were not operating at all and the SH 45/Loop 1 and SH 130/SH 71 interchanges each had one tower completely out, but the remaining towers at these locations appeared to be functioning normally.

Cobra head streetlights are present at many areas throughout the CTTS, most frequently at interchanges and tolling locations. A majority of these lights were functioning properly. Most mile segments had less than 5 lights out, with many of them having none out. There was one stretch of SH 45 near the Lake Creek Toll Plaza (ML-3) that did not have a single operational streetlight. Locations of the non-functioning lights are detailed in the inspection worksheets located in Appendix B.

The Austin District Maintenance group has initiated an effort to repair all lighting that is not currently operational.



**Figure 5 – Roadside Sign and Pavement Symbols**



### 2.2.3 Roadside

The determination of the Roadside score for roadside features is generally based upon the consideration of vegetation management, litter removal, drainage structures, and other elements located outside of the paved travel way (Figure 2). The roadside category is in excellent condition and has achieved an overall score of 98. There were no characteristics that rated lower than 94. The lowest element, vegetation management, was found on SH 130.

It should be noted that the condition of vegetation management can vary greatly depending upon the time of year that the inspection is made and also weather conditions..



**Figure 6 –SH 130 Roadside Conditions**



**Figure 7 – Desired Shoulder and Turf Condition**

| Table 4<br>Condition of CTTS Roadway Elements – Loop 1<br>FY 2012 |                             |                 |               |           |                      |                |
|---|-----------------------------|-----------------|---------------|-----------|----------------------|----------------|
| Category  | Component                   | Component Score | Maximum Score | Sub Score | TxCAP Weighted Value | Weighted Score |
| <b>Pavement Score</b>   | Rutting                     | 2,600           | 2,600         | 100       | 18.18%               | 18.2           |
|   | Cracking                    | 2,000           | 2,600         | 77        | 18.18%               | 14.0           |
|   | Failures                    | 12,700          | 13,000        | 98        | 21.82%               | 21.3           |
|   | Ride                        | 2,600           | 2,600         | 100       | 12.73%               | 12.7           |
|   | Edges                       | 2,600           | 2,600         | 100       | 14.55%               | 14.5           |
|   | Shoulders                   | 4,880           | 5,200         | 94        | 14.55%               | 13.7           |
| <b>Loop 1 - Pavement Score</b>                                    |                             |                 |               |           |                      | <b>94</b>      |
| <b>Traffic Operations Score</b>                                   | Raised Pavement Markers     | 2,400           | 2,600         | 92        | 16.00%               | 14.8           |
|   | Signs – Large               | 2,560           | 2,600         | 98        | 16.00%               | 15.8           |
|   | Signs – Small               | 7,640           | 7,800         | 98        | 16.00%               | 15.7           |
|   | Striping, Pavement Graphics | 4,840           | 5,200         | 93        | 20.00%               | 18.6           |
|   | Attenuators                 | 2,600           | 2,600         | 100       | 12.00%               | 12.0           |
|   | Delineators                 | 2,320           | 2,600         | 89        | 12.00%               | 10.7           |
|   | Shoulder Texturing          | 2,320           | 2,600         | 89        | 8.00%                | 7.1            |
| <b>Loop 1 - Traffic Operations Score</b>                          |                             |                 |               |           |                      | <b>95</b>      |
| <b>Roadside Score</b>   | Vegetation Management       | 15,240          | 15,600        | 98        | 16.67%               | 16.3           |
|   | Litter                      | 2,600           | 2,600         | 95        | 11.11%               | 11.1           |
|   | Sweeping                    | 2,520           | 2,600         | 95        | 11.11%               | 10.8           |
|   | Trees and Brush             | 2,600           | 2,600         | 100       | 11.11%               | 11.1           |
|   | Drainage                    | 25,900          | 26,000        | 100       | 16.67%               | 16.6           |
|   | Encroachments               | 2,600           | 2,600         | 100       | 5.56%                | 5.6            |
|   | Guardrails                  | 7,580           | 7,800         | 98        | 16.67%               | 16.2           |
|   | Guardrail End Treatments    | 2,600           | 2,600         | 100       | 11.11%               | 11.1           |
|   | Mail Boxes                  | 0               | 0             | 0         | 0.00%                | 0.0            |
| <b>Loop 1 - Roadside Score</b>                                    |                             |                 |               |           |                      | <b>99</b>      |
| <b>Category Score</b>   | Pavement                    | 27,380          | 28,600        | 94        | 55.00%               | 51.9           |
|   | Traffic Operations          | 24,680          | 26,000        | 95        | 25.00%               | 23.7           |
|   | Roadside                    | 61,640          | 62,400        | 99        | 20.00%               | 19.7           |
| <b>Loop 1 - Total Roadway Score</b>                               |                             |                 |               |           |                      | <b>95</b>      |

**CENTRAL TEXAS TURNPIKE SYSTEM**

| Table 5<br>Condition of CTTS Roadway Elements – SH 45<br>FY 2012 |                             |                 |               |           |                      |                |
|--|-----------------------------|-----------------|---------------|-----------|----------------------|----------------|
| Category   | Component                   | Component Score | Maximum Score | Sub Score | TxCAP Weighted Value | Weighted Score |
| <b>Pavement Score</b>  | Rutting                     | 8,700           | 8,700         | 100       | 18.18%               | 18.2           |
|  | Cracking                    | 6,880           | 8,700         | 79        | 18.18%               | 14.4           |
|  | Failures                    | 42,460          | 43,500        | 98        | 21.82%               | 21.3           |
|  | Ride                        | 8,700           | 8,700         | 100       | 12.73%               | 12.7           |
|  | Edges                       | 8,680           | 8,700         | 100       | 14.55%               | 14.5           |
|  | Shoulders                   | 16,000          | 17,400        | 92        | 14.55%               | 13.4           |
| <b>SH 45 - Pavement Score</b>                                    |                             |                 |               |           |                      | <b>94</b>      |
| <b>Traffic Operations Score</b>                                  | Raised Pavement Markers     | 7,360           | 8,700         | 85        | 16.00%               | 13.5           |
|  | Signs – Large               | 8,700           | 8,700         | 100       | 16.00%               | 16.0           |
|  | Signs – Small               | 25,800          | 26,100        | 99        | 16.00%               | 15.8           |
|  | Striping, Pavement Graphics | 16,440          | 17,400        | 94        | 20.00%               | 18.9           |
|  | Attenuators                 | 8,700           | 8,700         | 100       | 12.00%               | 12.0           |
|  | Delineators                 | 8,120           | 8,700         | 93        | 12.00%               | 11.2           |
|  | Shoulder Texturing          | 7,300           | 8,700         | 84        | 8.00%                | 6.7            |
| <b>SH 45 - Traffic Operations Score</b>                          |                             |                 |               |           |                      | <b>94</b>      |
| <b>Roadside Score</b>  | Vegetation Management       | 51,940          | 52,200        | 100       | 16.67%               | 16.6           |
|  | Litter                      | 8,520           | 8,700         | 98        | 11.11%               | 10.9           |
|  | Sweeping                    | 8,340           | 8,700         | 96        | 11.11%               | 10.7           |
|  | Trees and Brush             | 8,700           | 8,700         | 100       | 11.11%               | 11.1           |
|  | Drainage                    | 86,580          | 87,000        | 100       | 16.67%               | 16.6           |
|  | Encroachments               | 8,700           | 8,700         | 100       | 5.56%                | 5.6            |
|  | Guardrails                  | 25,660          | 26,100        | 98        | 16.67%               | 16.4           |
|  | Guardrail End Treatments    | 8,620           | 8,700         | 99        | 11.11%               | 11.0           |
|  | Mailboxes                   | 0               | 0             | 0         | 0.00%                | 0.0            |
| <b>SH 45 - Roadside Score</b>                                    |                             |                 |               |           |                      | <b>99</b>      |
| <b>Category Score</b>  | Pavement                    | 91,420          | 95,700        | 94        | 55.00%               | 52.0           |
|  | Traffic Operations          | 82,420          | 87,000        | 94        | 25.00%               | 23.5           |
|  | Roadside                    | 207,060         | 208,800       | 99        | 20.00%               | 19.8           |
| <b>SH 45 - Total Roadway Score</b>                               |                             |                 |               |           |                      | <b>95</b>      |

**CENTRAL TEXAS TURNPIKE SYSTEM**

| Table 6<br>Condition of CTTS Roadway Elements – SH 130<br>FY 2012 |                             |                 |               |           |                      |                |
|---|-----------------------------|-----------------|---------------|-----------|----------------------|----------------|
| Category  | Component                   | Component Score | Maximum Score | Sub Score | TxCAP Weighted Value | Weighted Score |
| <b>Pavement Score</b>   | Rutting                     | 23,560          | 23,600        | 100       | 18.18%               | 18.2           |
|   | Cracking                    | 18,800          | 23,600        | 80        | 18.18%               | 14.5           |
|   | Failures                    | 117,320         | 118,000       | 99        | 21.82%               | 21.7           |
|   | Ride                        | 23,600          | 23,600        | 100       | 12.73%               | 12.7           |
|   | Edges                       | 23,560          | 23,600        | 100       | 14.55%               | 14.5           |
|   | Shoulders                   | 43,560          | 47,200        | 92        | 14.55%               | 13.4           |
| <b>SH 130 - Pavement Score</b>                                    |                             |                 |               |           |                      | <b>95</b>      |
| <b>Traffic Operations Score</b>                                   | Raised Pavement Markers     | 21,020          | 23,600        | 89        | 16.00%               | 14.3           |
|   | Signs – Large               | 23,520          | 23,600        | 100       | 16.00%               | 15.9           |
|   | Signs – Small               | 70,440          | 70,800        | 99        | 16.00%               | 15.9           |
|   | Striping, Pavement Graphics | 44,380          | 47,200        | 94        | 20.00%               | 18.8           |
|   | Attenuators                 | 23,600          | 23,600        | 100       | 12.00%               | 12.0           |
|   | Delineators                 | 20,620          | 23,600        | 87        | 12.00%               | 10.5           |
|   | Shoulder Texturing          | 19,960          | 23,600        | 85        | 8.00%                | 6.8            |
| <b>SH 130 - Traffic Operations Score</b>                          |                             |                 |               |           |                      | <b>94</b>      |
| <b>Roadside Score</b>   | Vegetation Management       | 132,600         | 141,600       | 94        | 16.67%               | 15.6           |
|   | Litter                      | 23,120          | 23,600        | 98        | 11.11%               | 10.9           |
|   | Sweeping                    | 22,900          | 23,600        | 97        | 11.11%               | 10.8           |
|   | Trees and Brush             | 23,580          | 23,600        | 100       | 11.11%               | 11.1           |
|   | Drainage                    | 233,400         | 236,000       | 99        | 16.67%               | 16.5           |
|   | Encroachments               | 23,600          | 23,600        | 100       | 5.56%                | 5.6            |
|   | Guardrails                  | 70,400          | 70,800        | 99        | 16.67%               | 16.6           |
|   | Guardrail End Treatments    | 23,600          | 23,600        | 100       | 11.11%               | 11.1           |
|   | Mailboxes                   | 0               | 0             | 0         | 0.00%                | 0.0            |
| <b>SH 130 - Roadside Score</b>                                    |                             |                 |               |           |                      | <b>98</b>      |
| <b>Category Score</b>   | Pavement                    | 250,400         | 259,600       | 95        | 55.00%               | 52.2           |
|   | Traffic Operations          | 223,540         | 236,000       | 94        | 25.00%               | 23.5           |
|   | Roadside                    | 553,200         | 566,400       | 98        | 20.00%               | 19.6           |
| <b>SH 130 - Total Roadway Score</b>                               |                             |                 |               |           |                      | <b>95</b>      |



**CENTRAL TEXAS TURNPIKE SYSTEM**

| Table 7<br>Condition of CTTS Roadway Elements – All Roadways<br>FY 2012 |                             |                 |               |           |                      |                |
|---|-----------------------------|-----------------|---------------|-----------|----------------------|----------------|
| Category  | Component                   | Component Score | Maximum Score | Sub Score | TxCAP Weighted Value | Weighted Score |
| <b>Pavement Score</b>   | Rutting                     | 34,860          | 34,900        | 100       | 18.18%               | 18.2           |
|   | Cracking                    | 27,680          | 34,900        | 79        | 18.18%               | 14.4           |
|   | Failures                    | 172,480         | 174,500       | 99        | 21.82%               | 21.6           |
|   | Ride                        | 34,900          | 34,900        | 100       | 12.73%               | 12.7           |
|   | Edges                       | 34,840          | 34,900        | 100       | 14.55%               | 14.5           |
|   | Shoulders                   | 64,440          | 69,800        | 92        | 14.55%               | 13.4           |
| <b>CTTS (All Roadways) - Pavement Score</b>                             |                             |                 |               |           |                      | <b>95</b>      |
| <b>Traffic Operations Score</b>   | Raised Pavement Markers     | 30,780          | 34,900        | 88        | 16.00%               | 14.1           |
|   | Signs – Large               | 34,780          | 34,900        | 100       | 16.00%               | 15.9           |
|   | Signs – Small               | 103,880         | 104,700       | 99        | 16.00%               | 15.9           |
|   | Striping, Pavement Graphics | 65,660          | 69,800        | 94        | 20.00%               | 18.8           |
|   | Attenuators                 | 34,900          | 34,900        | 100       | 12.00%               | 12.0           |
|   | Delineators                 | 31,060          | 34,900        | 89        | 12.00%               | 10.7           |
|   | Shoulder Texturing          | 29,580          | 34,900        | 85        | 8.00%                | 6.8            |
| <b>CTTS (All Roadways) - Traffic Operations Score</b>                   |                             |                 |               |           |                      | <b>94</b>      |
| <b>Roadside Score</b>   | Vegetation Management       | 199,780         | 209,400       | 95        | 16.67%               | 15.9           |
|   | Litter                      | 34,240          | 34,900        | 98        | 11.11%               | 10.9           |
|   | Sweeping                    | 33,760          | 34,900        | 97        | 11.11%               | 10.7           |
|   | Trees and Brush             | 34,880          | 34,900        | 100       | 11.11%               | 11.1           |
|   | Drainage                    | 345,880         | 349,000       | 99        | 16.67%               | 16.5           |
|   | Encroachments               | 34,900          | 34,900        | 100       | 5.56%                | 5.6            |
|   | Guardrails                  | 103,640         | 104,700       | 99        | 16.67%               | 16.5           |
|   | Guardrail End Treatments    | 34,820          | 34,900        | 100       | 11.11%               | 11.1           |
|   | Mailboxes                   | 0               | 0             | 0         | 0.00%                | 0.0            |
| <b>CTTS (All Roadways) - Roadside Score</b>                             |                             |                 |               |           |                      | <b>98</b>      |
| <b>Category Score</b>   | Pavement                    | 369,200         | 383,900       | 95        | 55.00%               | 52.2           |
|   | Traffic Operations          | 330,640         | 349,000       | 94        | 25.00%               | 23.6           |
|   | Roadside                    | 821,900         | 837,600       | 98        | 20.00%               | 19.7           |
| <b>Total Central Texas Toll Roadway Score</b>                           |                             |                 |               |           |                      | <b>95</b>      |

## 2.3 Facilities

The facilities inspection is based on three general building types: The Customer Service Center Building, toll plaza administration buildings (mainline plazas), and toll plaza buildings (ramps). In addition to the three building types, canopy structures are present at each mainline and ramp plaza. The major characteristics of each building type are subdivided into four categories: architectural, tollbooths, mechanical, and electrical components. Fifty-seven buildings currently exist and were in service at the time of the FY 2012 inspection. As part of the inspection process, all relevant structural components and associated mechanical and electrical systems for all facilities are visually inspected.

The ratings are assigned based on the conditions observed and the descriptions of the numerical grading system are based on the same five-point system utilized for the roadway system elements (Table 3). Elements rated deficient are compared to the total number of elements inspected to achieve a percent deficient for each element. A summary of the results for each of the three roadways are contained in Tables 9 through 11, and a system-wide summary is shown in Table 12. Approximately 7,125 facility asset items were inspected, of which, 26 were rated as being in less than fair (rating of 2 or less) condition, for a deficiency rate of 0.36 percent. This compares favorably to the results from FY 2011 where 1.22 percent of the asset items were rated less than fair. The primary improvement by TxDOT was to ensure that all fire extinguishers were inspected and upgraded for compliance with applicable codes. It should be pointed out that, in most cases, the remaining deficiencies represented an aesthetics problem and not structural or safety issues. The CTTS system building quantities are detailed in Table 8.

| Table 8<br>Central Texas Turnpike Building Quantities - FY 2012 |        |        |       |        |
|---|--------|--------|-------|--------|
| Building Types  | Loop 1 | SH 130 | SH 45 | Totals |
| Customer Service Center   | 1      | 0      | 0     | 1      |
| Mainline Plazas   | 1      | 8      | 2     | 11     |
| Ramp Plazas   | 3      | 30     | 12    | 45     |
| <b>Totals</b>   | 5      | 38     | 14    | 57     |

There have been concerns regarding concrete pavement cracks where the toll collection system is installed (shown on next page). Currently, the pavement score does not show a deficiency, but throughout the CTTS there are small cracks that have the potential to affect the toll system's collection capabilities. These locations require continual monitoring in order to determine the appropriate time for pavement rehabilitation or replacement. This is not expected to occur during FY 2013, but is anticipated sometime in the next several years.

A list of all facility assets that were rated has been sent to Austin District Maintenance with the deficiencies highlighted and recommendations for repair included.



**Figure 8 - Toll System Pavement**

### **2.3.1 Customer Service Center and Toll Management System**

The TxTag Customer Service Center (CSC), as shown in Figure 7 below, provides customer service and account management support for TxDOT's toll projects throughout the state. "TxTag" is the toll transponder that patrons use to pay tolls electronically by establishing a pre-paid account. The CSC also provides system and accounting services for Pay by Mail customers who are billed monthly for their tolls. As the primary center for customer service, the CSC houses TxDOT's customer call center and website support services.

The customer service center became operational in July 2006, and now operates five days a week, Monday through Friday, with more than 150 employees. With the focus of toll collection moving from manual collection to all electronic (AET), the CSC role has become more important in the collection and accounting of toll revenue. The CSC system database houses information on daily transactions, the toll revenue due

by toll collection type, the interoperable revenue due from other agencies and financial reporting information. Other staff include general administration, quality assurance, accounting and reconciliation, human resources, and facility administration.



**Figure 9 - Customer Service Center**

The toll management system (TMS) collection equipment was not inspected by Atkins as a part of this annual inspection. However, in FY 2012, this equipment is continually monitored for collection accuracy and system availability under TxDOT Contract No. 86-748P5012 "Statewide Customer Service Center and Toll Implementation Support". Atkins performs contract management oversight of the TMS vendor and part of that contract includes monthly lane audits of the TMS equipment to ensure the system is operating within its specifications. The TxDOT Toll Operations Division has toll equipment maintenance contracts and contracts for system upgrades in place to ensure the system operates accurately and efficiently.

As of this date, there has been no loss of revenue in the open road tolling (ORT) lanes due to system availability since January 2006.



### 2.3.2 Mainline and Ramp Plaza Facilities and Canopies

The toll plaza administration facilities and canopies are located either as part of a mainline toll plaza or ramp toll plaza facility. The canopies typically extend from the administration buildings outward, over the tollbooths or toll collection equipment located between the travel lanes. The administration buildings not located at ramp toll plazas are connected to the toll collection booths/equipment by means of an underground tunnel. This facilitates the transport of personnel, toll collection data, and supplies.



Figure 10 - Ramp Canopy



### 2.3.3 Tollbooths

All tollbooths, including forty that have been decommissioned, were inspected during the FY 2012 inspection. Tollbooths and related subcomponents were noted in excellent condition throughout the CTTS. A typical tollbooth configuration is pictured below in Figure 9. The condition of the elements and the corresponding deficiencies for each of these categories is summarized in Tables 9 through 11, with a system-wide summary shown in Table 12.



Figure 11 - Tollbooth

### 2.3.4 Mechanical

Mechanical elements include plumbing fixtures, sewer/septic lines and well and water lines. Two plumbing fixtures were noted in less than fair condition within the system.

### 2.3.5 Electrical

Of the 895 total elements in the electrical category, only nine elements were noted as deficient for an overall deficiency rate of 1.00%. A majority of the deficient elements were non-functioning GFI receptacles located throughout the system. No generators were found to be deficient.



Figure 12 – Facility Generator

**CENTRAL TEXAS TURNPIKE SYSTEM**

Table 9  
Condition of CTTS Facilities - Loop 1 - FY 2012

| Category             | Element                        | Number Inspected | Number Rated Less Than Fair | Percent Deficient |
|----------------------|--------------------------------|------------------|-----------------------------|-------------------|
| <b>Architectural</b> | Parking Area & Drive Pvm't     | 26               | 0                           | 0.00%             |
|                      | Area Lights                    | 158              | 0                           | 0.00%             |
|                      | Roof Drains                    | 3                | 0                           | 0.00%             |
|                      | Irrigation System/Site Grounds | 4                | 0                           | 0.00%             |
|                      | Exterior Walls                 | 27               | 1                           | 3.70%             |
|                      | Exterior Windows               | 10               | 0                           | 0.00%             |
|                      | Exterior Doors                 | 18               | 0                           | 0.00%             |
|                      | Interior Walls & Ceilings      | 449              | 0                           | 0.00%             |
|                      | Interior Windows & Sills       | 67               | 0                           | 0.00%             |
|                      | Interior Doors                 | 135              | 0                           | 0.00%             |
|                      | Interior Flooring              | 137              | 0                           | 0.00%             |
|                      | Fire Extinguishers & Cabinets  | 198              | 1                           | 0.51%             |
|                      | Lockers                        | 0                | 0                           | 0.00%             |
|                      | Interior Signs                 | 34               | 0                           | 0.00%             |
|                      | HVAC System                    | 188              | 0                           | 0.00%             |
|                      | Tunnel                         | 1                | 0                           | 0.00%             |
|                      | Elevators, Dumbwaiters         | 2                | 0                           | 0.00%             |
|                      | Bollards                       | 24               | 0                           | 0.00%             |
|                      | Canopy                         | 16               | 0                           | 0.00%             |
|                      | Finishes                       | 135              | 0                           | 0.00%             |
|                      | Handrails                      | 4                | 0                           | 0.00%             |
|                      | Fuel Storage                   | 1                | 0                           | 0.00%             |
|                      | Systems (Comms/Alarms)         | 102              | 0                           | 0.00%             |
| <b>Toll Booths</b>   | Interior Booth                 | 17               | 0                           | 0.00%             |
|                      | Window                         | 13               | 0                           | 0.00%             |
|                      | Counter/Drawer                 | 19               | 0                           | 0.00%             |
|                      | Toll A/C                       | 17               | 0                           | 0.00%             |
|                      | Area Lights                    | 7                | 0                           | 0.00%             |
|                      | Signs                          | 25               | 0                           | 0.00%             |
|                      | Concrete Pavement              | 25               | 4                           | 16.00%            |
|                      | Attenuators                    | 19               | 0                           | 0.00%             |
|                      | Nose Flashers                  | 18               | 0                           | 0.00%             |
|                      | Traffic Signal                 | 26               | 0                           | 0.00%             |
|                      | Toll Indicator                 | 24               | 0                           | 0.00%             |
|                      | Automatic Coin Machines        | 3                | 0                           | 0.00%             |
|                      | Gates                          | 0                | 0                           | 0.00%             |
|                      | Booth Pit                      | 2                | 0                           | 0.00%             |
| <b>Mechanical</b>    | Plumbing Fixtures              | 25               | 0                           | 0.00%             |
|                      | Sewer / Septic Lines           | 1                | 0                           | 0.00%             |
|                      | Well / Water Lines             | 24               | 0                           | 0.00%             |
| <b>Electrical</b>    | Building Electrical Fixtures   | 182              | 3                           | 1.65%             |
|                      | Generators                     | 8                | 0                           | 0.00%             |
|                      | Uninterrupted Power Supply     | 2                | 1                           | 50.00%            |
|                      | Wiring                         | 43               | 0                           | 0.00%             |

**CENTRAL TEXAS TURNPIKE SYSTEM**

Table 10  
Condition of CTTS Facilities - SH 45 - FY 2012

| Category             | Element                        | Number Inspected | Number Rated Less Than Fair | Percent Deficient |
|----------------------|--------------------------------|------------------|-----------------------------|-------------------|
| <b>Architectural</b> | Parking Area & Drive Pvm't     | 80               | 0                           | 0.00%             |
|                      | Area Lights                    | 86               | 0                           | 0.00%             |
|                      | Roof Drains                    | 7                | 0                           | 0.00%             |
|                      | Irrigation System/Site Grounds | 4                | 0                           | 0.00%             |
|                      | Exterior Walls                 | 28               | 0                           | 0.00%             |
|                      | Exterior Windows               | 14               | 0                           | 0.00%             |
|                      | Exterior Doors                 | 26               | 0                           | 0.00%             |
|                      | Interior Walls & Ceilings      | 210              | 0                           | 0.00%             |
|                      | Interior Windows & Sills       | 10               | 0                           | 0.00%             |
|                      | Interior Doors                 | 56               | 0                           | 0.00%             |
|                      | Interior Flooring              | 56               | 0                           | 0.00%             |
|                      | Fire Extinguishers & Cabinets  | 83               | 1                           | 1.20%             |
|                      | Lockers                        | 2                | 0                           | 0.00%             |
|                      | Interior Signs                 | 21               | 0                           | 0.00%             |
|                      | HVAC System                    | 115              | 0                           | 0.00%             |
|                      | Tunnel                         | 2                | 0                           | 0.00%             |
|                      | Elevators, Dumbwaiters         | 4                | 0                           | 0.00%             |
|                      | Bollards                       | 47               | 0                           | 0.00%             |
|                      | Canopy                         | 56               | 0                           | 0.00%             |
|                      | Finishes                       | 46               | 0                           | 0.00%             |
|                      | Handrails                      | 12               | 0                           | 0.00%             |
|                      | Fuel Storage                   | 4                | 0                           | 0.00%             |
|                      | Systems (Comms/Alarms)         | 47               | 0                           | 0.00%             |
| <b>Toll Booths</b>   | Interior Booth                 | 22               | 0                           | 0.00%             |
|                      | Window                         | 12               | 0                           | 0.00%             |
|                      | Counter/Drawer                 | 25               | 0                           | 0.00%             |
|                      | Toll A/C                       | 22               | 1                           | 4.55%             |
|                      | Area Lights                    | 19               | 0                           | 0.00%             |
|                      | Signs                          | 51               | 0                           | 0.00%             |
|                      | Concrete Pavement              | 52               | 2                           | 3.85%             |
|                      | Attenuators                    | 36               | 0                           | 0.00%             |
|                      | Nose Flashers                  | 36               | 0                           | 0.00%             |
|                      | Traffic Signal                 | 47               | 0                           | 0.00%             |
|                      | Toll Indicator                 | 50               | 0                           | 0.00%             |
|                      | Automatic Coin Machines        | 14               | 0                           | 0.00%             |
|                      | Gates                          | 2                | 0                           | 0.00%             |
|                      | Booth Pit                      | 4                | 0                           | 0.00%             |
| <b>Mechanical</b>    | Plumbing Fixtures              | 23               | 0                           | 0.00%             |
|                      | Sewer / Septic Lines           | 0                | 0                           | 0.00%             |
|                      | Well / Water Lines             | 25               | 0                           | 0.00%             |
| <b>Electrical</b>    | Building Electrical Fixtures   | 145              | 1                           | 0.69%             |
|                      | Generators                     | 15               | 0                           | 0.00%             |
|                      | Uninterrupted Power Supply     | 4                | 1                           | 25.00%            |
|                      | Wiring                         | 61               | 0                           | 0.00%             |

**CENTRAL TEXAS TURNPIKE SYSTEM**

Table 11  
Condition of CTTS Facilities - SH 130 - FY 2012

| Category             | Element                        | Number Inspected | Number Rated Less Than Fair | Percent Deficient |
|----------------------|--------------------------------|------------------|-----------------------------|-------------------|
| <b>Architectural</b> | Parking Area & Drive Pvm't     | 222              | 0                           | 0.00%             |
|                      | Area Lights                    | 156              | 0                           | 0.00%             |
|                      | Roof Drains                    | 13               | 0                           | 0.00%             |
|                      | Irrigation System/Site Grounds | 24               | 0                           | 0.00%             |
|                      | Exterior Walls                 | 60               | 0                           | 0.00%             |
|                      | Exterior Windows               | 23               | 0                           | 0.00%             |
|                      | Exterior Doors                 | 36               | 0                           | 0.00%             |
|                      | Interior Walls & Ceilings      | 366              | 0                           | 0.00%             |
|                      | Interior Windows & Sills       | 28               | 0                           | 0.00%             |
|                      | Interior Doors                 | 107              | 0                           | 0.00%             |
|                      | Interior Flooring              | 97               | 0                           | 0.00%             |
|                      | Fire Extinguishers & Cabinets  | 162              | 0                           | 0.00%             |
|                      | Lockers                        | 2                | 0                           | 0.00%             |
|                      | Interior Signs                 | 43               | 0                           | 0.00%             |
|                      | HVAC System                    | 223              | 2                           | 0.90%             |
|                      | Tunnel                         | 8                | 0                           | 0.00%             |
|                      | Elevators, Dumbwaiters         | 0                | 0                           | 0.00%             |
|                      | Bollards                       | 88               | 2                           | 2.27%             |
|                      | Canopy                         | 151              | 0                           | 0.00%             |
|                      | Finishes                       | 98               | 0                           | 0.00%             |
|                      | Handrails                      | 14               | 0                           | 0.00%             |
|                      | Fuel Storage                   | 27               | 0                           | 0.00%             |
|                      | Systems (Comms/Alarms)         | 77               | 1                           | 1.30%             |
| <b>Toll Booths</b>   | Interior Booth                 | 30               | 0                           | 0.00%             |
|                      | Window                         | 20               | 0                           | 0.00%             |
|                      | Counter/Drawer                 | 35               | 0                           | 0.00%             |
|                      | Toll A/C                       | 27               | 0                           | 0.00%             |
|                      | Area Lights                    | 53               | 0                           | 0.00%             |
|                      | Signs                          | 86               | 0                           | 0.00%             |
|                      | Concrete Pavement              | 87               | 0                           | 0.00%             |
|                      | Attenuators                    | 50               | 0                           | 0.00%             |
|                      | Nose Flashers                  | 49               | 0                           | 0.00%             |
|                      | Traffic Signal                 | 79               | 1                           | 1.27%             |
|                      | Toll Indicator                 | 86               | 0                           | 0.00%             |
|                      | Automatic Coin Machines        | 30               | 0                           | 0.00%             |
|                      | Gates                          | 2                | 0                           | 0.00%             |
|                      | Booth Pit                      | 12               | 0                           | 0.00%             |
| <b>Mechanical</b>    | Plumbing Fixtures              | 50               | 2                           | 4.00%             |
|                      | Sewer / Septic Lines           | 0                | 0                           | 0.00%             |
|                      | Well / Water Lines             | 49               | 0                           | 0.00%             |
| <b>Electrical</b>    | Building Electrical Fixtures   | 261              | 4                           | 1.53%             |
|                      | Generators                     | 29               | 0                           | 0.00%             |
|                      | Uninterrupted Power Supply     | 9                | 0                           | 0.00%             |
|                      | Wiring                         | 136              | 0                           | 0.00%             |



**CENTRAL TEXAS TURNPIKE SYSTEM**

| Table 12<br>Condition of Facilities - CTTS (All Roadways) - FY 2012 |                                |                  |                             |                   |
|---|--------------------------------|------------------|-----------------------------|-------------------|
| Category  | Element                        | Number Inspected | Number Rated Less Than Fair | Percent Deficient |
| <b>Architectural</b>  | Parking Area & Drive Pvm't     | 328              | 0                           | 0.00%             |
|   | Area Lights                    | 400              | 0                           | 0.00%             |
|   | Roof Drains                    | 23               | 0                           | 0.00%             |
|   | Irrigation System/Site Grounds | 32               | 0                           | 0.00%             |
|   | Exterior Walls                 | 115              | 1                           | 0.87%             |
|   | Exterior Windows               | 47               | 0                           | 0.00%             |
|   | Exterior Doors                 | 80               | 0                           | 0.00%             |
|   | Interior Walls & Ceilings      | 1025             | 0                           | 0.00%             |
|   | Interior Windows & Sills       | 105              | 0                           | 0.00%             |
|   | Interior Doors                 | 298              | 0                           | 0.00%             |
|   | Interior Flooring              | 290              | 0                           | 0.00%             |
|   | Fire Extinguishers & Cabinets  | 443              | 2                           | 0.45%             |
|   | Lockers                        | 4                | 0                           | 0.00%             |
|   | Interior Signs                 | 98               | 0                           | 0.00%             |
|   | HVAC System                    | 526              | 2                           | 0.38%             |
|   | Tunnel                         | 11               | 0                           | 0.00%             |
|   | Elevators, Dumbwaiters         | 6                | 0                           | 0.00%             |
|   | Bollards                       | 159              | 2                           | 1.26%             |
|   | Canopy                         | 223              | 0                           | 0.00%             |
|   | Finishes                       | 279              | 0                           | 0.00%             |
|   | Handrails                      | 30               | 0                           | 0.00%             |
|   | Fuel Storage                   | 32               | 0                           | 0.00%             |
|   | Systems (Comms/Alarms)         | 226              | 1                           | 0.44%             |
| <b>Toll Booths</b>  | Interior Booth                 | 69               | 0                           | 0.00%             |
|   | Window                         | 45               | 0                           | 0.00%             |
|   | Counter/Drawer                 | 79               | 0                           | 0.00%             |
|   | Toll A/C                       | 66               | 1                           | 1.52%             |
|   | Area Lights                    | 79               | 0                           | 0.00%             |
|   | Signs                          | 162              | 0                           | 0.00%             |
|   | Concrete Pavement              | 164              | 6                           | 3.66%             |
|   | Attenuators                    | 105              | 0                           | 0.00%             |
|   | Nose Flashers                  | 103              | 0                           | 0.00%             |
|   | Traffic Signal                 | 152              | 1                           | 0.66%             |
|   | Toll Indicator                 | 160              | 0                           | 0.00%             |
|   | Automatic Coin Machines        | 47               | 0                           | 0.00%             |
|   | Gates                          | 4                | 0                           | 0.00%             |
|   | Booth Pit                      | 18               | 0                           | 0.00%             |
| <b>Mechanical</b>   | Plumbing Fixtures              | 98               | 2                           | 2.04%             |
|   | Sewer / Septic Lines           | 1                | 0                           | 0.00%             |
|   | Well / Water Lines             | 98               | 0                           | 0.00%             |
| <b>Electrical</b>   | Building Electrical Fixtures   | 588              | 8                           | 1.36%             |
|   | Generators                     | 52               | 0                           | 0.00%             |
|   | Uninterrupted Power Supply     | 15               | 2                           | 13.33%            |
|   | Wiring                         | 240              | 0                           | 0.00%             |

## 2.4 Structures

The structures inspection consisted of a visual inspection of the bridge deck, deck joints, related vehicle containment elements, approach slabs, overhead/cantilever signs, and HMLTs. No major deficiencies were found during the assessment for any of the categories related to the CTTS structures. In addition, a summary of the Federal Bridge Inspection Reports for the CTTS bridges was compiled and reviewed. It should be noted that no significant deficiencies were reported or observed that pose a safety threat to users of Central Texas Turnpike System. Table 13 shown below summarizes all major structures of the CTTS.

| Table 13<br>Quantities of CTTS Major Structures - FY 2011 |        |       |        |        |
|---|--------|-------|--------|--------|
| Category  | Loop 1 | SH 45 | SH 130 | TOTALS |
| <b>Bridges</b>  | 14     | 67    | 123    | 204    |
| <b>Overhead/Cantilever Signs</b>                          | 24     | 75    | 88     | 187    |
| <b>High-Mast Light Towers</b>                             | 2      | 61    | 27     | 90     |
| <b>Totals</b>   | 40     | 203   | 238    | 481    |

### 2.4.1 Bridges

The Federal Bridge Inspection Summary Report (Appendix C) was compiled, reviewed, and is included on the CD located in the CD jacket inside the back cover of this report. The bridge components and major elements are listed in Table 14. The biennial inspection is based on three main components, comprised of a total of 93 elements and 117 sub-elements for fixed bridges only. A numerical score is generated for each component based on the rating scale shown in Table 15. All of the CTTS's bridges were inspected in FY 2012 and the results are included in this report. The next inspection of the bridges is scheduled for FY 2014. A review of the Federal Bridge Inspection Summary Report found no major deficiencies on any bridge within the CTTS.

In previous inspection reports, 210 bridges or culverts were included in the review. Four of these bridges were not funded as part of the 2002 Project and are not considered to be a part of the toll system. These have been transferred to another maintenance section. Two additional bridges are railroad bridges and the railroad is responsible for their maintenance.

A total of 635 components were inspected on the 204 structures within the CTTS. Only 8 components (1.3%) had a rating as low as 6 (Satisfactory), with the remainder of the ratings all in the 7 to 9 range (Good to Excellent). The components that rated a 6 involved channel erosion or sediment buildup at 4 locations, minor cracking exhibited at 3 culverts, and shrinkage cracks on the bridge deck at one location. No components rated below Satisfactory.



**Figure 13 - Bridges**

| Table 14<br>Bridge Components |                                    |                                     |
|-------------------------------|------------------------------------|-------------------------------------|
| Deck                          | Substructure                       | Superstructure                      |
| Concrete Deck/Slab            | Column or Pile                     | Closed/Open Girders                 |
| Deck Joints                   | Hollow Core Pile                   | Stringer                            |
| Approach Slabs                | Pier Wall                          | Thru Truss                          |
| Bridge Railing                | Abutment                           | Deck Truss                          |
|                               | Pile Cap/Footing                   | Arch                                |
|                               | Pile Jacket                        | Floor Beams                         |
|                               | Cap                                | Culvert                             |
|                               | Abutment Slope Protection          | Bearings                            |
|                               | Bulkhead/Seawall                   | Unpainted Steel Superstructure      |
|                               | Fender/Dolphin System              | Painted Steel Superstructure        |
|                               | Wingwall/Retaining Wall            | Prestressed Concrete Superstructure |
|                               | Mechanically Stabilized Earth Wall | Reinforced Concrete Superstructure  |

| Table 15<br>Bridge Inspection Rating Scale |                  |  |
|--|------------------|--|
| Grade                                      | Rating           | Description  |
| 9  | Excellent        | All elements are in excellent condition.   |
| 8  | Very Good        | There were no problems noted.  |
| 7  | Good             | Element has some minor problems. Minor maintenance may be needed.  |
| 6  | Satisfactory     | Element shows some minor deterioration. Maintenance may be needed.   |
| 5  | Fair             | Element is sound, but may have minor section loss. Minor rehabilitation may be needed.                                   |
| 4  | Poor             | Element exhibits advanced section loss. Major rehabilitation may be needed.  |
| 3  | Serious          | Element has loss of section that has seriously affected the structure. Repair or rehabilitation is required immediately. |
| 2  | Critical         | Element shows advanced deterioration. It may be necessary to close the bridge until corrective action is taken.          |
| 1  | Imminent Failure | Bridge is closed to traffic. Corrective action may permit light service.   |
| 0  | Failed           | Bridge is out of service and beyond corrective action.   |



### 2.4.2 Overhead/Cantilever Signs

Overhead and cantilever signs, such as the one pictured in Figure 12, are suspended above the travel way by large support structures and are included in the roadside category. These signs provide critical directional information, guiding the patron throughout the Central Texas Turnpike System. TxDOT performed an inspection of the overhead/cantilever structures at the completion of their construction. At that time, none of the overhead/cantilever sign components and subcomponents inspected were noted as being in less than fair condition.

Beginning in FY 2011, the overhead and cantilever signs have been inspected biennially. In FY 2011, the overhead and cantilever signs for SH 45 were inspected. This year, the overhead and cantilever signs for Loop 1 and SH 130 were inspected. The results of this year's inspection indicate that Loop 1 and SH 130's 112 overhead and cantilever signs are in very good condition. A total of 2 items were found to be in need of repair. These items have been reported to Austin District Maintenance. A summary of the results and the items in need of repair can be found in Appendix D.



Figure 14 - Overhead Sign Structure

### 2.4.3 High Mast Light Towers (HMLTs)

Similar to overhead/cantilever signs, HMLTs were inspected by TxDOT at the completion of their construction. No deficiencies were noted during the post construction inspection. These structures, like the one pictured in Figure 13, provide illumination for improved nighttime visibility at various locations along the CTTS, such as interchanges and toll facilities.

Beginning in FY 2011, the HMLTs are inspected biennially. In FY 2011, the HMLTs for SH 45 were inspected. This year, the HMLTs for Loop 1 and SH 130 have been inspected. The results of this year's inspection indicate that Loop 1 and SH 130's 29 HMLTs are in very good condition. A total of 7 minor deficiencies were found to be in need of repair. These items have been reported to Austin District Maintenance. A summary of the results and the items in need of repair can be found in Appendix D.



Figure 15 – High Mast Light Tower

# SECTION 3: Program Status, Commitments, and Recommendations

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Program Status, Commitments,  
and Recommendations

### 3. Program Status, Commitments, and Recommendations

#### 3.1 Program Status

The condition of the roadway, building and structure assets of the CTTS is excellent. This is due to the project having been opened to traffic relatively recently and the proactive maintenance program that has been put in place by TxDOT. Each of the improvements recommended in the FY 2011 Inspection Report were made by TxDOT Austin District Maintenance.

#### 3.2 Programmed Commitments

As required by the bond indenture, the Texas Transportation Commission (TTC) approved the FY 2012 maintenance budget prior to the start of the fiscal year. The amounts approved were \$7,876,234 for routine maintenance and \$2, 173,947 for the maintenance reserve account for 'Unusual and Extraordinary Maintenance' and periodic maintenance.

It is expected that TxDOT will expend approximately \$10.05 Million this fiscal year for routine maintenance and periodic maintenance. TxDOT has preliminarily programmed \$8,151,902 for routine maintenance for the CTTS for the Fiscal Year 2013. This funding level is appropriate to address the deficiencies identified by this report to continue to maintain the facility properly.

In FY 2011, the Austin District expended approximately \$4.8M in making major periodic maintenance improvements that included milling, sealing and overlaying the SH 130 frontage roads and major pavement rehabilitation to SH 45 and the SH 45 frontage roads. In FY 2012, the Austin District is scheduled to make additional pavement repairs to the SH 45 frontage roads and replace reflectorized pavement markings throughout the system. Total estimate for these improvements exceeds \$4M.

Atkins will work with TxDOT and will review and comment on the proposed Maintenance and Reserve account funding levels for FY 2013 prior to the approval of those funding levels at the August 2012 TTC meeting. The Maintenance Reserve account will be reviewed to ensure that the appropriate funding for FY 2013 is in place for necessary repairs.

#### 3.3 Recommendations

- Atkins recommends that those elements identified as sub-standard should be addressed and returned to the proper condition level. This will include the 26 facility assets noted as deficient that have been sent to Austin District



Maintenance. Also, we recommend that the two overhead and cantilever sign elements and the seven HMLT elements for Loop 1 and SH 130, that were found to be deficient, be repaired.

- Atkins also recommends that the Austin District review the overhead and cantilever sign and HMLT deficiencies noted in the FY 2011 Inspection Report for SH 45 to ensure that those repairs were made.



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