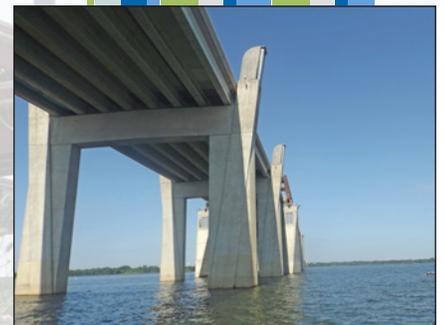
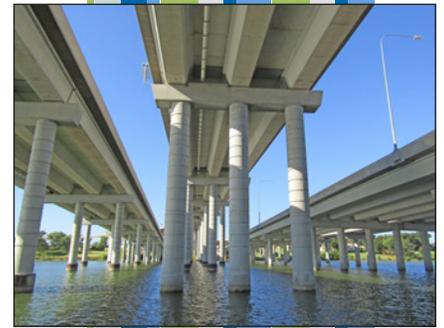




ANNUAL INSPECTION REPORT SYSTEM

FISCAL YEAR 2016

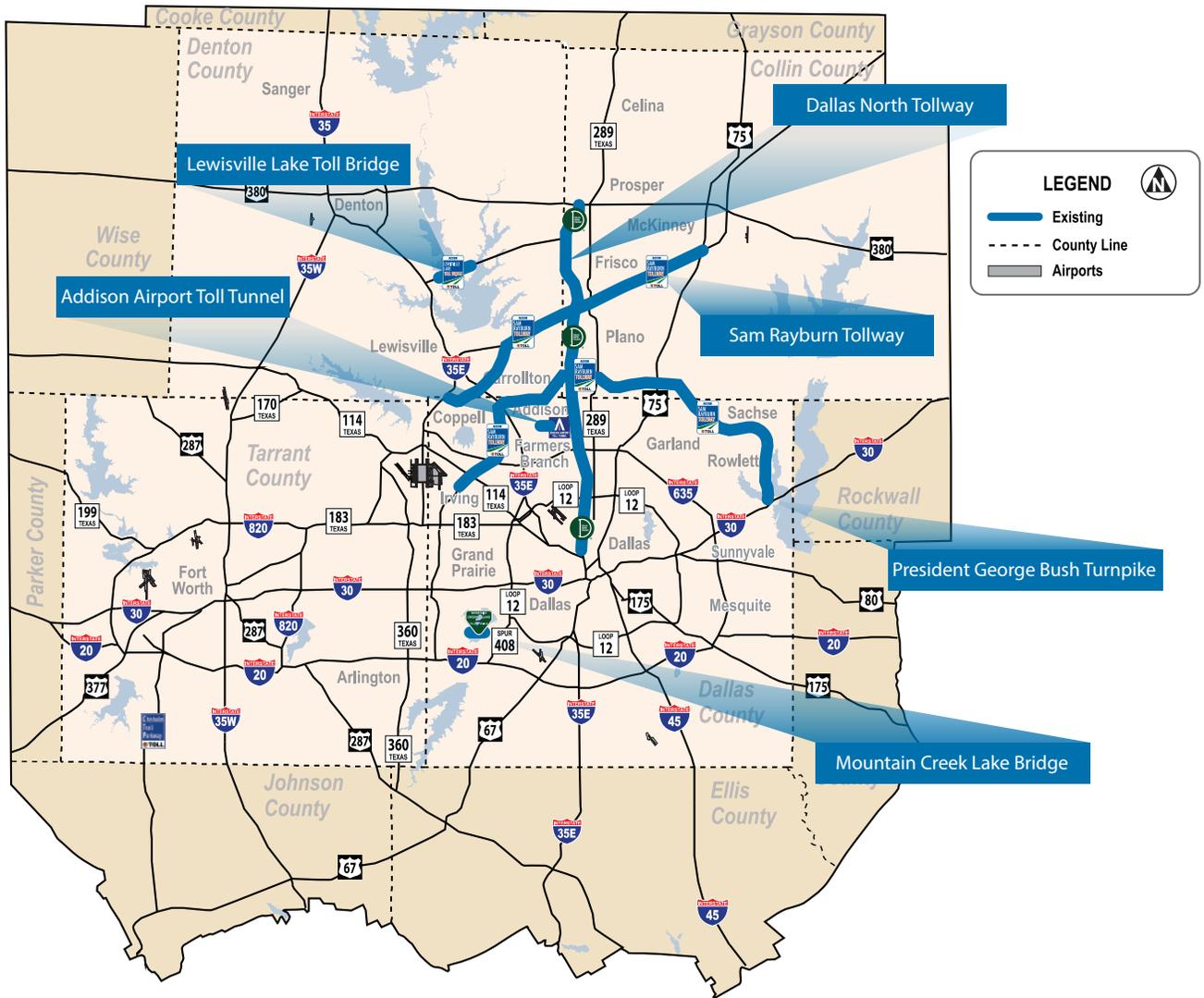


Prepared by Atkins North America, Inc.
General Engineering Consultant

September 2016



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September 30, 2016

Gerald Carrigan, Executive Director
North Texas Tollway Authority
5900 W. Plano Parkway
Plano, Texas 75093

Dear Mr. Carrigan:

As General Engineering Consultant to the North Texas Tollway Authority and in accordance with the requirements set forth in the NTTA System Amended and Restated Trust Agreement Section 504, Atkins North America, Inc. (Atkins) is pleased to submit the Fiscal Year 16 (FY16) System Annual Inspection Report.

Atkins completed the System inspections in September 2016 and reports that the system's Tollways, Toll Bridges, and Toll Tunnel have been maintained in good repair, working order and condition. This observation was based on a general visual inspection of the roadway, walls, bridges, tunnel, and facilities. Results of the inspections are presented in greater detail within this report. A complete list of findings has been transmitted to the Maintenance Department under a separate cover.

Atkins recommends that the Authority continue to implement the routing maintenance as budgeted and scoped, and to also implement the planned major maintenance projects planned for the ensuing fiscal year. Through coordination with NTTA staff and review of the anticipated Reserve Maintenance Projects scheduled for FY17, the following budgets, to be presented at the October 6, 2016, Finance and Audit Committee meeting and subject to Board approval at the December board meeting, are recommended:

Operation and Maintenance Fund (OMF): \$155.1 million
Reserve Maintenance Fund (RMF): \$ 32.8 million

The overall condition of the Tollways, Toll Bridges, and Toll Tunnel, along with the appropriate funding levels for the System operating budgets, exemplifies the North Texas Tollway Authority's commitment to maintain and operate a safe and reliable toll road system in the North Texas region.

Respectfully submitted,



R. Keith Jackson, PE
General Engineering Consultant
Project Director

cc: Elizabeth Mow, PE, NTTA (w/1 copy)
Mark Pavageau, PE, NTTA (w/1 copy)
Victor Pavloff, PE, NTTA (w/1 copy)
Dana Gibson-Boone, NTTA (w/1 copy and pdf electronically)
Scott Brush, PE, VRX (w/1 copy)
File

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Annual Inspection of the North Texas Tollway Authority Systems

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Acronyms and Abbreviations

AATT	Addison Airport Toll Tunnel
BRINSAP	Bridge Inventory Inspection and Appraisal Program
CMU	Concrete Masonry Unit
COSS	Cantilever Overhead Sign Support
CR	County Road
CTP	Chisholm Trail Parkway
DNT	Dallas North Tollway
FY	Fiscal Year
GASB	Governmental Accounting Standards Board
GEC	General Engineering Consultant
HMIP	High-Mast Illumination Pole
IH	Interstate Highway
LLTB	Lake Lewisville Toll Bridge
MCLB	Mountain Creek Lake Bridge
MLP	Main Lane Plaza
MMC	Maintenance Management Consultant
MRP	Maintenance Rating Program
NTTA	North Texas Tollway Authority
OMF	Operation and Maintenance Fund
OSB	Overhead Sign Bridge
OSS	Overhead Sign Structure
PGBT	President George Bush Turnpike
QMS	Quality Management System
RMF	Reserve Maintenance Fund
SH	State Highway
SPS	Special Projects System
SRT	Sam Rayburn Tollway
TRM	Total Routine Maintenance
TxDOT	Texas Department of Transportation
US	U.S. Highway
UTBHMWC	Ultra-Thin Bonded Hot Mix Wearing Course

Executive Summary

As described in the requirements set forth in the North Texas Tollway Authority System Amended and Restated Trust Agreement Section 504, the Consulting Engineers make an inspection of the Tollway on or before the 90th day prior to the end of the fiscal year and submit a report setting forth (a) their findings whether the Tollway has been maintained in good repair, working order, and condition and (b) their advice and recommendation as to the proper maintenance, repair, and operation of the Tollway during the ensuing fiscal year and an estimate of the amount of money necessary for such purposes.

The Tollway (or System) consists of the Dallas North Tollway, President George Bush Turnpike, Sam Rayburn Tollway, Mountain Creek Lake Bridge, Lewisville Lake Toll Bridge, Addison Airport Toll Tunnel, and associated facilities/buildings. The System encompasses much of the North Texas region and spans Dallas, Collin, and Denton Counties.

Atkins North America, Inc. (Atkins), as General Engineering Consultant, completed the inspections in September 2016 and is pleased to report that

the system has been maintained in good repair, working order, and condition. This observation was based on a general visual inspection of the roadway, walls, bridges, tunnel, and facilities/buildings.

Atkins recommends that the Authority continue to implement the routine maintenance as budgeted and scoped, and to also implement the Reserve Maintenance Projects planned for the ensuing fiscal year. Through coordination with the NTTA Staff, and in review of the anticipated Reserve Maintenance Projects scheduled for fiscal year 2017 (FY17), the following budgets are recommended, to be presented at the Finance and Audit Committee meeting on October 6, 2016, and subject to Board approval in December 2016:

Operation and Maintenance Fund	\$155.1 million
Reserve Maintenance Fund	\$ 32.8 million

The overall condition of the System, and funding levels for the System operating budgets, exemplifies the North Texas Tollway Authority's commitment to maintain and operate a safe and reliable toll road system for the North Texas region.

1.0 Introduction

1.1 Background

In September 2016, Atkins completed the annual inspection of the North Texas Tollway Authority (NTTA) System. This inspection was done in accordance with Section 504 of the Amended and Restated Trust Agreement (Appendix A), which requires the General Engineering Consultant (GEC) to perform a condition assessment of the Tollway (System) and submit a report with their findings. These inspections provide a basis to plan funding levels needed to maintain assets for the maintenance portion of the Operation and Maintenance Fund (OMF) and the Reserve Maintenance Fund (RMF) in the annual operating budget for the ensuing fiscal year (FY).

1.2 Inspection Process

The GEC Annual Inspection assessed four main elements: roadway, bridges, walls, and buildings/facilities. The roadway portion of the inspection focused on the pavement, drainage structures, erosion issues, signing, striping, illumination, barriers, main lane and ramp plaza gantries, and overall safety of the corridor. The bridge inspection addressed the deck, superstructure, and substructure. The wall inspection focused on panels, joints,

copings, flumes, mow strips, inlets, rails, slope paving, visible underdrain pipes, sound walls, and adjacent elements. The buildings/facilities inspection focused on the interior and exterior of facilities-maintenance facilities, sand storage areas, and administrative office complexes.

Inspections were conducted in accordance with NTTA's Project Delivery Department's Quality Management System (QMS) Manual Procedure GEC-01 (Appendix B) and involve a general visual examination of element features. No detailed in-place or destructive testing was performed. The opinions, statements, and recommendations made in this report are based solely on conditions revealed by these inspections. No representations or warranty is made that all defects have been discovered or that a defect will not appear at a later time. Nothing contained herein shall be deemed to give any third party a claim or right of action against the NTTA, its employees, the GEC, or the Maintenance Management Consultant (MMC), nor create a duty on behalf of the NTTA, its employees, the GEC, or the MMC to such third party.

Items observed were recorded and rated using a five-point scale (Table 1).

Table 1: GEC Annual Inspection Rating Scale

Grade	Rating	Description
5	Excellent	Feature in like-new condition. No maintenance required.
4	Good	Feature performing as expected. Routine maintenance necessary.
3	Average/Fair	Feature functionality/operability is fair. Maintenance required to prevent future damage to system.
2	Poor	Feature functionality/ operability is substandard. Maintenance required to protect public or system.
1	Emergency	Feature functionality/operability is critical. Immediate maintenance required to protect public or system.

1.3 Description of System

The NTTA System consists of the Dallas North Tollway (DNT), President George Bush Turnpike (PGBT), Sam Rayburn Tollway (SRT), Mountain Creek Lake Bridge (MCLB), Lewisville Lake Toll Bridge (LLTB), Addison Airport Toll Tunnel (AATT), and associated facilities/buildings and serves as a vital component of the transportation system in the North Texas region (Figure 1).

1.3.1 Dallas North Tollway

The DNT extends from Interstate 35E (IH-35E) in downtown Dallas north approximately 32 miles to U.S. Route 380 (US 380) in Frisco. It is a convenient north-south connection for motorists traveling between Dallas, Highland Park, University Park, Addison, Farmers Branch, Plano, and Frisco.

The initial section from downtown Dallas to Interstate Highway 635 (IH-635) opened to traffic in June 1968. In 1987 it was extended to Briargrove Lane in Far North Dallas and then to State Highway 121 (SH 121) in Plano in 1994. An extension to Gaylord Parkway in Frisco opened in 2004 and again to US 380 in Frisco in 2007. The fully directional ramp interchange at the SRT opened in 2011.

NTTA maintains 179 main lane miles of the corridor. The frontage roads of the DNT, referenced as Dallas Parkway, are not maintained by NTTA. There are 105 total bridges on the DNT. A portion of the DNT, between IH-635 and SRT, was under construction at the time of the inspection and was omitted from this year’s inspection.

1.3.2 President George Bush Turnpike

The PGBT extends from Belt Line Road in Irving clockwise approximately 40 miles to Interstate 30 (IH-30) in Garland. The PGBT provides a vital route through the DFW Metroplex and offers access to Irving, Carrollton, Dallas, Richardson, Sachse, Rowlett, and Garland.

Segment 1 (1A-1C), extending from Midway Road to Avenue K in Collin County, opened to traffic in 1999. Segment 2 (2A-2B), extending from Avenue K to Brand Road in Garland, opened in 2000.

Segment 3, from Midway Road to the IH-35E interchange in Carrollton, opened in 2001. Segment 4, from the IH-35E interchange to the IH-635 interchange in Irving, opened in 2005. Segment 5, extending from the IH-635 interchange to Belt Line Road, opened to traffic in 2001. The Eastern

Extension of the PGBT, extending from Brand Road to the IH-30 near Lake Ray Hubbard, opened in 2011.

The non-tolled segment of the PGBT from Belt Line Road to State Highway 183 (SH 183) is owned and maintained by TxDOT. The section of the PGBT from SH 183 to IH-20, known as the PGBT Western Extension (PGBT WE), is part of NTTA's Special Projects System (SPS). The PGBT WE was inspected separately as part of the SPS Annual Inspections. NTTA primarily does not maintain the frontage roads of the PGBT, referenced as State Highway 161 (SH 161) west of IH-35E and State Highway 190 (SH 190) east of IH-35E. There are 240 main lane miles and 4 frontage road miles on the PGBT with 184 total bridges. A portion of the PGBT, between White Rock Creek and Main Lane Plaza 7, was under construction at the time of the inspection and was omitted from this year's inspection.

1.3.3 Sam Rayburn Tollway

The SRT, formerly known as SH 121, extends from Business SH 121 near the Denton/Dallas county line northeast approximately 26 miles to east of US 75 in Collin County. The SRT offers access to Coppell, Carrollton, Lewisville, The Colony, Plano, Frisco, and McKinney.

Segment 1, extending from Denton Tap Road to Old Denton Road, opened to traffic in 2006. Segment 2, extending from Old Denton Road to Hillcrest Road, opened in 2008. Segments 1 and 2 were constructed under the direction of the Texas Department of Transportation (TxDOT). Segment 3, extending from Hillcrest Road to Hardin Boulevard, opened in 2009. Segment 4, extending from Hardin Boulevard to east of US 75 (including SRT/US 75

interchange) opened in 2011. Segment 5, the previously mentioned SRT/DNT interchange, also opened in 2011.

The frontage roads of the SRT, which retained the SH 121 designation, are also maintained by NTTA. A total of 154 main lane miles and 154 frontage road miles are maintained. There are 156 total bridges on the SRT.

1.3.4 Mountain Creek Lake Bridge

The MCLB provides an east-west crossing of Mountain Creek Lake from the Spur 303/SE 14th Street intersection in Grand Prairie to the Spur 303/Mountain Creek Parkway intersection in the Oak Cliff section of Dallas. The approximately 2-mile facility links communities in the southern part of Dallas County with those in Tarrant County and provides convenient access to businesses, recreational facilities, and other destinations in the Mid Cities area.

MCLB opened to traffic in April 1979. The bridge structure is 7,425 feet long and provides two lanes of travel across the lake. There is a toll gantry on the western approach of the facility.

1.3.5 Lewisville Lake Toll Bridge

The LLTB provides an east-west crossing of the northwestern arm of Lake Lewisville in Denton County. The LLTB is part of the Lewisville Lake Corridor, which connects IH-35E at Swisher Road to the DNT at Eldorado Parkway. The entire corridor is approximately 13.8 miles long and provides a connection to several destinations in Denton County.

The LLTB is an approximately 2-mile facility that opened to traffic in 2009 with the lake bridge spanning 8,520 feet in length. In addition to offering convenient access across the lake, the LLTB serves as a unique landmark with a 360-foot steel truss that rises 60 feet above the roadway. The truss spans 52 feet above the water surface to allow for the clearance of water vessels. The bridge provides four lanes of travel with a toll gantry at the western approach.

1.3.6 Addison Airport Toll Tunnel

The AATT provides an east-west route under Addison Airport in northern Dallas County. The tunnel relieves congestion in the Far North Dallas and Addison areas and provides an alternate route to the heavily traveled Trinity Mills and Belt Line Roads. The facility ties into Keller Springs Road on both sides of the airport and serves as a link between DNT and IH-35E.

The two lane tunnel, which opened to traffic in 1999, is approximately 1,650 feet long with the entire facility spanning approximately 3,600 feet. The toll gantry is located west of the tunnel.

1.3.7 Facilities/Buildings

NTTA facilities provide support for the safe and reliable operation of the system. These facilities include the Gleneagles Office Center in Plano, the Ohio Drive Maintenance Service Center, the Frisco Maintenance Center, as well as roadway plaza facilities.

1.4 Maintenance Program Overview

1.4.1 Organization

The Maintenance Department for NTTA is responsible for the normal day-to-day routine maintenance for the System, Special Projects System (SPS), and facilities. The Project Delivery Department is responsible for reserve maintenance projects and major maintenance projects for the System, SPS, and facilities. These Systems total 139 center lane miles of limited access toll roads and include 745 main lane miles and 210 frontage road miles. This network includes 603 bridges, including bridge class culverts, and one tunnel.

Major Maintenance Projects include repairs and maintenance, painting, renewals, replacements, improvements and other projects necessary for the safe and efficient operation of the System and SPS and to prevent loss of revenue. These projects include such costs for engineering, fleet and equipment purchases/additions and replacements, maintenance expenses for roadway, bridge, buildings, walls, etc., and operating expenses not occurring at annual or shorter periods.

Utilizing both in-house and outsourced resources to accomplish the requirements of routine maintenance, the NTTA has created a check and balance in providing these services to improve efficiency and to be cost effective. The overall goal is to have

about 50% of these services outsourced to contractors. Currently, the Total Routine Maintenance (TRM) contract for the entire PGBT, including the PGBT WE, is outsourced to Roy Jorgensen Associates, Inc. This contract is an 8-year contract and is currently scheduled for completion by November 2019. The TRM contract for the Chisholm Trail Parkway (CTP) is also being outsourced to Roy Jorgensen Associates, Inc. This contract is a 3-year contract and was executed in August 2014.

The Project Delivery Department staff is supported by the MMC, VRX, Inc. As the MMC, VRX provides professional services in support of the Project Delivery Department responsibilities, which include items such as:

- Specialized annual inspections
- Oversight/direction of roadway repairs by NTTA in-house forces
- Plans, specifications, and estimates of Project Delivery Department major maintenance projects
- Update of capital improvement plan as necessary to preserve NTTA assets
- Identification of appropriate maintenance and repair actions and cycles to minimize deteriorating conditions of the NTTA assets
- Environmental support

In addition, the MMC provides resources to support the NTTA in the management and administration of the Project Delivery Department activities associated with major maintenance projects. The disciplines VRX utilizes as the MMC include: civil, structural, traffic, environmental, mechanical and electrical engineering, and architectural services.

1.4.2 Maintenance Rating Program

The NTTA instituted a Maintenance Rating Program (MRP) in 2002 to evaluate the performance of both in-house and outsourced resources. As part of the MRP, the NTTA established acceptable levels of maintenance regardless of road type, construction history, or traffic patterns. The MRP monitors current operations and is used to identify recurring problems. The program allows for early identification of maintenance issues, increases accountability, and provides assurance that assets are being maintained adequately.

Under the MRP, sample units for different asset groups (roads, bridges, and facilities) are randomly selected for the entire year. Inspections are conducted monthly on a portion of the sample units for each corridor. Individual characteristics are evaluated on Pass/Fail criteria. The resulting scores are weighted and combined for the asset groups. A total composite score is what is used to evaluate maintenance effectiveness.

1.4.3 Specialized Inspections

The NTTA conducts specialized inspections for the roadway pavement, overhead sign structures (OSS), high-mast illumination poles (HMIP), and AATT. TxDOT is responsible for the specialized bridge inspections. These inspections are conducted every two years for each of the bridges and the reports are filed with the TxDOT Bridge Inventory Inspection and Appraisal Program (BRINSAP). TxDOT also performs underwater inspections on bridge columns every five years.

Each year the NTTA contracts with a specialized pavement inspection firm through the MMC to inspect and assess current conditions of both the main lane and frontage road pavement maintained by the NTTA's maintenance staff. The 2016 Pavement Management Program Report (Pavement Report) did not identify any significant findings. The 10-year capital plan will be included in the final 2016 Pavement Management Report.

NTTA's overhead sign structure (OSS) inspection program requires all cantilever overhead sign supports (COSS), overhead sign bridges (OSB), and "Tee" overhead structures to be inspected on a five-year cycle by corridor. No significant findings from the OSS inspections in 2015 and those completed so far in 2016. A continued monitoring program of all structures is recommended in accordance with OSS inspection program schedule.

NTTA's on-going HMIP inspection program requires each HMIP be inspected once every five years. The HMIP inspections were in progress at the time of this report. A continued monitoring program of all HMIPs is recommended to ensure the structural performance of the poles.

The latest available BRINSAP reports for the system bridges were reviewed. The BRINSAP reports rate the condition of each bridge element on a scale from 0 to 9, with 9 being excellent. A review of these reports indicates that most bridge elements on the System are in good to excellent condition

(7–9 rating). Elements rated 6 or below (satisfactory condition) were reviewed.

Every five years, NTTA also contracts for an inspection and evaluation of the AATT. This inspection focuses on structural, mechanical, and electrical elements. The tunnel was inspected in 2014 by the MMC subconsultant Gannett-Fleming, Inc. As noted in the report, structurally the tunnel was in good condition with minor issues noted—mainly cracks, spalls, delaminations/voids, and water infiltration. Mechanically, observations included the ventilation fans, the fire protection system, drainage sump pumps, and the electrical room heating and air conditioning roof top unit. Electrically, most elements were in good condition with minor observations noted with the power system.

1.4.4 Governmental Accounting Standards Board Requirements

Governmental Accounting Standards Board (GASB) Statement 34 requires all governments and governmental organizations perform asset condition assessments every three years. The MMC develops and maintains an inventory of NTTA's infrastructure assets throughout the System. Condition ratings and a replacement cost are assigned to each asset. The MMC inventory and GEC inspection provide the foundation for complying with GASB Statement 34. The 2016 GASB rating for the System is 8.7 out of 10 , and the 2016 GASB rating for the Special Projects System is 9.2 out of 10.

2.0 Inspection Findings

2.1 Overview

The System has been maintained in good repair, working order, and condition. Using the GEC Annual Inspection Rating Scale, no observations were rated below a 3 on the four main elements inspected.

The following sections include observations from each corridor with respect to the four main elements: roadway, bridges, walls, and facilities/buildings. Upcoming projects and additional recommendations to address these are presented in the following section.

2.2 Dallas North Tollway Findings

2.2.1 Dallas North Tollway Roadway

The majority of roadway observations were located on the older sections of the DNT from the south end to IH-635. These observations include rail damage and deterioration, curb inlet damage, erosion, faded pavement markings, and faded/damaged signs.

Median rail damage and curb inlet damage were most prevalent south of IH-635.

Erosion was most notable at the creeks north of Sam Rayburn Tollway including Panther Creek, Stewart Creek, and Cottonwood Branch.

Pavement deterioration was characterized by pavement cracking and pot holes. The deterioration was mainly on the ramps south of IH-635 including ramps to Northwest Highway, Forest Lane, Royal Lane, Lovers Lane, Mockingbird Lane, Lomo Alto Drive, and Wycliff Avenue.



Figure 2: Spalling Main Lane Inlet (S. of Forest Lane)



Figure 3: Spalling Center Concrete Barrier (S. of Meaders Lane)



Figure 4: Damaged Exit Sign (S. of IH-635 in NB lanes)

2.2.2 Dallas North Tollway Bridges

Bridge observations included armor joint damage, beam end cracking, and abutment backwall cracking.

Cracking in abutment backwall was observed at various locations throughout the tollway.

2.2.3 Dallas North Tollway Walls

Notable wall observations include retaining wall panel and coping damage and aesthetic degradation.

Retaining wall panels and coping were observed with minor cracking and spalling at various locations throughout the tollway.

The chain link fences on top of the retaining walls between Northaven and University Boulevard have caused rust stains down the wall.

2.2.4 Dallas North Tollway Facilities/Buildings

There are three Main Lane Plaza (MLP) facilities on the DNT. MLP 2 was not inspected because it is slated for demolition.

At MLP 3, located near Parker Road, several indications on ceiling of roof or mechanical leaks, several stains on ceilings of possible roof or mechanical leaks, moisture intrusion in the Concrete Masonry Unit (CMU) wall is causing cracking and deterioration of finishes.



Figure 5: Abutment Backwall Cracking at Alpha Road



Figure 6: Beam End Cracking at Forest Lane



Figure 7: Retaining Wall between Arapaho Road and Beltline Road

At MLP 4, located near Eldorado Parkway, observations include leaks causing water damage on ceilings and at windows, rust on exterior railings, and uneven sections of roof indicating possible water damage.

2.2.5 Dallas North Tollway Changes from FY15

Column spalls have been repaired since last year's inspection. Retaining walls, coping damage, and backwall repairs completed. Ramp repairs. Erosion mitigation at Panther Creek. Pavement profiling completed in various locations of Segments 2 and 4. Striping completed in Segment 1 (S. End to 635) and Segment 4 (SRT to 380).



Figure 8: MLP4 Roof Bubbling



Figure 9: MLP4 Ceiling Damage



Figure 10: MLP3 Cracking and Deterioration of Wall Finishes

2.3 President George Bush Turnpike Findings

2.3.1 President George Bush Turnpike Roadway

Roadway observations include faded pavement markings, pavement deterioration, barrier damage, erosion, curb damage, and faded signs.

Faded pavement markings were observed throughout but mainly on service roads, intersections, and exits.

Pavement deterioration including potholes and cracking was observed at various locations throughout the roadway. Segment 3 specifically showing signs of asphalt fatigue and wear.

Minor concrete barrier spalls were observed at various locations throughout the corridor, and precast concrete barriers were out of alignment in Segment 8.

Erosion was noted under bridges and in landscaping areas.



Figure 11: Faded Pavement Markings and Aging Expansion Joint (PGBT WB mainlanes at SH 114)



Figure 12: Curb Damage (Turnaround at Gateway Drive)



Figure 13: Overhead Sign Faded and Deterioration of Lettering (PGBT NB and Josey Lane exit)

2.3.2 President George Bush Turnpike Bridges

Bridge observations include degrading expansion joints and abutment backwall cracking.

Aging sealed expansion joints noted at a few bridges including: SH 114, Royal Lane, Brand Road, and Spring Creek.

Cracking abutment backwalls were observed at several bridges throughout the tollway. The cracking appears to be aesthetic in nature, not affecting the structural integrity of the bridge.

The substructure of the main lane bridge over Lake Ray Hubbard was inspected this year. The substructure is in good condition with only a few minor spalls in the sacrificial column protection observed due to high water levels during this year's inspection.

2.3.3 President George Bush Turnpike Walls

Wall observations included graffiti, retaining wall damage, cracked coping, and water stains on retaining walls.

A few retaining walls were found with graffiti, but none of the graffiti observed was visible from the traveled way. There were several observations of minor panel and coping cracks and spalls on the retaining walls throughout the System.

Minimal water stains on retaining walls were observed under bridges throughout the System.



Figure 14: Bridge Backwall Cracking (SB lanes at Jupiter Road bridge)



Figure 15: Expansion Joint (SB main lanes at SH114 bridge)



Figure 16: Cracked Coping (SW corner of Renner Road and PGBT bridge)

2.3.4 President George Bush Turnpike Facilities/Buildings

There are five main lane plazas on the PGBT: MLP 6 near Shiloh Road, MLP 7 near Coit Road, MLP 8 near Frankford Road, MLP 9 near Sandy Lake Road, and MLP 10 near Beltline Road.

Observations identified throughout the facilities included deteriorating paint on exterior gates, interior stairs, evidence of water leaks, cracking in CMU walls, and lights not functioning.

2.3.5 President George Bush Turnpike Changes from FY15

The damaged armor joints noted in the previous year's report have been repaired. Several areas of curb damage noted in last year's inspection have been repaired. Erosion noted in last year's report have been mitigated; abutment backwall cracks noted in last year's inspection have been repaired. Segments 1, 2, and 3 have been striped. Pavement profiling in Segment 5. Mill, overlay and striping in Segment 4.



Figure 17: MLP 6 Stairs



Figure 18: MLP 8 Corner Masonry



Figure 19: MLP 7 Ceiling Stain

2.4 Sam Rayburn Tollway Findings

2.4.1 Sam Rayburn Tollway Roadway

Roadway observations included erosion, barrier damage, curb damage, pavement damage, street light missing, and sign damage.

Erosion was noted in various areas throughout the corridor in landscaped areas.

Concrete barrier cracks and spalls were noted on the main lanes throughout the corridor. There are areas of misaligned barriers.

Curb damage was observed on the frontage roads and cross streets median islands.

Potholes and pavement cracking were noted on the main lanes and frontage roads in isolated locations.



Figure 21: Missing/Spalling Curb (EB Turnaround at Lake Vista Drive)



Figure 22: Damaged Sign at Huffines Boulevard



Figure 20: Faded Pavement Markings (Hebron Parkway entrance ramp)



Figure 23: Erosion in Landscape Areas (NB mainlanes at Legacy Drive)

2.4.2 Sam Rayburn Tollway Bridge

Bridge observations included abutment backwall cracking, erosion near columns and near abutment riprap, minor bent cap cracking, and damage to handrail under bridge.

Abutment backwall cracking was observed at several locations throughout the corridor. The cracking appears to be aesthetic in nature, not affecting the structural integrity of the bridge.

Erosion was noted near columns and abutment riprap at several bridges throughout the System. Water levels were high during this year's inspections.



Figure 24: Erosion near Bridge Abutment at Josey Lane



Figure 25: Bridge Backwall Cracking, West of Ridgemont Drive



Figure 26: Concrete Barrier Spalling (SB on MacArthur Blvd. Bridge)

2.4.3 Sam Rayburn Tollway Walls

Wall observations include panel misalignment, panel spalling, and panel and coping damage.

Minor retaining wall panel and coping damage was observed at several locations.

2.4.4 Sam Rayburn Tollway Facilities/Buildings

There are no facilities/buildings located on Sam Rayburn Tollway.

2.4.5 Sam Rayburn Tollway Changes from FY15

No backfill coming through the retaining walls was noted this year. Some curbs and abutment back-walls noted damaged in last year's report have been repaired. Striping on Segment 3 mainlanes and frontage road at IH 35E. NB approach at Preston Road profiled. Joint repair on frontage road at Josey Lane.



Figure 27: Coping out of Position (Denton Tap Road, EB turnaround)



Figure 28: Coping Cracked and Spalling (SB lanes, bridge at Spring Creek Pkwy)

2.5 Mountain Creek Lake Bridge Findings

2.5.1 Mountain Creek Lake Bridge Roadway

Roadway observations included shoulder pavement degradation, curb damage, and faded pavement markings.

The asphalt shoulders on both approaches to the bridge have degraded causing cracking and spalling.

2.5.2 Mountain Creek Lake Bridge Bridges

Bridge observations include beam end cracking and column casing spalls.

2.5.3 Mountain Creek Lake Bridge Walls

Mountain Creek Lake Bridge has one retaining wall on the east end that is in good condition with no notable observations.

2.5.4 Mountain Creek Lake Bridge Facilities/Buildings

The facility at Mountain Creek Lake Bridge is scheduled for demolition FY17.

2.5.5 Mountain Creek Lake Bridge Changes from FY15

The separation and cracking in the interior drywall of the facility has been repaired. Potholes have been repaired since last year's inspection.



Figure 29: Faded Pavement Markings at Bridge & Road Transition (east end of bridge)



Figure 30: Bridge Beams Spalling in Multiple Locations



Figure 31: Shoulder Deterioration at Multiple Locations

2.6 Lake Lewisville Toll Bridge Findings

2.6.1 Lake Lewisville Toll Bridge Roadway

Consistent with the age of the roadway, few issues were found concerning the roadway, some cracking observed.

2.6.2 Lake Lewisville Toll Bridge Bridges

Observations concerning the bridge included a few spalls in column casings and one spall on a column and erosion.

Water levels high during this year's inspection. On the west end, a water filtration box has corroded and is leaking.

2.6.3 Lake Lewisville Toll Bridge Walls

No observations were reported concerning the retaining walls.

2.6.4 Lake Lewisville Toll Bridge Facilities/Buildings

There are no facilities or buildings located on the Lake Lewisville Toll Bridge.

2.6.5 Lake Lewisville Toll Bridge Changes from FY15

No changes were observed since the previous year.



Figure 32: Mainlane Concrete Damage (EB lanes at east end of bridge)



Figure 33: Erosion under Concrete Barrier (west end of bridge under main lanes)



Figure 34: Leaking Filtration Box (west end of bridge under main lanes)

2.7 Addison Airport Toll Tunnel Findings

2.7.1 Addison Airport Toll Tunnel Roadway

Observations on the roadway include faded pavement markings throughout the tunnel and curb damage on the median at the east entry.

2.7.2 Addison Airport Toll Tunnel Bridges

Observations concerning the tunnel include cracking in the east entry portal, a spall in the east entry portal wall, and debris collecting in the drains preventing proper drainage.

2.7.3 Addison Airport Toll Tunnel Walls

Wall observations include water seepage through walls, and vegetation growth and leaking joints between panels. Water was observed seeping between panels on both walls on the west end and the north wall on the east end. Water is also seeping through the bricks on the south wall on the east end. On the west end seals between panels are missing from the north side wall.

2.7.4 Addison Airport Toll Tunnel Facilities/Buildings

No observations were noted at the facility.

2.7.5 Addison Airport Toll Tunnel Changes from FY15

No changes observed since the previous year.

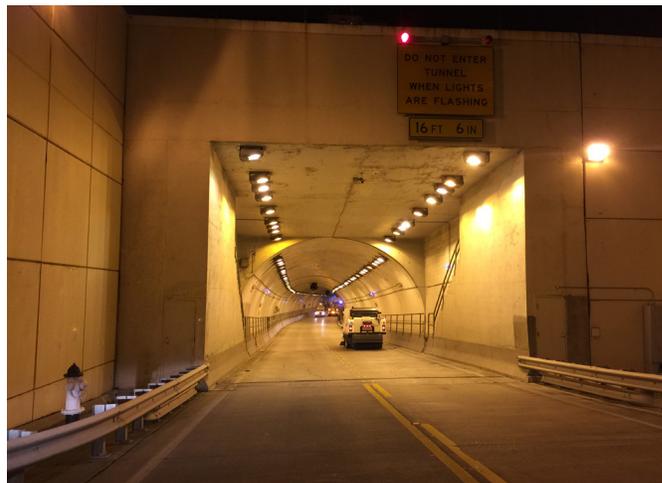


Figure 35: Faded Pavement Markings at East End of Tunnel



Figure 36: Water Seeping between Panel Wall at West End of Tunnel



Figure 37: Coping of Wall Panels at West End of Tunnel

2.8 Facility (Other) Findings

2.8.1 Facilities/Buildings

Other inspected facilities include the Ohio Drive Maintenance Service Center, Frisco Maintenance Service Center, and both Buildings of the Gleneagles Office Center in Plano.

Observations at the Ohio Drive Maintenance Service Center include rust stains on the concrete from the pipe hand rails, gutter damage, wall damage, and water leaks.

Observations at the Frisco Maintenance Service Center include cracked concrete curbs, entrance door sticking, interior pipes not insulated, and water leaks.

Observations at the Gleneagles Office Center at 5900 West Plano Parkway include rust on the west entry canopy, water stains on ceiling tiles, minor wall damage, areas of sidewalk spalling, water leaks at windows, and cracking and uneven sidewalk panels.

Observations at the Gleneagles Office Center at 5910 West Plano Parkway include damaged and water-stained ceiling tiles, minor wall damage, leaking faucets, and entry doors not shutting properly.

2.8.2 Facility Changes from FY15

At Gleneagles 5900, concrete sidewalk has been repaired.

3.0 Projects Completed since FY15 Inspections

Listed below are projects that have been completed since the FY15 inspections.

3.1 Dallas North Tollway Completed Projects

- Segments 2 & 4 Pavement Profiling (various locations)
- Segment 4 Striping (SRT to 380)
- Segment 1 Striping (S. End to 635)
- Ramp Repairs
- Erosion Mitigation at Panther Creek

3.2 President George Bush Turnpike Completed Projects

- Segments 1, 2, & 3 Striping
- Pavement Profiling in Segment 5
- Segment 4 Mill, Overlay, and Striping

3.3 Sam Rayburn Tollway Completed Projects

- Frontage Road Striping at IH 35E
- Segment 3 Striping (Mainlanes)
- NB Approach at Preston Pavement Profiling
- Frontage Road at Josey - Joint Repair

3.4 Facilities Completed Projects

- Repairs at Gleneagles Driveway

4.0 Future Projects and Recommendations

4.1 Overview

Through coordination with the Maintenance Department and MMC, a plan will be developed to repair, replace, or monitor the above observations. This section summarizes projects the Maintenance Department has developed to address these and identifies additional observations that require attention.

4.2 Dallas North Tollway Recommendations

Several projects have been developed or are in the process of being developed to address the needs of the DNT. These projects include the following: curb and inlet top repairs, pavement repairs (SRT to 380), ramp repairs (Oak Lawn entrance, SB entrance at Royal, and NB exit to NW Highway), UTBMWC overlay and pavement markings (Segment 1—south end to Harvest Hill), bridge deck joint seal replacement/armor joint repairs, cross street bridge deck repairs.

Of the previously mentioned observations, many fall under the scope of routine maintenance. These include pavement cracking and potholes, minor cracks and spalls in retaining wall panels and coping at various locations throughout, misaligned roadway barrier, paint and leak repair at MLP 3 and MLP 4.

It is also recommended that the following observations be monitored for further degradation: armor joint damage, spalling and cracking on beam ends; abutment backwall cracking at various locations; erosion at Stewart Creek and Cottonwood Branch.

4.3 President George Bush Turnpike Recommendations

Several projects have been developed or are in the process of being developed to address the needs of the PGBT. These projects include the following: overhead and small sign replacement (Sections 3-4), restripe mainlanes (Section 1, 2, and 5), and erosion mitigation.

The vast majority of the observations on the PGBT fall under the scope of routine maintenance. These include: various locations of pavement cracking and potholes; isolated locations of barrier spalling; precast concrete barriers out of alignment; erosion under bridges and in landscaped areas; graffiti on walls; rust, water leaks, and cracking on CMU walls at the main lane plazas. These should be addressed to prevent further damage.

It is recommended that the following observations be monitored: deteriorated sealed expansion joints; cracking abutment backwalls at various locations; beam end cracking; isolated retaining wall panel and coping cracking; spalling on retaining walls at various locations.

4.4 Sam Rayburn Tollway Recommendations

Several projects have been developed or are in the process of being developed to address the needs of the SRT. These projects included the following: restripe mainlanes and frontage roads (Segment 1 and 2); restripe frontage roads (Segment 3); and pavement repairs mainlanes and frontage roads.

Most observations made on the SRT are included under routine maintenance. These include: curb damage; pavement potholes and cracking; concrete barrier misalignment; concrete barrier spalling and cracking on the main lanes throughout the corridor.

It is recommended that the following be monitored for future deterioration: erosion near columns and near abutment riprap; retaining wall panel and coping misalignment at various locations.

4.5 Mountain Creek Lake Bridge Recommendations

Several projects have been developed or are in the process of being developed to address the needs of the MCLB. These projects included the following: bridge rail sealing; bridge deck joint seal replacement; and bridge repairs and restriping.

It is recommended that the beam end cracking and column casing spalls be monitored for further deterioration.

4.6 Lake Lewisville Toll Bridge Recommendations

A few observations made on the LLTB are included under routine maintenance. These include rail

damage and a leaking water filtration box repairs. It is recommended that the following observations be monitored: erosion at the east abutment and under the bridge on the west end.

4.7 Addison Airport Toll Tunnel Recommendations

A project is being developed to restripe the Addison Toll Tunnel.

There were a few observations that are included under routine maintenance. These include faded pavement markings throughout the tunnel, curb damage on the east entry median, debris collecting in the drains, and the spall on the east entry portal wall. Hairline cracks observed are being monitored as part of the specialized tunnel inspection. We recommend that the following observations be monitored: water seepage and missing seals on the retaining walls.

4.8 Budget Recommendations

As required by the Amended and Restated Trust Agreement, the GEC also provides recommendations for the OMF as well as the RMF.

The funding levels are set such that NTTA can maintain the overall asset condition of the System.

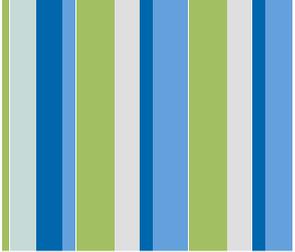
Table 2: Budget Recommendations

System Funds	Budget
Operation and Maintenance Fund	\$155.1 million
Reserve Maintenance Fund	\$ 32.8 million

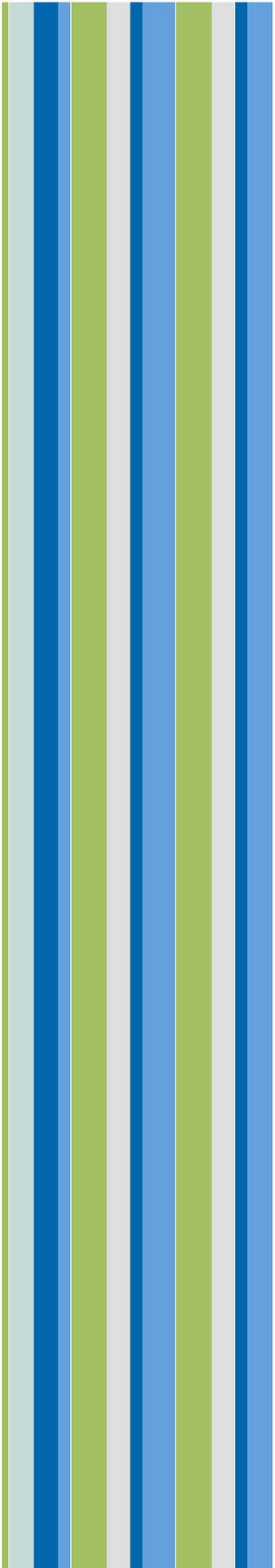
5.0 Summary

Overall, the System has been maintained in good repair, working order and condition. The overall condition of the System shows NTTA's commitment to funding, maintaining, and operating a safe and reliable network of roadways.

Continued routine maintenance and the implementation of Reserve Maintenance Projects will ensure the System continues to provide a reliable mobility option for the North Texas area.



APPENDIX A



AMENDED AND RESTATED TRUST AGREEMENT

BY AND BETWEEN

NORTH TEXAS TOLLWAY AUTHORITY

AND

WELLS FARGO BANK, N.A.,
Dallas, Texas

SECURING

SYSTEM REVENUE BONDS

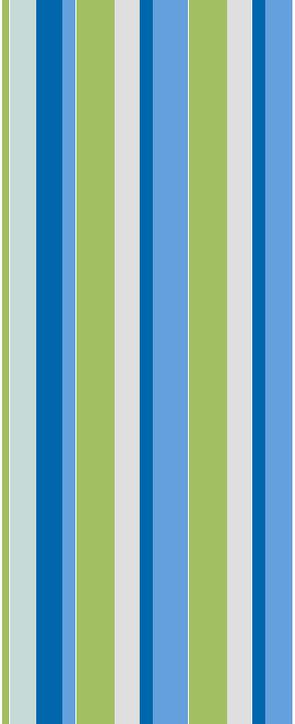
Dated as of April 1, 2008

Section 503. Revenue Fund. The special fund held by the Trustee and created and designated "Tollway Revenue Fund" (hereinafter sometimes called the "Revenue Fund") under the Original Agreement is hereby reaffirmed. The Authority covenants that all gross revenues (all tolls, other revenues, and income) arising or derived by the Authority from the operation and ownership of the Tollway (excepting investment income from all Funds and Accounts other than the Revenue Fund) will be collected by the Authority and deposited daily, as far as practicable, with the Trustee for the credit of the Revenue Fund. It shall be the duty of the Trustee to verify the amount of each such daily deposit separately, and to make a report to the Authority of the amount of each such daily deposit as soon as practicable. Tolls collected on behalf of TxDOT pursuant to a project agreement that provides for revenue sharing with TxDOT shall be collected by the Authority and shall be held and transferred to or upon the order of TxDOT as set forth in the project agreement.

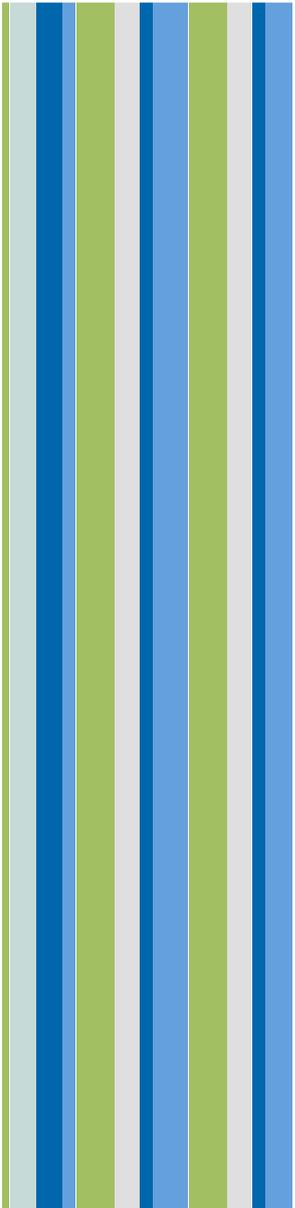
Section 504. Duties of Consulting Engineers. The Authority covenants that it will cause the Consulting Engineers employed by it under the provisions of Section 704 of this Agreement, to make an inspection of the Tollway on or before the 90th day prior to the end of each Fiscal Year and to submit to the Authority a report setting forth (a) their findings whether the Tollway 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 Tollway during the ensuing Fiscal Year and 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 Current Expenses and the Reserve Maintenance Fund in the Annual Budget for the next ensuing Fiscal Year, and (c) their advice and recommendations as to the amounts and types of insurance which should be carried during the ensuing Fiscal Year with respect to the Tollway under the provisions of Article VII of this Agreement. Copies of such reports shall be filed with the Trustee and mailed by the Authority to each bondholder who shall have filed his name with the Board Representative designated for such purpose, which shall initially be the Chief Financial Officer of the Authority.

Section 505. Preliminary Budget of Current Expenses, and Payments into Reserve Maintenance Fund; Hearing on Budget; Annual Budget; Failure to Adopt Annual Budget; Amended or Supplemental Annual Budget; Payments for Maintenance, Repair, and Operations. The Authority covenants that on or before the 60th day prior to the end of each Fiscal Year it will adopt a preliminary budget of Current Expenses and payments into the Reserve Maintenance Fund for the ensuing Fiscal Year. Copies of each such preliminary budget shall be filed with the Trustee and mailed to the Consulting Engineers and each bondholder who shall have filed his name and address with the Board Representative designated for such purpose, which shall initially be the Chief Financial Officer of the Authority.

If the holders of at least five percent (5%) in aggregate principal amount of the bonds then Outstanding shall so request in writing on or before the 60th day prior to the end of any Fiscal Year, the Authority shall hold a public hearing on or before the 30th day prior to the end of such Fiscal Year at which any bondholder may appear in person or by agent or attorney and present any objections he may have to the final adoption of such budget. Notice of the time and place of such hearing shall be mailed, at least ten (10) days before the date fixed by the Authority for the hearing, to the Trustee, the Consulting Engineers, and each bondholder who shall have filed his name and address with the Board Representative designated for such purpose, which shall initially be the Chief Financial Officer of the Authority. The Authority further covenants



APPENDIX B



NTTA Projects	Original Issue Date: 07/05/2012	GEC-01
Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 1 of 8
Title: GEC Annual Inspection of the NTTA Systems		

1.0 PURPOSE:

The purpose of this procedure is to describe the General Engineering Consultant (GEC)'s responsibilities for the general annual visual inspection and assessment of the NTTA System, Special Projects System (SPS), and related facilities as required by Section 504 of the NTTA System Amended and Restated Trust Agreement and Section 710 of the NTTA Special Projects System Trust Agreement.

2.0 RESPONSIBILITIES:

2.1 Project Director (PD) – The PD shall be a licensed civil engineer with prior experience being a program manager or project director, project manager, and field experience. The PD shall:

- Review and understand the trust agreements with the NTTA and ensure the letters to the bond holders, presentations, and all other work performed during annual inspections is in conformance with the trust agreements.
- Coordinate the NTTA staff review of the letters to the bond holders.
- Perform a quality assurance (QA) review of the final letters to the bond holders to ensure they include the inspection findings, advice and recommendations as to the proper maintenance/repair, and cost estimates thereof, per their respective trust agreements.
- Approve, sign, and deliver the final letters to the NTTA for delivery to the bond holders.
- Perform QA review of, and present to the NTTA board, a PowerPoint presentation discussing the significant aspects of the year's inspection results.

2.2 Project Manager (PM) – The PM shall be a licensed civil engineer with prior experience being a project manager as well as inspection field experience. The PM shall:

- Prepare and negotiate the inspection work authorization documents.
 - Organize the pre-inspection kick-off meeting by: writing the agenda; inviting field inspectors, Maintenance Management Consultant (MMC) employees and all required NTTA staff; and facilitating the meeting.
 - Be the point of contact for the GEC inspection team when communicating with the NTTA and the MMC inspection staff.
-

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Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 2 of 8
Title: GEC Annual Inspection of the NTTA Systems		

- Obtain from NTTA:
 - A list of bridges and bridge class culverts to be inspected, as well as the TxDOT Bridge Inventory Inspection and Appraisal Program (BRINSAP) reports on all bridges listed.
 - 11x17 black-and-white aerial photography plan sheets of all roadways in the systems at a scale of approximately 1 inch = 250 feet. Plan sheets should show the roadway centerline, stationing, cross street names and should encompass all collector/distributor and direct connector ramps.
 - A list of facilities required for inspection.
 - Governmental Accounting Standards Board (GASB) ratings for the System and the SPS from the most recent year available.
- Manage the inspection staff to ensure that both budget goals and schedule deadlines are met.
- Oversee the writing of the two letters to the bond holders, one for the NTTA System and one for the SPS.
- Perform a quality control (QC) review of the letters to the bond holders, observation spreadsheet and PowerPoint presentation prior to final submittal to the NTTA.
- Deliver the observation spreadsheet categorized as described in 6.1.7 to the NTTA Maintenance Department and ensure it functions properly on the NTTA computer servers.

2.3 Roadway Inspector (RI) – the RI shall be a licensed civil engineer (or if approved an Engineer in Training (E.I.T.) with P.E. supervision) with prior roadway and drainage design and/or inspection experience. The RI shall:

- Perform visual inspection and condition assessment of all roadways and appurtenances while being accompanied by an NTTA staff member.

2.4 Retaining Wall Inspector (WI) – the WI shall be a licensed civil engineer (or if approved an E.I.T. with P.E. supervision) with prior retaining wall design and/or inspection experience. The WI shall:

- Perform visual inspection and condition assessment of all retaining wall, sound wall, and tunnel elements while being accompanied by an NTTA staff member.

2.5 Bridge Inspector (BI) – the BI shall be a licensed civil engineer (or if approved an E.I.T. with P.E. supervision) with prior bridge design and/or inspection experience. The BI shall:

- Perform visual inspection and condition assessment of all bridges and bridge-class culverts on the list provided by the NTTA while being accompanied by an NTTA staff member.

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Title: GEC Annual Inspection of the NTTA Systems		

2.6 Facilities Inspector (FI) – the FI shall be a licensed architect (or if approved an Associate AIA under the supervision of a licensed architect) with prior architectural design and/or inspection experience. The FI shall:

- Perform visual inspection and condition assessment of all of the NTTA's facilities while being accompanied by an NTTA staff member. The facilities to be inspected shall be as directed by the NTTA and may include main lane plazas, operations buildings, ramp plazas, sand storage enclosures, fiber huts, the central maintenance facility and the Gleneagles administration office complex.

3.0 SCOPE/APPLICABILITY:

This procedure shall apply to the NTTA annual inspections of both the NTTA System and the SPS, as set forth by the Trust Agreements. The NTTA System shall include the Dallas North Tollway (DNT), the President George Bush Turnpike (PGBT), the Eastern Extension of the George Bush Turnpike (PGBT EE), the Sam Rayburn Tollway (SRT), the Addison Airport Toll Tunnel (AATT), the Lewisville Lake Toll Bridge (LLTB), the Mountain Creek Lake Bridge (MCLB) and associated facilities. The SPS shall include the President George Bush Turnpike Western Extension (PGBT WE) and associated facilities. The inspections, letters to the bond holders, observation spreadsheets and presentations shall be complete 90 days prior to the end of the respective NTTA System and SPS fiscal year, as specified in the trust agreements.

4.0 REFERENCES:

- NTTA System Amended and Restated Trust Agreement
- NTTA Special Projects System Trust Agreement
- Prior letters to the bond holders
- Prior observation spreadsheets
- Prior PowerPoint presentations with speaker notes
- BRINSAP reports
- NTTA personnel
- Overhead Sign Structure Inspection
- High Mast Illumination Pole Inspection
- Pavement Management Program
- Texas Accessibility Standards

5.0 DEFINITIONS & ACRONYMS:

N/A

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6.0 PROCEDURES:

- 6.1 General:** The following procedures include tasks involving all inspectors, and where specifically mentioned, the PM and PD.
- 6.1.1** Prior to beginning any field inspections, the PM will schedule and facilitate the kick-off meeting with primary staff involved in the annual inspections (GEC, MMC and NTTA staff). A list of topics to be covered should include at a minimum; the scope, schedule, extent of the maintenance limits, equipment the inspectors will need to perform their tasks, safety protocol, record keeping, and the teaming of NTTA employees with the field inspectors. A contact list with all participants' names, phone numbers and email addresses should be created and distributed to all inspection staff. At the conclusion of the meeting, all participants should be aware of all submittal dates, safety protocol and the extent of the NTTA's maintenance limits.
 - 6.1.2** Each field inspector is responsible for coordinating their respective inspection schedule with the NTTA point of contact provided by the PM. The NTTA will supply qualified staff members to team up with each GEC inspection personnel. The NTTA staff participating in the inspections should be knowledgeable of the systems they will assist in inspecting and the inspection / maintenance limits of that system.
 - 6.1.3** Perform field inspections only between the hours set by the NTTA maintenance staff and within the limits of NTTA maintenance for the roadways. During inspections, all inspectors must wear the required safety equipment and adhere to all safety protocol set forth by the NTTA. Areas outside of NTTA maintenance responsibility are not required to be included in the inspections. When in the vicinity of ongoing construction or maintenance activities, inspections should not be performed within or near active construction areas.
 - 6.1.4** When areas are unsafe or unreachable for pedestrian access during inspections, a rolling lane closure should be requested so that visual inspections may be performed from inside the vehicle. The vehicle shall travel at the slowest safe speed possible for each particular inspection and location, using the roadway shoulder wherever possible. Rolling lane closures should be requested at least 2 weeks in advance, and must be approved and scheduled by the respective NTTA roadway section supervisors. In areas where rolling lane closures are unsafe or where pedestrian access is not feasible, it should be documented as such.
 - 6.1.5** If a safety concern requiring immediate attention by the maintenance department is observed, the inspector shall immediately contact the PM, who must in turn inform the NTTA Maintenance Department Director or Assistant Director.
-

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- 6.1.6 At the conclusion of each inspection day, store/update all pictures, notes, and spreadsheets digitally on a single drive location accessible by the entire GEC inspection staff. Files should be set up in a clear and consistent manner for all inspectors. In cases where all staff may not have daily access to this drive, work should be downloaded at least every other week to this drive. Backup files should be created regularly to prevent loss of productivity or re-work if by chance system files are lost.
 - 6.1.7 Organize and hyperlink all pictures in an observation spreadsheet in such a manner that they may be sorted by damage description, facility/roadway, station/location, direction of travel, date inspected, priority, and any other useful categories deemed helpful by the NTTA and MMC. All field inspectors will complete the portion of the observation spreadsheet for their discipline. Upon completion of the observation spreadsheet, upload the spreadsheet and all pictures to the NTTA server, and confirm the hyperlinked pictures will work on the server properly.
 - 6.1.8 Determine condition ratings for all locations after the completion of the field inspections, organization of notes and pictures, and the observation spreadsheet. Using this information, assess which specific locations should be mentioned in the bond letter for maintenance, monitoring, or repair, and begin writing the letters to the bond holders. Each member of the inspection team must assist with the writing of the letters to the bond holders by contributing information on the condition of each component of the system, relating general trends as well as noting specific concerns and improvements.
 - 6.1.9 The PM should assemble findings from each inspection team members and prepare the report to submit to the bond holders. The final letters should include the inspection findings, advice and recommendations as to the proper maintenance/repair, and cost estimates thereof, and the GASB ratings provided by the NTTA for the respective systems. The PM will also perform a quality control (QC) review of the letter prior to submitting to the PD for Quality Assurance (QA). Once QC and QA are complete, the PD will submit the letter to the Maintenance Department and MMC for review. The inspection team, working with the PM and PD, should address any comments received from the Maintenance Department and MMC and submit the final version of the letters to the NTTA for final review. The final approved letters must be completed and delivered to the NTTA with sufficient time to mail them to the bond holders 90 days prior to the end of the respective NTTA System and SPS fiscal year.
 - 6.1.10 All field inspectors will assist with the creation of two PowerPoint presentations, one for the NTTA System, and one for the SPS, each summarizing the annual inspection findings for their respective systems. The PowerPoint presentations must be completed in sufficient time to be presented by the PD at the first NTTA board meeting following the delivery of the respective letter to the bond holders.
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6.2 Roadway Inspector

- 6.2.1 Perform visual inspection and condition assessment on the following roadway elements: all drainage structures (storm sewer, ditches, concrete flumes and culverts), erosion issues, signing and striping, both rigid and flexible barriers, and a design safety review of the complete systems.
- 6.2.2 Perform visual inspections of all roadway elements while riding with the NTTA roadway section supervisors. The supervisor should drive slowly and carefully along both the inside and outside shoulders allowing the RI time to properly inspect the roadway elements. For those areas deemed unsafe to perform inspections in this manner, a rolling lane closure should be requested to accomplish the inspection.
- 6.2.3 Take pictures of all observed findings along each roadway. At the RI's discretion, pictures may be taken noting overall roadway conditions.
- 6.2.4 Note the observation, location, date, and direction of each picture on the aerial photography plan sheets provided by the PM.

6.3 Retaining Wall Inspector

- 6.3.1 Perform visual inspection and condition assessment on the following retaining wall, sound wall, and tunnel elements: panels, joints, coping, flumes, mow strips, inlets, rails, riprap, slope paving, visible underdrain pipes, sound wall columns; and adjacent: sidewalks, curbs, fencing, roadways, shoulders, soil slopes, and landscaping.
 - 6.3.2 Perform visual inspections of every retaining wall on the systems by walking both top and bottom of each wall, except in areas deemed unsafe for pedestrians (i.e. cut sections along PGBT where the main lanes are within 15 feet of the walls; fill sections along DNT where the top of retaining walls coincide with the main lane barrier rail) In areas where it is unsafe to walk the top or bottom of any wall, a rolling lane closure should be requested to accomplish the inspection.
 - 6.3.3 Perform visual inspections of every sound wall by either walking or driving (depending on accessibility) the front and back side.
 - 6.3.4 Take pictures of all observed findings along each wall whether visible from the top or bottom of the wall. General pictures may be taken at each wall location for common types of widespread deterioration, and should be noted as such. Overall condition pictures should be taken at intervals sufficient to encompass all lengths of all walls for documentation of areas that do not exhibit deterioration or areas of concern.
 - 6.3.5 Note the observation, location, date, direction, and number of each picture on the aerial photography plan sheets provided by the PM.
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6.4 Bridge Inspector

- 6.4.1 Review the BRINSAP reports prior to the bridge inspections. Note any deficiency on the reports, especially ratings less than 6, to be specifically investigated during the visual inspection of each bridge.
- 6.4.2 Perform visual inspections and condition assessment on the following bridge elements: deck, superstructure, substructure, channel and culvert, by walking above, below and alongside the structure, except in areas that are unreachable or deemed unsafe for pedestrians. Such areas are roadways with less than 6 foot shoulders, direct connector ramps, or any other condition which the inspector deems unsafe. Rolling should be requested when inspecting these areas.
- 6.4.3 Visual inspections must be performed while maintaining a clear, detailed view of all bridges, including high level interchanges and bridges over waterways; binoculars may be used to achieve this level of detail.
- 6.4.4 Bridges that cross over large bodies of water, such as MCLB and LLTB, shall be inspected from a NTTA provided motorized boat.
- 6.4.5 Take pictures of all observed findings at each bridge and bridge class culvert location. At the BI's discretion, pictures may be taken noting overall bridge condition.
- 6.4.6 Note the observation, location, date, direction and number of each picture on the bridge inspection form.

6.5 Facilities Inspector

- 6.5.1 Perform visual inspection and condition assessment of the exterior and interior of all facilities, observing all readily accessible areas including enclosed but unlocked plenums, attic spaces, and storage areas. Note any evidence of leaks, insect infestation, structural movement, malfunctioning components, impact damage, and general wear and tear. Note any deterioration of elements, in particular those relevant to Texas Accessibility Standards and the Building Code for Life, Health, and Safety Standards. Record any issues reported to the inspectors by occupants. Spot check function of light fixtures, HVAC, and electrical outlets. Verify that areas and elements intended to be secured are secured.
 - 6.5.2 Take pictures of all observed findings at each facility location. General pictures may be taken at each facility for common types of widespread deterioration, and should be noted as such. Take a representative sample of overall condition pictures at intervals sufficient to encompass all facilities for documentation of areas that do not exhibit areas of concern.
 - 6.5.3 Note the observation, location, and date of each picture.
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7.0 REGULATORY REQUIREMENTS:

N/A

8.0 RELATED BOARD POLICY:

N/A

9.0 COMPONENT DOCUMENTS:

GEC-01-F1 NTTA Annual Inspection Observations

10.0 FLOWCHART:

N/A

11.0 REVISION HISTORY:

Revision	Revised by:	Date Issued	DRN No.	Reason for Revision
0	Stephanie Halliday	07/05/2012	10408	Original Release