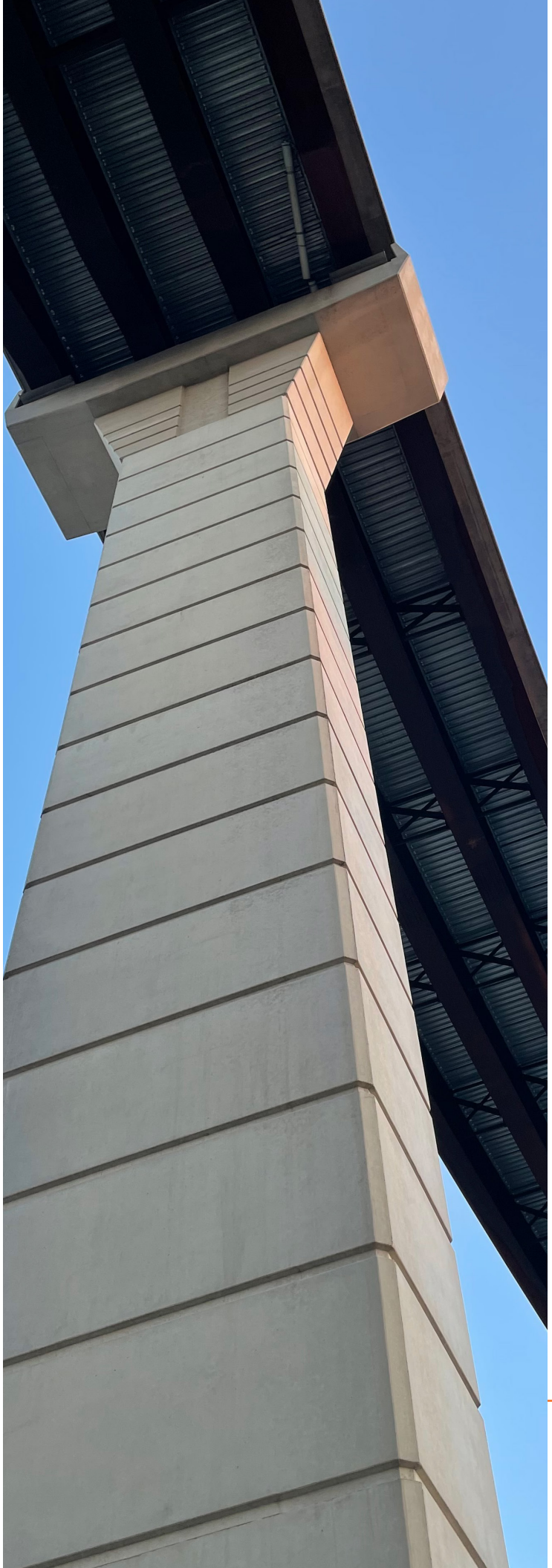

SYSTEM ANNUAL INSPECTION REPORT

Fiscal Year 2022

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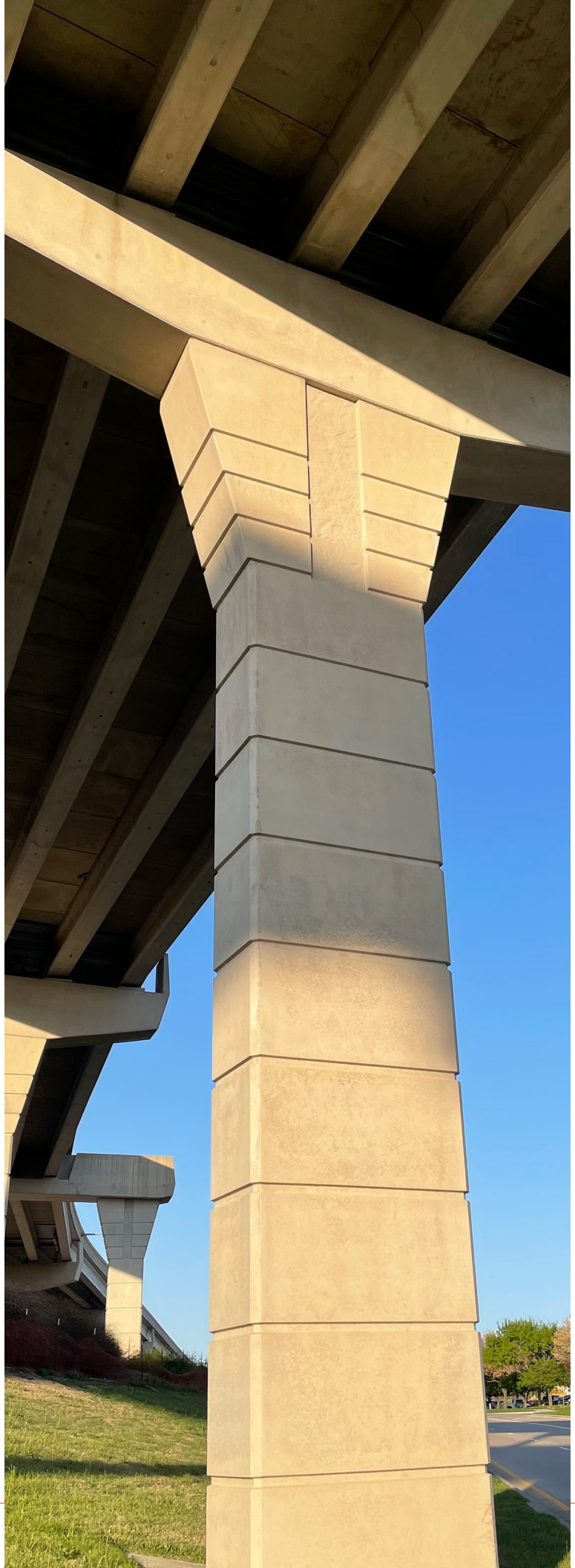

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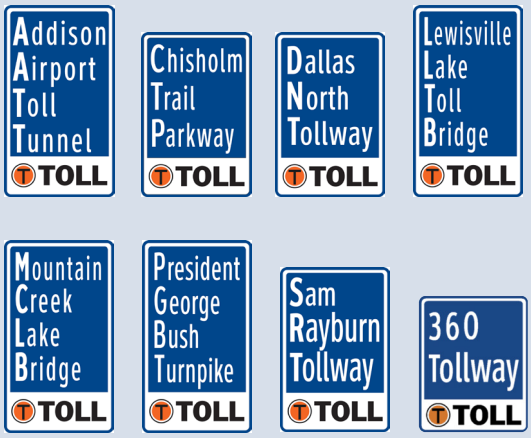

September 30, 2022

James Hofmann
Executive Director
North Texas Tollway Authority
5900 W. Plano Parkway
Plano, Texas 75093

Subject: FY 2022 GEC System Annual Inspection

Dear Mr. Hofmann:

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, VRX, Inc. (VRX) is pleased to submit the Fiscal Year 2022 (FY22) System Annual Inspection Report.

VRX completed the System inspections in July 2022 and reports that the system's tollways, toll bridges, toll tunnel, and associated facilities have been maintained in good repair, working order and condition. This observation was based on a general visual assessment of the roadway, walls, bridges, tunnel, and facilities. Results of the observations are presented in greater detail within this report. A complete list of observations has been transmitted to the Maintenance Department under a separate cover.

VRX recommends that NTTA continue to implement the routine maintenance as budgeted and scoped, and to also implement the major maintenance projects planned for the ensuing fiscal year. Through coordination with NTTA staff and review of the anticipated Reserve Maintenance Funded (RMF) projects scheduled for FY23, the following budgets, which will be presented at the October 19, 2022, Board of Directors' meeting and subject to Board approval at the December 2022 Board Meeting, are recommended:

Operation and Maintenance Fund (OMF): $219.9 million
Reserve Maintenance Fund (RMF): $77.5 million

The overall condition of the tollways, toll bridges, toll tunnel, and associated facilities, along with the appropriate funding levels for the System operating budgets, exemplifies NTTA's commitment to maintain and operate a safe and reliable toll road system in the North Texas region.

Respectfully submitted,

Scott A. Brush, P.E.

Scott A. Brush, PE
General Engineering Consultant
Project Director

cc: Elizabeth Mow, PE, NTTA (w/1 copy)
Amitis Meshkani, PE, NTTA (w/1 copy)
Dee Runnels, NTTA (w/1 copy and electronic pdf)
Tammy Sims, PE, Atkins (w/1 copy)
File

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ACRONYMS AND ABBREVIATIONS

360T	360 Tollway
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	Lewisville Lake Toll Bridge
MCLB	Mountain Creek Lake Bridge
MLG	Mainlane Gantry
MLP	Mainlane 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
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, Chisholm Trail Parkway, Mountain Creek Lake Bridge, Lewisville Lake Toll Bridge, Addison Airport Toll Tunnel, 360 Tollway, and associated facilities/buildings. The System encompasses much of the North Texas region and spans Dallas, Collin, Tarrant, Johnson, Denton, and Ellis Counties.

VRX, Inc. (VRX), as General Engineering Consultant, completed the inspections in July 2022 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.

VRX recommends that NTTA continue to implement the routine maintenance as budgeted and scoped, and to also implement the Reserve Maintenance Projects planned for the ensuing fiscal year and beyond.

Working with NTTA staff, VRX has reviewed the 2023 NTTA System preliminary budget which includes the Operation and Maintenance Fund and Reserve Maintenance Fund and concurs that they are in line with major items for administrative and roadway costs. The following budgets are recommended and will be presented at the Board of Director's meeting on October 19, 2022, and subject to Board approval in December, 2022:

Table 1: Budget Recommendations

FUNDS	BUDGET
Operation and Maintenance Fund (OMF)	$219.9 million
Reserve Maintenance Fund (RMF)	$77.5 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 July 2022, VRX 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) for the ensuing fiscal year.

1.2 Inspection Process

The GEC Annual Inspection assessed four main elements: roadway, bridges, walls, and building facilities. The roadway portion of the inspection focused on the pavement, drainage structures, erosion, signing, striping, illumination, and barriers. The bridge inspection focused on the deck, superstructure, substructure, and drainage components. The wall inspection focused on panels, joints, coping, flumes, mow strips, inlets, rails, riprap, visible underdrain pipes, sound walls, and adjacent elements. The building facilities inspection focused on the interior and exterior plaza operations, sand storage, maintenance operation and administrative office buildings and sites.

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 inspection and assessment of asset 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 visual observations. 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 2).

Table 2: 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), Chisholm Trail Parkway (CTP), Mountain Creek Lake Bridge (MCLB), Lewisville Lake Toll Bridge (LLTB), Addison Airport Toll Tunnel (AATT), 360 Tollway (360T) and associated facilities/buildings and serves as a vital component of the transportation system in the North Texas region (Figure 1).

While tolling originally included staffed toll booths, all tolling on the NTTA system is now accomplished electronically.

1.3.1 Dallas North Tollway

DNT extends from Interstate 35E (IH-35E) in downtown Dallas north approximately 31 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 (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 SRT opened in 2011.

NTTA System

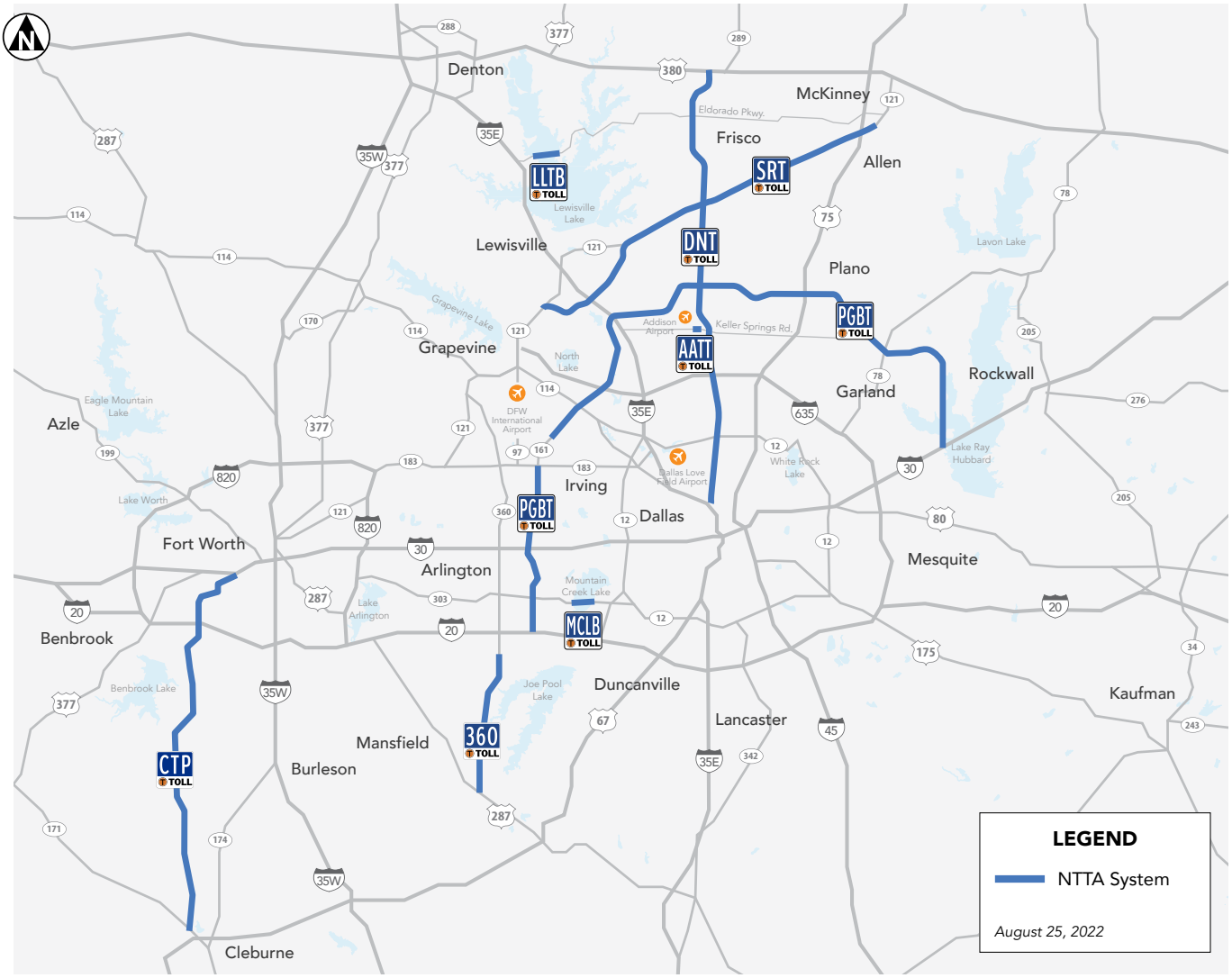

Figure 1: System Map

NTTA maintains 195 mainlane miles of the corridor. The frontage roads of DNT, referenced as Dallas Parkway, are not maintained by NTTA. There are 105 total bridges on DNT. DNT has 3 mainlane gantries, 1 mainlane plaza, and 35 ramp gantries.

NTTA has continued to extend the original DNT to new destinations as communities to the north have continued to grow. The high growth rate in both Collin and Denton Counties, along with input from both counties, encouraged the NTTA to continue the extensions further north. The current extension project which extends to First St in Prosper and includes a mainlane bridge over US 380 is under construction and is expected to be opened to traffic in early 2023.

1.3.2 President George Bush Turnpike

PGBT extends clockwise from IH-20 in Grand Prairie to SH 183 Irving and is approximately 11 miles. A non-tolled segment runs from SH 183 to Belt Line Road and is maintained by the Texas Department of Transportation (TxDOT). PGBT picks up at Belt Line Road in Irving and extends approximately 40 miles to Interstate 30 (IH-30) in Garland. PGBT provides a vital route through the DFW Metroplex and offers access to Grand Prairie, Irving, Carrollton, Dallas, Plano, Richardson, Sachse, Rowlett, and Garland.

Segment 1, extending from Midway Road to Avenue K in Collin County, opened to traffic in 1999. Segment 2, 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. Segment 6, extends from Brand Road to the IH-30 near Lake Ray Hubbard in Garland, opened in October 2012.

Segments 7 & 8 extend from SH 183 to IH-20 in Grand Prairie. These two segments were constructed in four phases with Phases 1-3 under the direction of TxDOT.

Phase 1, consisting of frontage roads from North Carrier Parkway to IH-20, along with the mainlane interchange at SH 183, was opened in August 2009. Phase 2, which included two mainlanes in each direction from SH 183 to Egyptian Way, also opened to traffic in August 2009. Phase 3, consisting of frontage roads and a third mainlane from Conflans Road to North Carrier Parkway, opened in April 2010.

Phase 4 was administered by NTTA under a design-build contract and included two mainlanes in each direction from North Carrier Parkway to IH-20, as well as the interchanges at IH-20 and IH-30. Phase 4 was opened to traffic in October 2012.

The PGBT has been widened to four lanes in each direction to increase capacity between IH-20 in Grand Prairie and SH 183 in Irving and from Belt Line Road in Irving to SH 78 in Garland. The additional lanes were built within the median.

NTTA maintains a portion of the frontage roads along the PGBT corridor. The sections maintained on both sides of the mainlanes include Midway Rd to Rosemeade Pkwy and Marsh Ln to Frankford Rd in Carrollton and IH-20 to IH-30 in Grand Prairie.

The PGBT corridor has approximately 387 mainlane miles, 57 frontage road miles and 184 bridges. The PGBT has 5 mainlane plazas, 3 mainlane gantries, and 60 ramp gantries.

1.3.3 Sam Rayburn Tollway

SRT extends for approximate 26 miles from Business SH 121 near the Denton/Dallas County line to east of US 75 in Collin County. The SRT offers access to Coppell, Lewisville, Carrollton, The Colony, Plano, Frisco, McKinney, and Allen.

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 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 the SRT/US 75 interchange) opened in 2011. Segment 5, the SRT/DNT interchange, also opened in 2011. SRT was widened to four lanes in each direction within the median from Denton Tap Road to US 75 in 2021.

The frontage roads of SRT, which retained the SH 121 designation, are maintained by NTTA. A total of 207 mainlane miles and 154 frontage road miles are maintained. There are 156 bridges on the SRT that also include 3 mainlane gantries and 40 ramp gantries.

1.3.4 Chisholm Trail Parkway

CTP is an approximate 28-mile toll road, extending from IH-30 in downtown Fort Worth in Tarrant County to US 67 in Cleburne which is in Johnson County. CTP mainlanes were open to traffic in 2014. This limited access toll road has major interchanges located at IH-30 and IH-20. The CTP has 99 mainlane miles, 3 mainlane gantries and 24 ramp gantries.

1.3.5 Mountain Creek Lake Bridge

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. MCLB is an approximately 2-mile facility that opened in 1979 to traffic with a lake bridge spanning approximately 7,500 feet in length. This approximate 4 lane 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.

The bridge provides 1 lane of travel each direction and 1 mainlane gantry at the west approach.

1.3.6 Lewisville Lake Toll Bridge

LLTB provides an east-west crossing of the northwestern arm of Lewisville Lake in Denton County. The bridge structure is approximately 2 miles long and provide four lanes across the lake.

LLTB opened to traffic in 2009. In addition to offering convenient access across the lake, the approximate 8 lane mile LLTB serves as a unique landmark with a 360-foot steel truss that rises 60 feet above the roadway. LLTB has 1 mainlane gantry.

1.3.7 Addison Airport Toll Tunnel

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 2-lane tunnel, which opened to traffic in 1999, is approximately 1,650 feet long with the entire facility spanning approximately 3,600 feet. The tunnel has a mainlane plaza located west of the tunnel.

1.3.8 360 Tollway

360 Tollway (360T) is an approximate 10-mile toll road located in Tarrant, Ellis, and Johnson Counties, extending from Green Oaks Boulevard in Tarrant County south to US 287 in Ellis County with approximately 78 lane miles (37 mainlane miles and 41 lane miles of frontage roads). The 360T limited access facility has 28 bridges, 2 mainlane gantries and 6 ramp gantries.

1.3.9 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, Sand Storage facilities as well as roadway plaza facilities being occupied for various operational support functions.

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, and facilities. The Project Delivery Department is responsible for reserve maintenance projects and major maintenance projects for the System. The System totals over 1,194 lane miles of limited access toll roads and include 603 bridges, including bridge class culverts, and one tunnel.

Major Maintenance Projects include repairs and maintenance, painting/coating, renewals, replacements, improvements, and other projects necessary for the safe and efficient operation of the System and to prevent loss of revenue. These projects include costs for engineering, fleet and equipment purchases/additions and replacements, maintenance expenses for roadway, bridge, buildings, etc.

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 approximately 50% of these services outsourced to contractors.

NTTA staff maintains the DNT, SRT, AATT and MCLB corridors as well as the tolling and ITS elements on the System.

The other NTTA roadways (PGBT, MCLB, CTP & 360T) are maintained under Total Routine Maintenance (TRM) contracts. Those contracts are outlined below.

Currently, the TRM contract for PGBT West, from IH-20 in Grand Prairie to Dickerson Parkway in Carrollton, and MCLB is outsourced to Roy Jorgensen Associates, Inc. This 6-year contract was executed in October 2019.

The TRM contract for PGBT East, from Dickerson Parkway in Carrollton to IH-30 in Garland, was outsourced to DBi, Services, Inc. This 6-year contract was executed in October 2019. In October, 2021, DBi Services publicly announced the closing of their operations. Subsequently, they abandoned their contracts with NTTA. Maintenance services for this section of PGBT are currently being performed by Roy Jorgenson Associates, Inc.

Maintenance services on the CTP are also outsourced under a TRM contract. DBi Services had been awarded a 6-year contract in August, 2017. This contract was also abandoned as a result of the aforementioned business decision by DBi in October, 2021. The services on the CTP were outsourced to Roy Jorgenson Associates, Inc., until July of 2022 when a new 6-year contract was awarded. Roy Jorgenson Associates was the vendor selected for the current contract.

360T is maintained under a Comprehensive Maintenance Agreement (COMA) with Lane-Abrams Joint Venture. The COMA went into effect in May 2018 when 360T was opened to the public.

The NTTA Project Delivery Department staff is supported by the MMC, Atkins North America, Inc. (Atkins). As the MMC, Atkins provides professional services in support of the Project Delivery Department responsibilities, which include items such as:

- 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 Atkins utilizes as the MMC include civil, structural, traffic, environmental, mechanical, and electrical engineering, and architectural services.

1.4.2 Maintenance Rating Program

In addition to the annual inspection and the specialized inspections, 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 on a monthly basis.

1.4.3 Specialized Inspections

NTTA conducts specialized inspections for the pavement, overhead sign structures (OSS), and high-mast illumination poles (HMIP) on its roadways.

Each year the NTTA contracts through the GEC to accomplish these inspections. Reports for each of the inspections are completed and submitted to NTTA.

NTTA's Pavement Management Program inspects and assesses current conditions of both the mainlane and frontage road pavement (where maintained by NTTA). This report outlines the results of the inspections and assessment.

The 2022 Pavement Management Report (Pavement Report) did not identify any significant findings. The 10-year capital plan will be included in the final 2022 Pavement Report.

NTTA's Overhead Sign Inspection Program requires all cantilever overhead sign supports (COSS), overhead sign bridges (OSB), and "Tee" overhead structures to be inspected on a 5-year cycle. These inspections also include the tolling gantries.

In 2022, the overhead sign structures of CTP were inspected. From this inspection, there were no significant findings identified. A continued monitoring program of all structures is recommended in accordance with OSS inspection program schedule.

NTTA's High Mast Illumination Pole (HMIP) Inspection Program requires each pole be inspected once every 5 years. The HMIP along DNT, SRT and CTP were inspected in 2022 with no significant findings identified. A continued monitoring program of all HMIPs is recommended to ensure the structural performance of the poles.

TxDOT is responsible for the specialized bridge inspections that are performed on a 2-year cycle with the reports being filed with the TxDOT Bridge Inventory Inspection and Appraisal Program (BRINSAP). In addition, TxDOT performs fracture critical and underwater inspections that typically on a 5-year cycle.

The latest available BRINSAP reports for the System bridges were reviewed. These 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.

TxDOT is also responsible for the tunnel inspections that are performed on a 2-year cycle and that focuses on structural, mechanical, and electrical elements. The next AATT inspection will be performed in 2023. Mechanically, the inspection included the ventilation fans, the fire protection system, drainage sump pumps, and the electrical room heating and air conditioning roof top unit.

1.4.4 Governmental Accounting Standards Board Requirements

Governmental Accounting Standards Board (GASB) Statement 34 establishes financial reporting requirements for state and local governments throughout the United States. NTTA elected to adopt the Modified Approach to asset depreciation in accordance with GASB 34 which requires a reporting of asset conditions every 3 years. NTTA has elected to develop the GASB 34 rating annually to ensure the System maintains a Board adopted minimum level-of-service of 8.0. The MMC maintains an inventory of NTTA's infrastructure assets and condition ratings and replacement costs are assigned to the pavement and bridge structure assets by the GEC. The annual inspection by the GEC provides the foundation for complying with GASB 34. The 2022 GASB 34 rating for the System is 8.9 out of 10.

2.0 INSPECTION FINDINGS

2.1 Overview

Based on the 2022 visual annual inspection, the System has been maintained in good repair, working order, and condition. Using the GEC Annual Inspection Rating Scale in Table 1, no observations were rated below a 2 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 observations are presented in Section 4.

2.2 Dallas North Tollway Findings

The recurring observations noted on this year's inspection were barrier wall spalling, missing delineation, faded signs, pavement edge drop-offs, erosion, inlet damage and pavement spalling and cracking.

2.2.1 Dallas North Tollway Roadway

Minor barrier spalling was observed at various locations throughout the corridor as illustrated in Figure 2. There were multiple areas of erosion under bridges and landscape areas as illustrated in Figure 3. Also noted were areas of pavement cracking and spalling as well as joint deterioration noted in Figures 4 and 5.

There are multiple isolated locations of pavement edge drop offs as illustrated in Figure 6. Pavement markings and striping need replacing in various locations as illustrated in Figure 7. Several clearance signs were faded as noted in Figure 8. These are being corrected as part of a sign replacement that is currently in construction.

Figure 2: DNT barrier wall spall NBML S. of Knight St.

Figure 3: DNT erosion SBML S. of Gaylord Pkwy.

Figure 4: DNT pavement distress SBML N. of Windhaven Pkwy.

Figure 6: DNT pavement edge drop-off NBML S. of Stonebrook Pkwy.

Figure 5: DNT pavement joint deterioration NBML N. of Eldorado Pkwy.

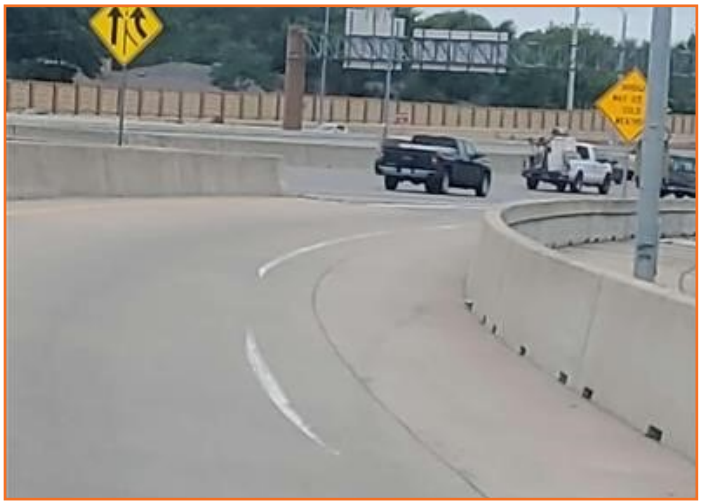

Figure 7: DNT faded pavement markings NBML N. of IH-635

Figure 8: DNT clearance sign faded SB U-Turn at Trinity Mills Rd.

2.2.2 Dallas North Tollway Walls

Wall panels and copings were observed with minor spalling and cracking at various locations (Figure 9).

Figure 9: DNT retaining wall panel crack NBML S. of IH-635

General visual observations identified potential movement characteristics at some walls. These observations do not confirm nor negate actual wall movement. VRX discussed these observations with NTTA and were informed that said walls were currently part of an active wall stabilization project or had an on-going monitoring effort associated with that particular wall. A listing of these walls is noted below.

- Seg. 1 SW corner DNT @ IH-635
- Seg. 4 NE corner DNT @ Stonebrook Pkwy.
- Seg. 4 North of DNT @ BNSF RR
- Seg. 4 All corners of DNT @ Cotton Gin Rd.
- Seg. 4 All corners of DNT @ Main St.
- Seg. 4 NE corner of DNT @ Eldorado Pkwy.

2.2.3 Dallas North Tollway Bridges

- One observation noted was areas where the concrete rail is damaged (Figure 10).
- Cracking in the abutment backwall was also observed at various locations as illustrated in Figure 11.

Figure 10: DNT concrete rail damage SB at Maple Ave.

Figure 11: DNT bridge abutment cracking NB at Harvest Hill Rd.

2.2.4 Dallas North Tollway Facilities/Buildings

There are three mainlane gantries and one mainlane plaza facility on the DNT.

- At MLP 2, observations included sealant missing from the building perimeter concrete.
- At MLG 3, located near Parker Road there was floor damage from water intrusion as illustrated in Figure 12, and a general deterioration of the site improvements such as parking areas, curbs, and walks.
- At MLP4, significant deterioration of the existing roof (Figure 13) was observed; it has been reported to the GEC that a roof replacement project is in design. The gantry structure at MLP4 continues to experience coatings failure which is not yet affecting its function.

Figure 12: DNT MLP3 – floor damage from water intrusion

Figure 13: DNT MLP4 – deteriorated roof

2.3 President George Bush Turnpike Findings

2.3.1 President George Bush Turnpike Roadway

The roadway elements were generally in good condition. The recurring observations noted on this year's inspection were curb damage, pavement edge drop offs, erosion, and pavement spalling and cracking.

- There were multiple areas of damaged curb as illustrated in Figure 14. There were also areas of erosion on the roadside (Figure 15) and under bridges.
- Pavement edge drop-offs (Figure 16) and pavement cracking and spalling (Figure 17) were observed at various locations throughout the corridor.

Figure 14: PGBT curb damage NBFR at Conflans Rd.

Figure 15: PGBT erosion under inlet NBFR North of W. Pioneer Pkwy.

Figure 16: PGBT pavement edge drop-off SB exit ramp to Merritt Rd.

Figure 17: PGBT pavement cracking SB exit ramp to Hwy. 78

2.3.2 President George Bush Turnpike Walls

Wall observations include cracks and spalls on retaining wall panels as shown in Figure 18.

Figure 18: PGBT retaining wall panel spalling SB at N. MacArthur Blvd.

General visual observations identified potential movement characteristics at some walls. These observations do not confirm nor negate actual wall movement. VRX discussed these observations with NTTA and were informed that said walls were currently part of an active wall stabilization project or had an on-going monitoring effort associated with that particular wall. A listing of these walls is noted below.

- Seg. 7 NW & SW corners PGBT @ Egyptian Way
- Seg. 8 SE corner PGBT @ Marshall Dr.
- Seg. 8 Eastside between Pioneer Pkwy. and Arkansas Ln.
- Seg. 8 SE corner PGBT @ Mayfield Rd.

2.3.3 President George Bush Turnpike Bridges

Bridge observations include abutment backwall cracking and spalling (Figure 19). Also noted were areas where the bridge beam is pushing against the backwall causing spalls on beam ends. Erosion was noted around bridge riprap and under bridges (Figure 20).

Figure 19: PGBT backwall cracking/spalling on SB structure at E. Rosemeade Pkwy.

Figure 20: PGBT erosion under bridge SBFR South of N. Carrier Pkwy.

The substructure of the mainlane bridge over Lake Ray Hubbard is in good condition with only minor spalling in the sacrificial column protection (Figure 21). There were a few areas where the water collection system piping was disconnected and leaking (Figure 22).

Figure 21: PGBT at Lake Ray Hubbard column spall NB bent No. 48

Figure 22: PGBT at Lake Ray Hubbard Deck drain pipe disconnected NB bent No. 21

2.3.4 President George Bush Turnpike Facilities/Buildings

There are five mainlane plazas on the PGBT.

Observations identified throughout the facilities included stains on the ceiling indicating a roof or mechanical leak, missing lens on light fixtures, paint failing and rust developing on steel as noted on Figures 23 and 24. Recent HVAC replacement and roofing projects at MLPs 7, 8 and 10 have provided for high functionality of those facilities.

Figure 23: PGBT MLP 7 – rust staining on floor

Figure 24: PGBT MLP 8 – rust developing on wall

2.4 Sam Rayburn Tollway Findings

2.4.1 Sam Rayburn Tollway Roadway

The roadway observations include pavement cracking and spalling, pavement edge drop offs, missing delineation, broken curbs, barrier spalling, and erosion.

- There were multiple areas with pavement cracking, spalling and joint deterioration as noted in Figure 25. Pavement edge drop offs, as illustrated in Figure 26, were noted in various areas along the corridor.
- There were locations with erosion under bridges and around appurtenances as noted in Figure 27.
- Curb damage, as illustrated in Figure 28, was observed at multiple locations at intersections and on frontage roads.

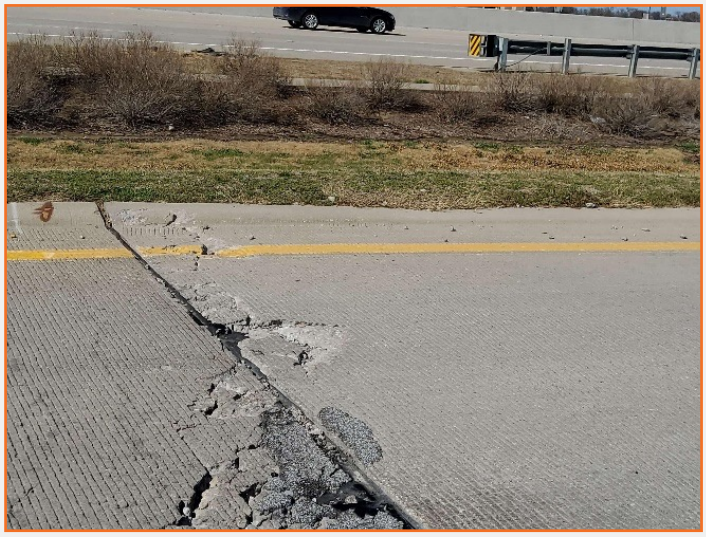

Figure 25: SRT pavement cracking/spalling NB exit ramp to N. Josey Ln.

Figure 26: SRT pavement edge drop-off NB exit ramp to Independence Pkwy.

Figure 27: SRT erosion NB-US75-NB SRT DC

Figure 28: SRT curb damage NBFR at Razor Blvd.

2.4.2 Sam Rayburn Tollway Walls

Wall observations noted some shifted and spalled wall panels as illustrated in Figure 29.

Figure 29: SRT misaligned wall panel at NB 121 Bus. DC

General visual observations identified potential movement characteristics at some walls. These observations do not confirm nor negate actual wall movement. VRX discussed these observations with NTTA and were informed that said walls had an on-going monitoring effort associated with that particular wall. A listing of these wall is noted below.

- Seg. 2 NW corner SRT @ RR (West of Spring Creek Pkwy.)

2.4.3 Sam Rayburn Tollway Bridges

Bridges are in good condition with one recurring observation where the beams are pushing against the backwall causing minor spalling at the beam end and backwall as noted in Figure 30. This condition is being monitored by NTTA staff.

Figure 30: SRT beam end spall SB structure at Hardin Blvd.

2.4.4 Sam Rayburn Tollway Facilities/Buildings

There were several observations noted on mainlane gantries including an electrical outlet box missing the protective cover at MLG 2 and sealant missing at building perimeter at MLG 3 (Figures 31 and 32). Insect infestation is a continuing issue at these facilities.

Figure 31: SRT MLG 2 – electrical box cover missing

Figure 32: SRT MLG 3 – active insect infestation

2.5 Chisholm Trail Parkway Findings

2.5.1 Chisholm Trail Parkway Roadway

The observations noted on this year's inspection included: barrier wall spalls, pavement edge drop-offs, missing delineation, erosion in ditches and around concrete appurtenances, pavement cracks and spalls and pavement joint deterioration.

Areas of erosion were noted at various locations as illustrated in Figure 33. There are areas with pavement edge drop offs as shown in Figure 34. Multiple areas were observed where the pavement joint seal was missing/ damaged (Figure 35) or where concrete barrier spalling (Figure 36) occurred.

Figure 33: CTP embankment erosion – NB North of CR 1015

Figure 34: CTP pavement edge drop-off NB just South of FM 917

Figure 35: CTP pavement joint deterioration at SB exit ramp to Arborlawn Dr.

Figure 36: CTP barrier spalling NB just South of Arborlawn Dr.

2.5.2 Chisholm Trail Parkway Retaining Walls

Retaining wall elements are in good condition. There are several locations with minor spalls on coping and wall panels.

2.5.3 Chisholm Trail Parkway Bridges

The majority of the bridge elements are in good condition with few issues observed. One observation noted this year was minor bearing pad movement and minor beam spalls as illustrated in Figure 37.

Figure 37: CTP bridge beam spall at Edwards Ranch Rd.

2.5.4 Chisholm Trail Parkway Tollway Facilities/ Buildings

Facilities along the CTP corridor are in good condition with only a few minor findings. Rust developing on door where paint is missing at MLG1 and water damage to floor due to water intrusion at MLG2 as noted in Figures 38 and 39. Insect infestation is a continuing issue at these facilities.

Figure 38: CTP MLG 1 – wall trim peeling away

Figure 39: CTP MLG 2 – insect infestation

2.6 Mountain Creek Lake Bridge Findings

2.6.1 Mountain Creek Lake Bridge Roadway

Observations noted on this year's inspection included faded and missing pavement markings as noted in Figure 40 and unsealed flume as noted in Figure 41.

Figure 40: MCLB faded or missing pavement markings

Figure 41: MCLB flume unsealed at wall East end of bridge

2.6.2 Mountain Creek Lake Bridge (Bridge)

Bridge observations include interior and exterior bridge beam end spalling at numerous locations, as illustrated in Figure 42. There are hairline vertical and diagonal cracks with efflorescence on some of the bent caps. Also noted is moderate to heavy scaling on the concrete encasements on the columns.

There was also noted backwall spalling as noted in Figure 43.

Figure 42: MCLB typical beam end spall

Figure 43: MCLB backwall spalling at West abutment

2.6.3 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.

2.6.4 Mountain Creek Lake Bridge Facilities/ Buildings

There are no facilities on the MCLB.

2.7 Lewisville Lake Toll Bridge Findings

2.7.1 Lewisville Lake Toll Bridge Roadway

Observations on the roadway include minor cracking and spalling on the concrete rail in addition to pavement joint seal missing/damaged as shown in Figure 44.

Figure 44: LLTB pavement seal missing/damaged

2.7.2 Lewisville Lake Toll Bridge (Bridge)

Observations on or related to the bridge include damaged buoys (Figure 45), and column and abutment spalling (Figure 46 and 47). In addition, it was noted that the AquaShield bridge drainage system has a broken weld (Figure 48).

2.7.3 Lewisville Lake Toll Bridge Walls

No observations were noted for the retaining walls.

2.7.4 Lewisville Lake Toll Bridge Facilities/ Buildings

The MLG and IT building at on the Lewisville Lake Toll Bridge has minor issue with exterior paint and typical insect infestation but is serving its intended function.

Figure 45: LLTB damaged buoy

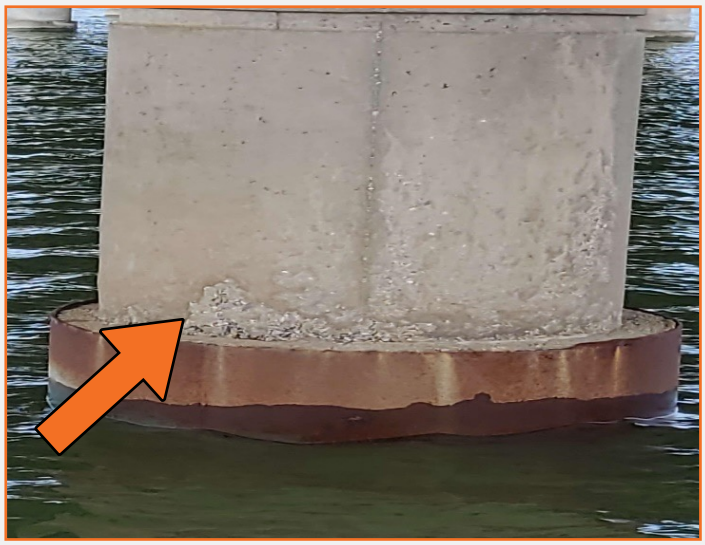

Figure 46: LTTB column spalling near bent No. 53 from West

Figure 47: LLTB abutment spalling at East end of bridge

Figure 48: LLTB AquaShield pipe welding broken

2.8 Addison Airport Toll Tunnel Findings

2.8.1 Addison Airport Toll Tunnel Roadway

Observations on the roadway include curb damage on both ends of the tunnel (Figure 49.

Figure 49: AATT curb damage

2.8.2 Addison Airport Toll Tunnel Bridges

There are no bridges on the AATT.

2.8.3 Addison Airport Toll Tunnel Walls

Observations concerning the tunnel include cracking and spalled wall panels along with faded signs (Figure 50). These signs will be replaced as part of the AATT Improvements project which will start construction in late 2022. There were a few locations with wall spalling along the tunnel.

Figure 50: AATT cracked and spalled wall panels on West end tunnel entrance

2.8.4 Addison Airport Toll Tunnel Facilities/ Buildings

The former MLP building is serving currently as an electrical room and is functioning as required.

The tunnel sump pump wiring has been recently replaced. The tunnel exhaust fans are at the end of their service life and a replacement project is reported as under contract. The tunnel lighting is at the end of its service life and a replacement project was reported as in design at the time of the inspections.

2.9 360 Tollway Findings

2.9.1 360 Tollway Roadway

The observations noted on this year's inspection included: curb damage, pavement edge drop-offs, ditch line erosion, pavement spalls and striping missing and faded.

- Areas of erosion were noted at various locations as illustrated in Figure 51.
- There were several areas with pavement edge drop offs as shown in Figure 52. Areas of pavement spalls (Figure 53) were observed.

Figure 51: 360T embankment erosion NB North of Heritage Pkwy.

Figure 52: 360T pavement edge drop-off North of Ragland Rd.

Figure 53: 360T pavement spall SB exit ramp to Webb Lynn Rd.

2.9.2 360 Tollway Retaining Walls

Wall panels and copings were observed in good condition with only one area that had a minor spall on the coping.

2.9.3 360 Tollway Bridges

There were noted a few areas of backwall cracking as illustrated in Figure 54.

There was also noted minor erosion under a bridge as shown in Figure 55.

2.9.4 360 Tollway Facilities/Buildings

There are two mainlane gantry facilities on the 360T

Figure 54: 360T backwall cracking at Bowman Branch bridge

Figure 55: 360T erosion around riprap at Walnut Creek bridge

2.10 Facility (Other) Findings

2.10.1 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 gutter damage, rust on overhead door seals (Figure 56) and structural frames, stains on ceiling indicating roof or mechanical leak and gate closure damage.

Figure 56: Ohio – rust on overhead door seals

Observations at the Frisco Maintenance Service Center include cover missing from pole base and near manhole cover, staining at light fixture (Figure 57) and areas of rain intrusion.

Figure 57: Frisco – staining at light fixture

Observations at the Gleneagles Office Center at 5900 West Plano Parkway include water staining on ceiling and lamps burnt out at multiple locations, deteriorated door sweeps (Figure 58), sprinkler escutcheon missing and handrail rusting at base (Figure 59).

Figure 58: Gleneagles 5900 – door sweeps deteriorated

Figure 59: Gleneagles 5900 – handrail rusting at base

Observations at the Gleneagles Office Center at 5910 West Plano Parkway include bench bases are rusting (Figure 60), masonry cracking, sprinkler head missing, vinyl wall covering peeling, ceiling T bar loose and ceiling tiles dislodged.

It was noted that rusting and deterioration of ferrous metal coating was present at most NTTA facilities. At this time this is primarily a cosmetic issue, but continued deterioration will merit maintenance of those components.

Figure 60: Gleneagles 5910 – bench bases rusting

3.0 PROJECTS COMPLETED SINCE FY21 INSPECTIONS

Listed below are projects that have been completed or in the process of being completed since the FY21 inspections.

3.1 Dallas North Tollway Completed Projects

- Seg. 1 Curb Inlet Repairs
- IH-635 Bent Cap Repair
- RPM Replacement
- Seg. 4 Restriping
- Systemwide Bridge Deck Joint Seal Replacement
- System-wide Pavement Profiling
- Seg. 1 & 2 and AATT Sign Replacement (Currently in construction)
- Cross Street Bridge deck rehab — University and Beverly (Construction Fall 2022)

3.2 President George Bush Turnpike Completed Projects

- EB Alma Exit Ramp Shoulder Repairs
- System-wide Pavement Profiling
- Seg. 7 & 8 Frontage Road Sign Replacement (Currently in construction)
- Spur 303 Frontage Rd Fascia Wall & Drainage Improvements (Currently in construction)
- Egyptian Way (Arbor Creek) Erosion Mitigation (currently in construction)
- Bent Cap Sealing — IH-30 (Construction Fall 2022)
- Pavement Surface Improvements (ghost striping removal) (Construction Fall 2022)

3.3 Sam Rayburn Tollway Completed Projects

- Seg. 1 & 2 Sign Replacement
- SRT Seg. 1 & 2 Frontage Road Restriping
- SRT Seg. 3 Frontage Road Restriping
- SRT Frontage Road Joint & Crack Sealing
- System-wide Pavement Profiling
- RPM Replacement
- Frontage Road Pavement Repairs
- Channel Erosion Mitigation (4 Locations) (Currently in construction)
- SRT Segs. 2 & 3 FR Joint and Crack (Construction Fall 2022)

3.4 Chisholm Trail Parkway Tollway Completed Projects

- Seg. 1 & 2 Mainlane Restriping
- Seg. 1 & 3 Mainlane Restriping (Currently under construction)

3.5 Addison Airport Toll Tunnel Completed Projects

- Restriping
- Exhaust Fan Replacement
- Lighting Upgrades and Liner Repair (Construction Fall 2022)

3.6 Lewisville Lake Toll Bridge

- RPM Replacement

3.7 Mountain Creek Lake Bridge

- None noted

3.8 360 Tollway

- None noted

4.0 FUTURE PROJECTS AND RECOMMENDATIONS

4.1 Overview

Through coordination with the Maintenance Department and the MMC, a plan will be developed to repair, replace, or monitor the observations noted during the 2022 Annual Inspection. This section summarizes projects that 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: Segment 4 Winter Storage Facility, Cross Street Bridge Deck Rehab – 4 locations, Bridge Deck Longitudinal Joint Seal Replacement, Segment 3 Restriping, Pavement Profiling – various locations, bent cap sealing – various locations and Shadow Striping Elimination at Legacy.

It is also recommended that the following observations be monitored for further degradation: spalling and cracking on beam ends, abutment backwall cracking at various locations.

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: Segments 7 & 8 Frontage Road Restriping, Erosion Repair at Kirby Creek, Segment 6 Sign Replacement and Trailblazer Sign Replacement, Segment 6 Restriping, Pavement Profiling — various locations and Shadow Striping Elimination near Alma Rd and IH-635.

The vast majority of the observations on the PGBT fall under the scope of routine maintenance. These include various locations of pavement cracking and spalls, pavement edge drop-offs, and erosion at riprap and under bridges. These should be addressed to prevent further damage.

It is recommended that the following observations be monitored: cracking abutment backwalls at various locations and beam end cracking.

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: Bridge Deck Joint Seal Replacement, Frontage Road Joint and Crack Seal (Coit to Stacy), Segment 3 Sign Replacement, Segment 1 Frontage Road Restripe, Bent Cap Sealing — various locations and Pavement Profiling — various locations.

Most observations made on the SRT are included under routine maintenance. These include pavement edge drop offs, and missing delineation and erosion.

It is recommended that the following be monitored for future deterioration: bridge beam end spalling.

4.5 Chisholm Trail Parkway Recommendations

Projects that are being developed or in the process of being developed to address the needs of CTP include a project for Erosion Repair at several locations and Pavement Profiling — various locations.

Of the previously mentioned observations, many fall under the scope of routine maintenance. These include pavement edge drop offs and minor concrete barrier spalling.

It is also recommended that the minor cracking in the bridge backwalls be monitored.

4.6 Mountain Creek Lake Bridge Recommendations

Projects that are being developed or in the process of being developed to address the needs of MCLB include: Restriping project, Bridge Column Collar Repair, Bridge Repairs (Deck, Rail or Bent Cap).

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

4.7 Lewisville Lake Toll Bridge Recommendations

Several projects have been developed or are in the process of being developed to address the needs of the LLTB. These projects include Column Repair (west end), Erosion Repair (east bank), and Sign Replacement and Trailblazer Sign Replacement.

4.8 Addison Airport Toll Tunnel Recommendations

Currently, all the needs of the Addison Toll Tunnel are being addressed with projects designed and preparing for construction.

4.9 360 Tollway Recommendations

None noted.

4.10 Facilities Recommendations

Several projects are being developed to address the needs of facilities across the NTTA System. These projects include Reroofing the buildings at DNT MLP 4 and Gleneagles 5910 along with parking lot improvements at Gleneagles 5900/5910.

4.11 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 shown in the 2023 NTTA System preliminary budget for major items associated with administrative and roadway costs for the Operation and Maintenance Fund and Reserve Maintenance Fund are recommended to maintain NTTA major assets at or above the Board-adopted GASB 34 level of 8.0 out of 10.0.

Table 3: Budget Recommendations

FUNDS	BUDGET
Operation and Maintenance Fund (OMF)	$219.9 million
Reserve Maintenance Fund (RMF)	$77.5 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 Fund projects will ensure the System continues to provide a reliable mobility option for the North Texas area.

APPENDIX A – SECTION 504 OF THEAMENDED AND RESTATED TRUST AGREEMENT

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 – QUALITY MANAGEMENT SYSTEM MANUAL PROCEDURE GEC-01 — GENERAL ENGINEERING CONSULTANT ANNUAL INSPECTION OF THE NTTA SYSTEM

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.

- 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:

- Preform 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.

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:

- Preform 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

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.

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.

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.

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.

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

September 30, 2022

James Hofmann
Executive Director
North Texas Tollway Authority
5900 W. Plano Parkway
Plano, Texas 75093

Subject: FY 2022 GEC System Annual Inspection

Dear Mr. Hofmann:

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, VRX, Inc. (VRX) is pleased to submit the Fiscal Year 2022 (FY22) System Annual Inspection Report.

VRX completed the System inspections in July 2022 and reports that the system's tollways, toll bridges, toll tunnel, and associated facilities have been maintained in good repair, working order and condition. This observation was based on a general visual assessment of the roadway, walls, bridges, tunnel, and facilities. Results of the observations are presented in greater detail within this report. A complete list of observations has been transmitted to the Maintenance Department under a separate cover.

VRX recommends that NTTA continue to implement the routine maintenance as budgeted and scoped, and to also implement the major maintenance projects planned for the ensuing fiscal year. Through coordination with NTTA staff and review of the anticipated Reserve Maintenance Funded (RMF) projects scheduled for FY23, the following budgets, which will be presented at the October 19, 2022, Board of Directors' meeting and subject to Board approval at the December 2022 Board Meeting, are recommended:

Operation and Maintenance Fund (OMF):	$219.9 million
Reserve Maintenance Fund (RMF):	$77.5 million

The overall condition of the tollways, toll bridges, toll tunnel, and associated facilities, along with the appropriate funding levels for the System operating budgets, exemplifies NTTA's commitment to maintain and operate a safe and reliable toll road system in the North Texas region.

Respectfully submitted,

Scott A. Brush, PE
General Engineering Consultant
Project Director

cc: Elizabeth Mow, PE, NTTA (w/1 copy)
Amitis Meshkani, PE, NTTA (w/1 copy)
Dee Runnels, NTTA (w/1 copy and electronic pdf)
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File

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ACRONYMS AND ABBREVIATIONS

360T	360 Tollway
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	Lewisville Lake Toll Bridge
MCLB	Mountain Creek Lake Bridge
MLG	Mainlane Gantry
MLP	Mainlane 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
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, Chisholm Trail Parkway, Mountain Creek Lake Bridge, Lewisville Lake Toll Bridge, Addison Airport Toll Tunnel, 360 Tollway, and associated facilities/buildings. The System encompasses much of the North Texas region and spans Dallas, Collin, Tarrant, Johnson, Denton, and Ellis Counties.

VRX, Inc. (VRX), as General Engineering Consultant, completed the inspections in July 2022 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.

VRX recommends that NTTA continue to implement the routine maintenance as budgeted and scoped, and to also implement the Reserve Maintenance Projects planned for the ensuing fiscal year and beyond.

Working with NTTA staff, VRX has reviewed the 2023 NTTA System preliminary budget which includes the Operation and Maintenance Fund and Reserve Maintenance Fund and concurs that they are in line with major items for administrative and roadway costs. The following budgets are recommended and will be presented at the Board of Director's meeting on October 19, 2022, and subject to Board approval in December, 2022:

Table 1: Budget Recommendations

FUNDS	BUDGET
Operation and Maintenance Fund (OMF)	$219.9 million
Reserve Maintenance Fund (RMF)	$77.5 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 July 2022, VRX 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) for the ensuing fiscal year.

1.2 Inspection Process

The GEC Annual Inspection assessed four main elements: roadway, bridges, walls, and building facilities. The roadway portion of the inspection focused on the pavement, drainage structures, erosion, signing, striping, illumination, and barriers. The bridge inspection focused on the deck, superstructure, substructure, and drainage components. The wall inspection focused on panels, joints, coping, flumes, mow strips, inlets, rails, riprap, visible underdrain pipes, sound walls, and adjacent elements. The building facilities inspection focused on the interior and exterior plaza operations, sand storage, maintenance operation and administrative office buildings and sites.

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 inspection and assessment of asset 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 visual observations. 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 2).

Table 2: 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), Chisholm Trail Parkway (CTP), Mountain Creek Lake Bridge (MCLB), Lewisville Lake Toll Bridge (LLTB), Addison Airport Toll Tunnel (AATT), 360 Tollway (360T) and associated facilities/buildings and serves as a vital component of the transportation system in the North Texas region (Figure 1).

While tolling originally included staffed toll booths, all tolling on the NTTA system is now accomplished electronically.

1.3.1 Dallas North Tollway

DNT extends from Interstate 35E (IH-35E) in downtown Dallas north approximately 31 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 (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 SRT opened in 2011.

NTTA System

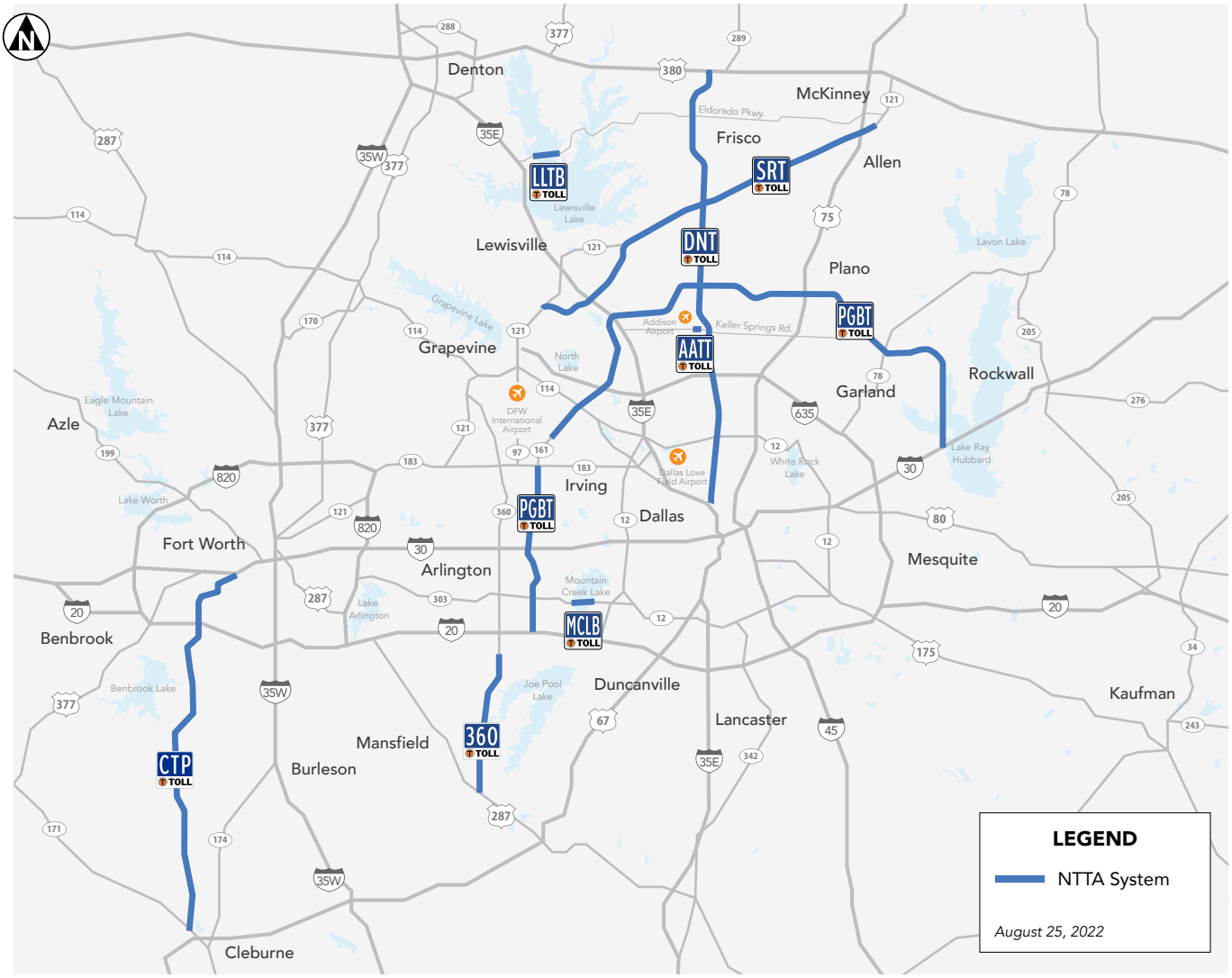

Figure 1: System Map

NTTA maintains 195 mainlane miles of the corridor. The frontage roads of DNT, referenced as Dallas Parkway, are not maintained by NTTA. There are 105 total bridges on DNT. DNT has 3 mainlane gantries, 1 mainlane plaza, and 35 ramp gantries.

NTTA has continued to extend the original DNT to new destinations as communities to the north have continued to grow. The high growth rate in both Collin and Denton Counties, along with input from both counties, encouraged the NTTA to continue the extensions further north. The current extension project which extends to First St in Prosper and includes a mainlane bridge over US 380 is under construction and is expected to be opened to traffic in early 2023.

1.3.2 President George Bush Turnpike

PGBT extends clockwise from IH-20 in Grand Prairie to SH 183 Irving and is approximately 11 miles. A non-tolled segment runs from SH 183 to Belt Line Road and is maintained by the Texas Department of Transportation (TxDOT). PGBT picks up at Belt Line Road in Irving and extends approximately 40 miles to Interstate 30 (IH-30) in Garland. PGBT provides a vital route through the DFW Metroplex and offers access to Grand Prairie, Irving, Carrollton, Dallas, Plano, Richardson, Sachse, Rowlett, and Garland.

Segment 1, extending from Midway Road to Avenue K in Collin County, opened to traffic in 1999. Segment 2, 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. Segment 6, extends from Brand Road to the IH-30 near Lake Ray Hubbard in Garland, opened in October 2012.

Segments 7 & 8 extend from SH 183 to IH-20 in Grand Prairie. These two segments were constructed in four phases with Phases 1-3 under the direction of TxDOT.

Phase 1, consisting of frontage roads from North Carrier Parkway to IH-20, along with the mainlane interchange at SH 183, was opened in August 2009. Phase 2, which included two mainlanes in each direction from SH 183 to Egyptian Way, also opened to traffic in August 2009. Phase 3, consisting of frontage roads and a third mainlane from Conflans Road to North Carrier Parkway, opened in April 2010.

Phase 4 was administered by NTTA under a design-build contract and included two mainlanes in each direction from North Carrier Parkway to IH-20, as well as the interchanges at IH-20 and IH-30. Phase 4 was opened to traffic in October 2012.

The PGBT has been widened to four lanes in each direction to increase capacity between IH-20 in Grand Prairie and SH 183 in Irving and from Belt Line Road in Irving to SH 78 in Garland. The additional lanes were built within the median.

NTTA maintains a portion of the frontage roads along the PGBT corridor. The sections maintained on both sides of the mainlanes include Midway Rd to Rosemeade Pkwy and Marsh Ln to Frankford Rd in Carrollton and IH-20 to IH-30 in Grand Prairie.

The PGBT corridor has approximately 387 mainlane miles, 57 frontage road miles and 184 bridges. The PGBT has 5 mainlane plazas, 3 mainlane gantries, and 60 ramp gantries.

1.3.3 Sam Rayburn Tollway

SRT extends for approximate 26 miles from Business SH 121 near the Denton/Dallas County line to east of US 75 in Collin County. The SRT offers access to Coppell, Lewisville, Carrollton, The Colony, Plano, Frisco, McKinney, and Allen.

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 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 the SRT/US 75 interchange) opened in 2011. Segment 5, the SRT/DNT interchange, also opened in 2011. SRT was widened to four lanes in each direction within the median from Denton Tap Road to US 75 in 2021.

The frontage roads of SRT, which retained the SH 121 designation, are maintained by NTTA. A total of 207 mainlane miles and 154 frontage road miles are maintained. There are 156 bridges on the SRT that also include 3 mainlane gantries and 40 ramp gantries.

1.3.4 Chisholm Trail Parkway

CTP is an approximate 28-mile toll road, extending from IH-30 in downtown Fort Worth in Tarrant County to US 67 in Cleburne which is in Johnson County. CTP mainlanes were open to traffic in 2014. This limited access toll road has major interchanges located at IH-30 and IH-20. The CTP has 99 mainlane miles, 3 mainlane gantries and 24 ramp gantries.

1.3.5 Mountain Creek Lake Bridge

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. MCLB is an approximately 2-mile facility that opened in 1979 to traffic with a lake bridge spanning approximately 7,500 feet in length. This approximate 4 lane 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.

The bridge provides 1 lane of travel each direction and 1 mainlane gantry at the west approach.

1.3.6 Lewisville Lake Toll Bridge

LLTB provides an east-west crossing of the northwestern arm of Lewisville Lake in Denton County. The bridge structure is approximately 2 miles long and provide four lanes across the lake.

LLTB opened to traffic in 2009. In addition to offering convenient access across the lake, the approximate 8 lane mile LLTB serves as a unique landmark with a 360-foot steel truss that rises 60 feet above the roadway. LLTB has 1 mainlane gantry.

1.3.7 Addison Airport Toll Tunnel

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 2-lane tunnel, which opened to traffic in 1999, is approximately 1,650 feet long with the entire facility spanning approximately 3,600 feet. The tunnel has a mainlane plaza located west of the tunnel.

1.3.8 360 Tollway

360 Tollway (360T) is an approximate 10-mile toll road located in Tarrant, Ellis, and Johnson Counties, extending from Green Oaks Boulevard in Tarrant County south to US 287 in Ellis County with approximately 78 lane miles (37 mainlane miles and 41 lane miles of frontage roads). The 360T limited access facility has 28 bridges, 2 mainlane gantries and 6 ramp gantries.

1.3.9 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, Sand Storage facilities as well as roadway plaza facilities being occupied for various operational support functions.

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, and facilities. The Project Delivery Department is responsible for reserve maintenance projects and major maintenance projects for the System. The System totals over 1,194 lane miles of limited access toll roads and include 603 bridges, including bridge class culverts, and one tunnel.

Major Maintenance Projects include repairs and maintenance, painting/coating, renewals, replacements, improvements, and other projects necessary for the safe and efficient operation of the System and to prevent loss of revenue. These projects include costs for engineering, fleet and equipment purchases/additions and replacements, maintenance expenses for roadway, bridge, buildings, etc.

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 approximately 50% of these services outsourced to contractors.

NTTA staff maintains the DNT, SRT, AATT and MCLB corridors as well as the tolling and ITS elements on the System.

The other NTTA roadways (PGBT, MCLB, CTP & 360T) are maintained under Total Routine Maintenance (TRM) contracts. Those contracts are outlined below.

Currently, the TRM contract for PGBT West, from IH-20 in Grand Prairie to Dickerson Parkway in Carrollton, and MCLB is outsourced to Roy Jorgensen Associates, Inc. This 6-year contract was executed in October 2019.

The TRM contract for PGBT East, from Dickerson Parkway in Carrollton to IH-30 in Garland, was outsourced to DBi, Services, Inc. This 6-year contract was executed in October 2019. In October, 2021, DBi Services publicly announced the closing of their operations. Subsequently, they abandoned their contracts with NTTA. Maintenance services for this section of PGBT are currently being performed by Roy Jorgenson Associates, Inc.

Maintenance services on the CTP are also outsourced under a TRM contract. DBi Services had been awarded a 6-year contract in August, 2017. This contract was also abandoned as a result of the aforementioned business decision by DBi in October, 2021. The services on the CTP were outsourced to Roy Jorgenson Associates, Inc., until July of 2022 when a new 6-year contract was awarded. Roy Jorgenson Associates was the vendor selected for the current contract.

360T is maintained under a Comprehensive Maintenance Agreement (COMA) with Lane-Abrams Joint Venture. The COMA went into effect in May 2018 when 360T was opened to the public.

The NTTA Project Delivery Department staff is supported by the MMC, Atkins North America, Inc. (Atkins). As the MMC, Atkins provides professional services in support of the Project Delivery Department responsibilities, which include items such as:

- 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 Atkins utilizes as the MMC include civil, structural, traffic, environmental, mechanical, and electrical engineering, and architectural services.

1.4.2 Maintenance Rating Program

In addition to the annual inspection and the specialized inspections, 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 on a monthly basis.

1.4.3 Specialized Inspections

NTTA conducts specialized inspections for the pavement, overhead sign structures (OSS), and high-mast illumination poles (HMIP) on its roadways.

Each year the NTTA contracts through the GEC to accomplish these inspections. Reports for each of the inspections are completed and submitted to NTTA.

NTTA's Pavement Management Program inspects and assesses current conditions of both the mainlane and frontage road pavement (where maintained by NTTA). This report outlines the results of the inspections and assessment.

The 2022 Pavement Management Report (Pavement Report) did not identify any significant findings. The 10-year capital plan will be included in the final 2022 Pavement Report.

NTTA's Overhead Sign Inspection Program requires all cantilever overhead sign supports (COSS), overhead sign bridges (OSB), and "Tee" overhead structures to be inspected on a 5-year cycle. These inspections also include the tolling gantries.

In 2022, the overhead sign structures of CTP were inspected. From this inspection, there were no significant findings identified. A continued monitoring program of all structures is recommended in accordance with OSS inspection program schedule.

NTTA's High Mast Illumination Pole (HMIP) Inspection Program requires each pole be inspected once every 5 years. The HMIP along DNT, SRT and CTP were inspected in 2022 with no significant findings identified. A continued monitoring program of all HMIPs is recommended to ensure the structural performance of the poles.

TxDOT is responsible for the specialized bridge inspections that are performed on a 2-year cycle with the reports being filed with the TxDOT Bridge Inventory Inspection and Appraisal Program (BRINSAP). In addition, TxDOT performs fracture critical and underwater inspections that typically on a 5-year cycle.

The latest available BRINSAP reports for the System bridges were reviewed. These 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.

TxDOT is also responsible for the tunnel inspections that are performed on a 2-year cycle and that focuses on structural, mechanical, and electrical elements. The next AATT inspection will be performed in 2023. Mechanically, the inspection included the ventilation fans, the fire protection system, drainage sump pumps, and the electrical room heating and air conditioning roof top unit.

1.4.4 Governmental Accounting Standards Board Requirements

Governmental Accounting Standards Board (GASB) Statement 34 establishes financial reporting requirements for state and local governments throughout the United States. NTTA elected to adopt the Modified Approach to asset depreciation in accordance with GASB 34 which requires a reporting of asset conditions every 3 years. NTTA has elected to develop the GASB 34 rating annually to ensure the System maintains a Board adopted minimum level-of-service of 8.0. The MMC maintains an inventory of NTTA's infrastructure assets and condition ratings and replacement costs are assigned to the pavement and bridge structure assets by the GEC. The annual inspection by the GEC provides the foundation for complying with GASB 34. The 2022 GASB 34 rating for the System is 8.9 out of 10.

2.0 INSPECTION FINDINGS

2.1 Overview

Based on the 2022 visual annual inspection, the System has been maintained in good repair, working order, and condition. Using the GEC Annual Inspection Rating Scale in Table 1, no observations were rated below a 2 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 observations are presented in Section 4.

2.2 Dallas North Tollway Findings

The recurring observations noted on this year's inspection were barrier wall spalling, missing delineation, faded signs, pavement edge drop-offs, erosion, inlet damage and pavement spalling and cracking.

2.2.1 Dallas North Tollway Roadway

Minor barrier spalling was observed at various locations throughout the corridor as illustrated in Figure 2. There were multiple areas of erosion under bridges and landscape areas as illustrated in Figure 3. Also noted were areas of pavement cracking and spalling as well as joint deterioration noted in Figures 4 and 5.

There are multiple isolated locations of pavement edge drop offs as illustrated in Figure 6. Pavement markings and striping need replacing in various locations as illustrated in Figure 7. Several clearance signs were faded as noted in Figure 8. These are being corrected as part of a sign replacement that is currently in construction.

Figure 2: DNT barrier wall spall NBML S. of Knight St.

Figure 3: DNT erosion SBML S. of Gaylord Pkwy.

Figure 4: DNT pavement distress SBML N. of Windhaven Pkwy.

Figure 6: DNT pavement edge drop-off NBML S. of Stonebrook Pkwy.

Figure 5: DNT pavement joint deterioration NBML N. of Eldorado Pkwy.

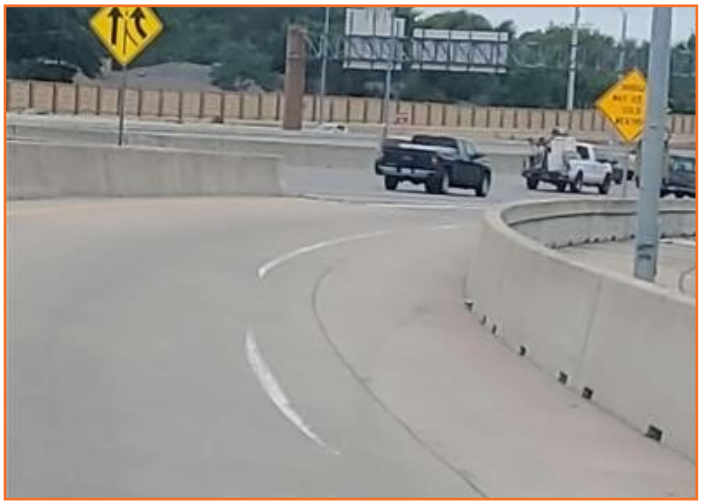

Figure 7: DNT faded pavement markings NBML N. of IH-635

Figure 8: DNT clearance sign faded SB U-Turn at Trinity Mills Rd.

2.2.2 Dallas North Tollway Walls

Wall panels and copings were observed with minor spalling and cracking at various locations (Figure 9).

Figure 9: DNT retaining wall panel crack NBML S. of IH-635

General visual observations identified potential movement characteristics at some walls. These observations do not confirm nor negate actual wall movement. VRX discussed these observations with NTTA and were informed that said walls were currently part of an active wall stabilization project or had an on-going monitoring effort associated with that particular wall. A listing of these walls is noted below.

- Seg. 1 SW corner DNT @ IH-635
- Seg. 4 NE corner DNT @ Stonebrook Pkwy.
- Seg. 4 North of DNT @ BNSF RR
- Seg. 4 All corners of DNT @ Cotton Gin Rd.
- Seg. 4 All corners of DNT @ Main St.
- Seg. 4 NE corner of DNT @ Eldorado Pkwy.

2.2.3 Dallas North Tollway Bridges

- One observation noted was areas where the concrete rail is damaged (Figure 10).
- Cracking in the abutment backwall was also observed at various locations as illustrated in Figure 11.

Figure 10: DNT concrete rail damage SB at Maple Ave.

Figure 11: DNT bridge abutment cracking NB at Harvest Hill Rd.

2.2.4 Dallas North Tollway Facilities/Buildings

There are three mainlane gantries and one mainlane plaza facility on the DNT.

- At MLP 2, observations included sealant missing from the building perimeter concrete.
- At MLG 3, located near Parker Road there was floor damage from water intrusion as illustrated in Figure 12, and a general deterioration of the site improvements such as parking areas, curbs, and walks.
- At MLP4, significant deterioration of the existing roof (Figure 13) was observed; it has been reported to the GEC that a roof replacement project is in design. The gantry structure at MLP4 continues to experience coatings failure which is not yet affecting its function.

Figure 12: DNT MLP3 – floor damage from water intrusion

Figure 13: DNT MLP4 – deteriorated roof

2.3 President George Bush Turnpike Findings

2.3.1 President George Bush Turnpike Roadway

The roadway elements were generally in good condition. The recurring observations noted on this year's inspection were curb damage, pavement edge drop offs, erosion, and pavement spalling and cracking.

- There were multiple areas of damaged curb as illustrated in Figure 14. There were also areas of erosion on the roadside (Figure 15) and under bridges.
- Pavement edge drop-offs (Figure 16) and pavement cracking and spalling (Figure 17) were observed at various locations throughout the corridor.

Figure 14: PGBT curb damage NBFR at Conflans Rd.

Figure 15: PGBT erosion under inlet NBFR North of W. Pioneer Pkwy.

Figure 16: PGBT pavement edge drop-off SB exit ramp to Merritt Rd.

Figure 17: PGBT pavement cracking SB exit ramp to Hwy. 78

2.3.2 President George Bush Turnpike Walls

Wall observations include cracks and spalls on retaining wall panels as shown in Figure 18.

Figure 18: PGBT retaining wall panel spalling SB at N. MacArthur Blvd.

General visual observations identified potential movement characteristics at some walls. These observations do not confirm nor negate actual wall movement. VRX discussed these observations with NTTA and were informed that said walls were currently part of an active wall stabilization project or had an on-going monitoring effort associated with that particular wall. A listing of these walls is noted below.

- Seg. 7 NW & SW corners PGBT @ Egyptian Way
- Seg. 8 SE corner PGBT @ Marshall Dr.
- Seg. 8 Eastside between Pioneer Pkwy. and Arkansas Ln.
- Seg. 8 SE corner PGBT @ Mayfield Rd.

2.3.3 President George Bush Turnpike Bridges

Bridge observations include abutment backwall cracking and spalling (Figure 19). Also noted were areas where the bridge beam is pushing against the backwall causing spalls on beam ends. Erosion was noted around bridge riprap and under bridges (Figure 20).

Figure 19: PGBT backwall cracking/spalling on SB structure at E. Rosemeade Pkwy.

Figure 20: PGBT erosion under bridge SBFR South of N. Carrier Pkwy.

The substructure of the mainlane bridge over Lake Ray Hubbard is in good condition with only minor spalling in the sacrificial column protection (Figure 21). There were a few areas where the water collection system piping was disconnected and leaking (Figure 22).

Figure 21: PGBT at Lake Ray Hubbard column spall NB bent No. 48

Figure 22: PGBT at Lake Ray Hubbard Deck drain pipe disconnected NB bent No. 21

2.3.4 President George Bush Turnpike Facilities/Buildings

There are five mainlane plazas on the PGBT.

Observations identified throughout the facilities included stains on the ceiling indicating a roof or mechanical leak, missing lens on light fixtures, paint failing and rust developing on steel as noted on Figures 23 and 24. Recent HVAC replacement and roofing projects at MLPs 7, 8 and 10 have provided for high functionality of those facilities.

Figure 23: PGBT MLP 7 – rust staining on floor

Figure 24: PGBT MLP 8 – rust developing on wall

2.4 Sam Rayburn Tollway Findings

2.4.1 Sam Rayburn Tollway Roadway

The roadway observations include pavement cracking and spalling, pavement edge drop offs, missing delineation, broken curbs, barrier spalling, and erosion.

- There were multiple areas with pavement cracking, spalling and joint deterioration as noted in Figure 25. Pavement edge drop offs, as illustrated in Figure 26, were noted in various areas along the corridor.
- There were locations with erosion under bridges and around appurtenances as noted in Figure 27.
- Curb damage, as illustrated in Figure 28, was observed at multiple locations at intersections and on frontage roads.

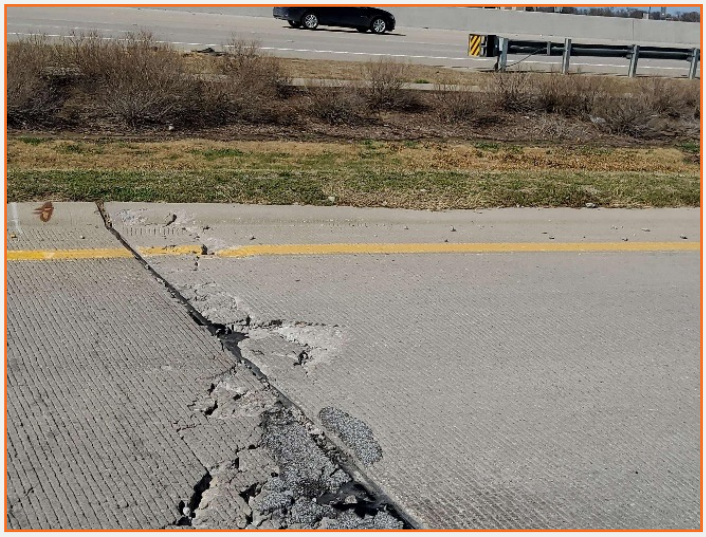

Figure 25: SRT pavement cracking/spalling NB exit ramp to N. Josey Ln.

Figure 26: SRT pavement edge drop-off NB exit ramp to Independence Pkwy.

Figure 27: SRT erosion NB-US75-NB SRT DC

Figure 28: SRT curb damage NBFR at Razor Blvd.

2.4.2 Sam Rayburn Tollway Walls

Wall observations noted some shifted and spalled wall panels as illustrated in Figure 29.

Figure 29: SRT misaligned wall panel at NB 121 Bus. DC

General visual observations identified potential movement characteristics at some walls. These observations do not confirm nor negate actual wall movement. VRX discussed these observations with NTTA and were informed that said walls had an on-going monitoring effort associated with that particular wall. A listing of these wall is noted below.

- Seg. 2 NW corner SRT @ RR (West of Spring Creek Pkwy.)

2.4.3 Sam Rayburn Tollway Bridges

Bridges are in good condition with one recurring observation where the beams are pushing against the backwall causing minor spalling at the beam end and backwall as noted in Figure 30. This condition is being monitored by NTTA staff.

Figure 30: SRT beam end spall SB structure at Hardin Blvd.

2.4.4 Sam Rayburn Tollway Facilities/Buildings

There were several observations noted on mainlane gantries including an electrical outlet box missing the protective cover at MLG 2 and sealant missing at building perimeter at MLG 3 (Figures 31 and 32). Insect infestation is a continuing issue at these facilities.

Figure 31: SRT MLG 2 – electrical box cover missing

Figure 32: SRT MLG 3 – active insect infestation

2.5 Chisholm Trail Parkway Findings

2.5.1 Chisholm Trail Parkway Roadway

The observations noted on this year's inspection included: barrier wall spalls, pavement edge drop-offs, missing delineation, erosion in ditches and around concrete appurtenances, pavement cracks and spalls and pavement joint deterioration.

Areas of erosion were noted at various locations as illustrated in Figure 33. There are areas with pavement edge drop offs as shown in Figure 34. Multiple areas were observed where the pavement joint seal was missing/ damaged (Figure 35) or where concrete barrier spalling (Figure 36) occurred.

Figure 33: CTP embankment erosion – NB North of CR 1015

Figure 34: CTP pavement edge drop-off NB just South of FM 917

Figure 35: CTP pavement joint deterioration at SB exit ramp to Arborlawn Dr.

Figure 36: CTP barrier spalling NB just South of Arborlawn Dr.

2.5.2 Chisholm Trail Parkway Retaining Walls

Retaining wall elements are in good condition. There are several locations with minor spalls on coping and wall panels.

2.5.3 Chisholm Trail Parkway Bridges

The majority of the bridge elements are in good condition with few issues observed. One observation noted this year was minor bearing pad movement and minor beam spalls as illustrated in Figure 37.

Figure 37: CTP bridge beam spall at Edwards Ranch Rd.

2.5.4 Chisholm Trail Parkway Tollway Facilities/ Buildings

Facilities along the CTP corridor are in good condition with only a few minor findings. Rust developing on door where paint is missing at MLG1 and water damage to floor due to water intrusion at MLG2 as noted in Figures 38 and 39. Insect infestation is a continuing issue at these facilities.

Figure 38: CTP MLG 1 – wall trim peeling away

Figure 39: CTP MLG 2 – insect infestation

2.6 Mountain Creek Lake Bridge Findings

2.6.1 Mountain Creek Lake Bridge Roadway

Observations noted on this year's inspection included faded and missing pavement markings as noted in Figure 40 and unsealed flume as noted in Figure 41.

Figure 40: MCLB faded or missing pavement markings

Figure 41: MCLB flume unsealed at wall East end of bridge

2.6.2 Mountain Creek Lake Bridge (Bridge)

Bridge observations include interior and exterior bridge beam end spalling at numerous locations, as illustrated in Figure 42. There are hairline vertical and diagonal cracks with efflorescence on some of the bent caps. Also noted is moderate to heavy scaling on the concrete encasements on the columns.

There was also noted backwall spalling as noted in Figure 43.

Figure 42: MCLB typical beam end spall

Figure 43: MCLB backwall spalling at West abutment

2.6.3 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.

2.6.4 Mountain Creek Lake Bridge Facilities/ Buildings

There are no facilities on the MCLB.

2.7 Lewisville Lake Toll Bridge Findings

2.7.1 Lewisville Lake Toll Bridge Roadway

Observations on the roadway include minor cracking and spalling on the concrete rail in addition to pavement joint seal missing/damaged as shown in Figure 44.

Figure 44: LLTB pavement seal missing/damaged

2.7.2 Lewisville Lake Toll Bridge (Bridge)

Observations on or related to the bridge include damaged buoys (Figure 45), and column and abutment spalling (Figure 46 and 47). In addition, it was noted that the AquaShield bridge drainage system has a broken weld (Figure 48).

2.7.3 Lewisville Lake Toll Bridge Walls

No observations were noted for the retaining walls.

2.7.4 Lewisville Lake Toll Bridge Facilities/ Buildings

The MLG and IT building at on the Lewisville Lake Toll Bridge has minor issue with exterior paint and typical insect infestation but is serving its intended function.

Figure 45: LLTB damaged buoy

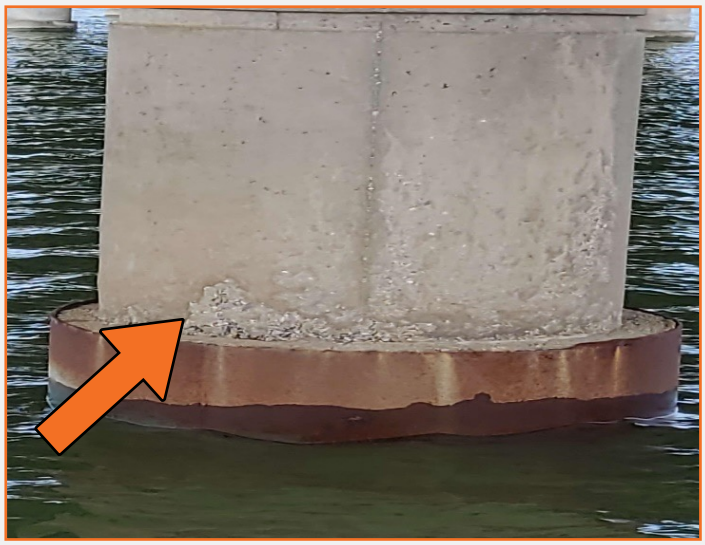

Figure 46: LTTB column spalling near bent No. 53 from West

Figure 47: LLTB abutment spalling at East end of bridge

Figure 48: LLTB AquaShield pipe welding broken

2.8 Addison Airport Toll Tunnel Findings

2.8.1 Addison Airport Toll Tunnel Roadway

Observations on the roadway include curb damage on both ends of the tunnel (Figure 49.

Figure 49: AATT curb damage

2.8.2 Addison Airport Toll Tunnel Bridges

There are no bridges on the AATT.

2.8.3 Addison Airport Toll Tunnel Walls

Observations concerning the tunnel include cracking and spalled wall panels along with faded signs (Figure 50). These signs will be replaced as part of the AATT Improvements project which will start construction in late 2022. There were a few locations with wall spalling along the tunnel.

Figure 50: AATT cracked and spalled wall panels on West end tunnel entrance

2.8.4 Addison Airport Toll Tunnel Facilities/ Buildings

The former MLP building is serving currently as an electrical room and is functioning as required.

The tunnel sump pump wiring has been recently replaced. The tunnel exhaust fans are at the end of their service life and a replacement project is reported as under contract. The tunnel lighting is at the end of its service life and a replacement project was reported as in design at the time of the inspections.

2.9 360 Tollway Findings

2.9.1 360 Tollway Roadway

The observations noted on this year's inspection included: curb damage, pavement edge drop-offs, ditch line erosion, pavement spalls and striping missing and faded.

- Areas of erosion were noted at various locations as illustrated in Figure 51.
- There were several areas with pavement edge drop offs as shown in Figure 52. Areas of pavement spalls (Figure 53) were observed.

Figure 51: 360T embankment erosion NB North of Heritage Pkwy.

Figure 52: 360T pavement edge drop-off North of Ragland Rd.

Figure 53: 360T pavement spall SB exit ramp to Webb Lynn Rd.

2.9.2 360 Tollway Retaining Walls

Wall panels and copings were observed in good condition with only one area that had a minor spall on the coping.

2.9.3 360 Tollway Bridges

There were noted a few areas of backwall cracking as illustrated in Figure 54.

There was also noted minor erosion under a bridge as shown in Figure 55.

2.9.4 360 Tollway Facilities/Buildings

There are two mainlane gantry facilities on the 360T

Figure 54: 360T backwall cracking at Bowman Branch bridge

Figure 55: 360T erosion around riprap at Walnut Creek bridge

2.10 Facility (Other) Findings

2.10.1 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 gutter damage, rust on overhead door seals (Figure 56) and structural frames, stains on ceiling indicating roof or mechanical leak and gate closure damage.

Figure 56: Ohio – rust on overhead door seals

Observations at the Frisco Maintenance Service Center include cover missing from pole base and near manhole cover, staining at light fixture (Figure 57) and areas of rain intrusion.

Figure 57: Frisco – staining at light fixture

Observations at the Gleneagles Office Center at 5900 West Plano Parkway include water staining on ceiling and lamps burnt out at multiple locations, deteriorated door sweeps (Figure 58), sprinkler escutcheon missing and handrail rusting at base (Figure 59).

Figure 58: Gleneagles 5900 – door sweeps deteriorated

Figure 59: Gleneagles 5900 – handrail rusting at base

Observations at the Gleneagles Office Center at 5910 West Plano Parkway include bench bases are rusting (Figure 60), masonry cracking, sprinkler head missing, vinyl wall covering peeling, ceiling T bar loose and ceiling tiles dislodged.

It was noted that rusting and deterioration of ferrous metal coating was present at most NTTA facilities. At this time this is primarily a cosmetic issue, but continued deterioration will merit maintenance of those components.

Figure 60: Gleneagles 5910 – bench bases rusting

3.0 PROJECTS COMPLETED SINCE FY21 INSPECTIONS

Listed below are projects that have been completed or in the process of being completed since the FY21 inspections.

3.1 Dallas North Tollway Completed Projects

- Seg. 1 Curb Inlet Repairs
- IH-635 Bent Cap Repair
- RPM Replacement
- Seg. 4 Restriping
- Systemwide Bridge Deck Joint Seal Replacement
- System-wide Pavement Profiling
- Seg. 1 & 2 and AATT Sign Replacement (Currently in construction)
- Cross Street Bridge deck rehab — University and Beverly (Construction Fall 2022)

3.2 President George Bush Turnpike Completed Projects

- EB Alma Exit Ramp Shoulder Repairs
- System-wide Pavement Profiling
- Seg. 7 & 8 Frontage Road Sign Replacement (Currently in construction)
- Spur 303 Frontage Rd Fascia Wall & Drainage Improvements (Currently in construction)
- Egyptian Way (Arbor Creek) Erosion Mitigation (currently in construction)
- Bent Cap Sealing — IH-30 (Construction Fall 2022)
- Pavement Surface Improvements (ghost striping removal) (Construction Fall 2022)

3.3 Sam Rayburn Tollway Completed Projects

- Seg. 1 & 2 Sign Replacement
- SRT Seg. 1 & 2 Frontage Road Restriping
- SRT Seg. 3 Frontage Road Restriping
- SRT Frontage Road Joint & Crack Sealing
- System-wide Pavement Profiling
- RPM Replacement
- Frontage Road Pavement Repairs
- Channel Erosion Mitigation (4 Locations) (Currently in construction)
- SRT Segs. 2 & 3 FR Joint and Crack (Construction Fall 2022)

3.4 Chisholm Trail Parkway Tollway Completed Projects

- Seg. 1 & 2 Mainlane Restriping
- Seg. 1 & 3 Mainlane Restriping (Currently under construction)

3.5 Addison Airport Toll Tunnel Completed Projects

- Restriping
- Exhaust Fan Replacement
- Lighting Upgrades and Liner Repair (Construction Fall 2022)

3.6 Lewisville Lake Toll Bridge

- RPM Replacement

3.7 Mountain Creek Lake Bridge

- None noted

3.8 360 Tollway

- None noted

4.0 FUTURE PROJECTS AND RECOMMENDATIONS

4.1 Overview

Through coordination with the Maintenance Department and the MMC, a plan will be developed to repair, replace, or monitor the observations noted during the 2022 Annual Inspection. This section summarizes projects that 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: Segment 4 Winter Storage Facility, Cross Street Bridge Deck Rehab – 4 locations, Bridge Deck Longitudinal Joint Seal Replacement, Segment 3 Restriping, Pavement Profiling – various locations, bent cap sealing – various locations and Shadow Striping Elimination at Legacy.

It is also recommended that the following observations be monitored for further degradation: spalling and cracking on beam ends, abutment backwall cracking at various locations.

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: Segments 7 & 8 Frontage Road Restriping, Erosion Repair at Kirby Creek, Segment 6 Sign Replacement and Trailblazer Sign Replacement, Segment 6 Restriping, Pavement Profiling — various locations and Shadow Striping Elimination near Alma Rd and IH-635.

The vast majority of the observations on the PGBT fall under the scope of routine maintenance. These include various locations of pavement cracking and spalls, pavement edge drop-offs, and erosion at riprap and under bridges. These should be addressed to prevent further damage.

It is recommended that the following observations be monitored: cracking abutment backwalls at various locations and beam end cracking.

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: Bridge Deck Joint Seal Replacement, Frontage Road Joint and Crack Seal (Coit to Stacy), Segment 3 Sign Replacement, Segment 1 Frontage Road Restripe, Bent Cap Sealing — various locations and Pavement Profiling — various locations.

Most observations made on the SRT are included under routine maintenance. These include pavement edge drop offs, and missing delineation and erosion.

It is recommended that the following be monitored for future deterioration: bridge beam end spalling.

4.5 Chisholm Trail Parkway Recommendations

Projects that are being developed or in the process of being developed to address the needs of CTP include a project for Erosion Repair at several locations and Pavement Profiling — various locations.

Of the previously mentioned observations, many fall under the scope of routine maintenance. These include pavement edge drop offs and minor concrete barrier spalling.

It is also recommended that the minor cracking in the bridge backwalls be monitored.

4.6 Mountain Creek Lake Bridge Recommendations

Projects that are being developed or in the process of being developed to address the needs of MCLB include: Restriping project, Bridge Column Collar Repair, Bridge Repairs (Deck, Rail or Bent Cap).

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

4.7 Lewisville Lake Toll Bridge Recommendations

Several projects have been developed or are in the process of being developed to address the needs of the LLTB. These projects include Column Repair (west end), Erosion Repair (east bank), and Sign Replacement and Trailblazer Sign Replacement.

4.8 Addison Airport Toll Tunnel Recommendations

Currently, all the needs of the Addison Toll Tunnel are being addressed with projects designed and preparing for construction.

4.9 360 Tollway Recommendations

None noted.

4.10 Facilities Recommendations

Several projects are being developed to address the needs of facilities across the NTTA System. These projects include Reroofing the buildings at DNT MLP 4 and Gleneagles 5910 along with parking lot improvements at Gleneagles 5900/5910.

4.11 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 shown in the 2023 NTTA System preliminary budget for major items associated with administrative and roadway costs for the Operation and Maintenance Fund and Reserve Maintenance Fund are recommended to maintain NTTA major assets at or above the Board-adopted GASB 34 level of 8.0 out of 10.0.

Table 3: Budget Recommendations

FUNDS	BUDGET
Operation and Maintenance Fund (OMF)	$219.9 million
Reserve Maintenance Fund (RMF)	$77.5 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 Fund projects will ensure the System continues to provide a reliable mobility option for the North Texas area.

APPENDIX A – SECTION 504 OF THEAMENDED AND RESTATED TRUST AGREEMENT

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 – QUALITY MANAGEMENT SYSTEM MANUAL PROCEDURE GEC-01 — GENERAL ENGINEERING CONSULTANT ANNUAL INSPECTION OF THE NTTA SYSTEM

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.

- 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:

- Preform 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.

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:

- Preform 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

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.

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.

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.

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.

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

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