

Texas Department of Transportation
BOOK 2 – TECHNICAL PROVISIONS
FOR
LOOP 375 - BORDER HIGHWAY WEST EXTENSION
PROJECT
Design-Build Project
ATTACHMENT 19-2
PERFORMANCE AND MEASUREMENT TABLE BASELINE

DECEMBER 20, 2013

TABLE 19-2: PERFORMANCE AND MEASUREMENT TABLE BASELINE

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	
		Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair				
1) ROADWAY								
					<i>Unless stated otherwise, measurements shall be conducted using procedures, techniques, and measuring equipment consistent with TxDOT's Pavement Management Information System Rater's Manual. Unless otherwise stated, pavement performance measurement records relate to 0.5-mile sections as described in the Pavement Management Information System Rater's Manual.</i>			
1.1	Obstructions and debris	Roadway and clear zone free from obstructions and debris	2 hrs	N/A	N/A	Visual Inspection	Number of obstructions and debris	Nil
1.2	Pavement	All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.	24 hrs	28 days	6 months	a) Pavement Condition Score Measurements and inspections necessary to derive Pavement Condition Score	Pavement Condition Score for 80% of Auditable Sections exceeding: • Mainlanes and ramps - 90 • Frontage roads – 80	100% 100%
		All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.	24 hrs	28 days	6 months	b) Ruts – Mainlanes, shoulders & ramps Depth as measured using an automated device in compliance with TxDOT Standards.	Pavement Condition Score of Auditable Sections • Mainlanes and ramps - 80 • Frontage roads - 70	100% 100%
		All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.	24 hrs	28 days	6 months	10ft straight edge used to measure rut depth for localized areas. c) Ride quality Measurement of International Roughness Index (IRI) according to TxDOT standard Tex-1001-S, Operating Inertial Profilers and Evaluating Pavement Profiles	Percentage of wheel path length with ruts greater than 1/4" in depth in each Auditable Section • Mainlanes, shoulders and ramps - 3% • Frontage roads - 10%	Nil Nil
						Depth of rut at any location greater than 1/2" For 80% of all Auditable Sections measured, IRI throughout 98% of each Auditable Section is less than or equal to: • Mainlanes, ramps - 95" per mile**	Nil 100%	

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
		Hazard Mitigation	Permanent Remedy	Permanent Repair			
1.2 Cont.	<p>All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.</p> <p>All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.</p>	24 hrs	28 days	6 months	<p>** To allow for measurement bias, an adjustment of -10 (minus ten) is made to IRI measurements for concrete pavements before assessing threshold compliance.</p> <p>(Renewal Work and new construction subject to construction quality standards)</p> <p>10-ft straightedge used to measure discontinuities d) Failures Instances of failures exceeding the failure criteria set forth in the TxDOT PMIS Rater's Manual, including potholes, base failures, punchouts and jointed concrete pavement failures e) Edge drop-offs Physical measurement of edge drop-off level compared to adjacent surface</p>	<p>• Frontage roads - 120" per mile**</p> <p>IRI throughout 98% of each Auditable Section is less than or equal to:</p> <ul style="list-style-type: none"> • Mainlanes, ramps - 120" per mile** • Frontage roads - 150" per mile** <p>Mainlanes, ramps, 0.1 mile average - 150" per mile**</p> <p>Frontage roads, 0.1 mile average - 180" per mile**</p> <p>IRI measured throughout 98% of each lane containing a bridge deck in any Auditable Section, 0.1 mile average - 200" per mile**</p> <p>Individual discontinuities greater than 1/4"</p> <p>Occurrence of any failure</p> <p>Number of instances of edge drop-off greater than 2"</p>	<p>100%</p> <p>100%</p> <p>100%</p> <p>100%</p> <p>100%</p> <p>100%</p> <p>Nil</p> <p>Nil</p> <p>Nil</p>

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	
		Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair				
1.2 Cont.	All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects. Road users warned of potential skidding hazards	24 hrs	28 days	6 months	f) Skid resistance ASTM E 274 Standard Test Method for Skid Resistance Testing of Paved Surfaces at 50 MPH using a full scale smooth tire meeting the requirements of ASTM E 524	<ul style="list-style-type: none"> • Auditable Sections with skid numbers for 0.5-mile section of mainlanes, shoulders and ramps exceeding 30 and for which investigations as to potential risk of skidding accidents and appropriate remedial actions have been taken. • Auditable Sections with skid numbers for 0.5-mile section of frontage roads exceeding 30 and for which investigations as to potential risk of skidding accidents and appropriate remedial actions have been taken. • When the skid number is below 25 and/or when required by the Wet Weather Accident Reduction Program, areas categorized as high risk, Maintenance Contractor shall perform a site investigation and perform required corrective action. Instances where road users are warned of a potential skidding hazard where remedial action is identified. 	100%	
		24 hrs	7days	N/A			100%	
1.3	Crossovers and other paved areas	Crossovers and other paved areas are free of Defects	24 hrs	28 days	6 months	a) Potholes b) Base failures	Number of potholes of low severity or higher Number of base failures of low severity or higher	Nil Nil
1.4	Joints in concrete	Joints in concrete paving are sealed and watertight Longitudinal joint separation	24 hrs	28 days	6 months	Visual inspection of joints Measurement of joint width and level difference of two sides of joints	Length of unsealed joints greater than ¼" Joint width more than 1" or faulting more than ¼"	Nil Nil
1.5	Curbs	Curbs are free of defects	24 hrs	28 days	6 months	Visual inspection	Length of curb out of alignment	Nil

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	
		Hazard Mitigation	Permanent Remedy	Permanent Repair				
2) DRAINAGE								
2.1	Pipes and Channels	Each element of the drainage system is maintained in its proper function by cleaning, clearing and/or emptying as appropriate from the point at which water drains from the travel way to the outfall or drainage way.	24 hrs	28 days	6 months	Visual inspection supplemented by CCTV where required to inspect buried pipe work	Length of pipe or channel in feet with less than 90% of cross sectional clear area, calculated as the arithmetic mean of the clear cross-sectional areas of individual 10 feet lengths of pipes and channels in each Auditable Section.	Nil
2.2	Drainage treatment devices	Drainage treatment and balancing systems, flow and spillage control devices function correctly and their location and means of operation is recorded adequately to permit their correct operation on Emergency.	24 hrs	28 days	6 months	Visual inspection	Number of devices functioning correctly with means of operation displayed	100%
2.3	Travel Way	The travel way is free from water to the extent that such water would represent a hazard by virtue of its position and depth.	24 hrs	28 days	6 months	Visual inspection of water on surface	Number of instances of hazardous water build-up	Nil
2.4	Discharge systems	Surface water discharge systems perform their proper function and discharge to groundwater and waterways complies with the relevant legislation and permits.	24 hrs	28 days	6 months	Visual inspection and records	Auditable Sections with surface water discharge systems performing their proper function and discharging in compliance with the relevant legislation and permits.	100%
2.5	Protected Species	Named species and habitats are protected.	24 hrs	28 days	6 months	Visual inspection	Auditable Sections with named species and habitats with protection of these named species and habitats	100%
3) STRUCTURES								
3.1	Structures having an opening measured along the center of the roadway of more than 20 feet between undercopings	Substructures and superstructures are free of: • graffiti	24 hrs	28 days	6 months	Inspection and assessment in accordance with the requirements of federal National Bridge Inspection Standards (NBIS) of the Code of Federal Regulations, 23 Highways – Part 650, the TxDOT Bridge Inspection Manual, and the Federal Administration’s Bridge Inspector’s Reference Manual.	Records as required in the TxDOT Bridge Inspection Manual	

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
3.1 Cont.	of abutments or springlines of arches or extreme ends of openings or multiple boxes	<ul style="list-style-type: none"> • undesirable vegetation • debris and bird droppings • blocked drains, weep pipes manholes and chambers • blocked drainage holes in structural components • defects in joint sealants • defects in pedestrian protection measure • scour damage • corrosion of rebar • paint system failures • impact damage 					<p>Occurrence of condition rating, in accordance with the TxDOT Bridge Inspection Manual, below seven for any deck, superstructure or substructure</p> <p>Auditable Sections with structure components with condition states of one</p>	<p>Nil</p> <p>100%</p>
3.2	Structure components	<p>i) Expansion joints are free of:</p> <ul style="list-style-type: none"> • dirt debris and vegetation • defects in drainage systems • loose nuts and bolts • defects in gaskets <p>ii) The deck drainage system is free of all and operates as intended.</p>	24 hrs	28 days	6 months	<p>Inspection and assessment in accordance with the requirements of federal National Bridge Inspection Standards (NBIS) of the Code of Federal Regulations, 23 Highways – Part 650, the TxDOT Bridge Inspection Manual, and the Federal Administration’s Bridge Inspector’s Reference Manual.</p>	<p>Records as required in the TxDOT Bridge Inspection Manual</p> <p>Occurrence of condition rating, in accordance with the TxDOT Bridge Inspection Manual, below seven for any deck, superstructure or substructure</p> <p>Auditable Sections with structure components with condition states of one</p>	<p>Nil</p> <p>100%</p>

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Hazard Mitigation	Permanent Remedy	Permanent Repair			
3.2 Cont.		iii) Parapets are free of: <ul style="list-style-type: none"> • loose nuts or bolts • blockages of hollow section drain holes • graffiti • vegetation • accident damage iv) Bearings and bearing shelves are clean. v) Sliding and roller surfaces are clean and greased to ensure satisfactory performance. Additional advice contained in bearing manufacturers' instructions in the Structure Maintenance Manual is followed. Special finishes are clean and perform to the appropriate standards. vii) All non-structural items such as hoists and electrical fixings, operate correctly, are clean and lubricated as appropriate, in accordance with the manufacturer's recommendations and certification of lifting devices is maintained.						
3.3	Non-bridge class culverts	Non-bridge-class culverts are free of: <ul style="list-style-type: none"> • vegetation and debris and silt • defects in sealant to movement joints 	24 hrs	28 days	6 months	Visual inspection	Number of non-bridge class culverts with vegetation, debris and silt in each Auditable Section Number of non-bridge class culverts with defects in sealant and movement joints in each Auditable Section	Nil Nil

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
3.3 Cont.		<ul style="list-style-type: none"> scour damage 					Number of non-bridge class culverts with scour damage in each Auditable Section	Nil
3.4	Gantries and high masts	Sign signal gantries, high masts are structurally sound and free of: <ul style="list-style-type: none"> loose nuts and bolts defects in surface protection systems graffiti 	24 hrs	28 days	6 months	Visual inspection	Number of gantries and high masts with loose assemblies in each Auditable Section Number of gantries and high masts with defects in surface protection in each Auditable Section	Nil Nil
3.5	Load ratings	All structures maintain the design load capacity.	24 hrs	28 days	6 months	Load rating calculations in accordance with the Manual for Bridge Evaluation and the TxDOT Bridge Inspection Manual Load restriction requirements as per the TxDOT Bridge Inspection Manual	Number of structures with load restrictions for Texas legal loads (including legally permitted vehicles) in each Auditable Section	Nil
3.6	Access points	All hatches and points of access have fully operational and lockable entryways.	24 hrs	28 days	6 months	Visual Inspection	Number with defects in locks or entryways	Nil
3.7	Mechanically Stabilized Earth and Retaining Walls	Mechanically Stabilized Earth and Retaining Walls free of: <ul style="list-style-type: none"> blocked weep holes undesirable vegetation defects in joint sealants defects in pedestrian protection scour damage corrosion of reinforcing bars paint system failure concrete spalling impact damage 	24 hrs	28 days	6 months	Inspection and assessment in accordance with the requirements of federal Nations Bridge Inspection Standards (NBIS) of the Code of Federal Regulations, 23 Highways - Part 650, the TxDOT Bridge Inspection Manual and the Federal Highway Administration's Bridge Inspector's Reference Manual.	Records as required in the TxDOT Bridge Inspection Manual	100%

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	
		Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair				
3.7 Cont.		Parapets free of: <ul style="list-style-type: none"> • loose nuts and bolts • blockage of drain holes • undesirable vegetation • impact damage • concrete spalling 						
4) PAVEMENT MARKINGS, OBJECT MARKERS, BARRIER MARKERS AND DELINEATORS								
4.1	Pavement markings	Pavement markings are: <ul style="list-style-type: none"> • clean and visible during the day and at night • whole and complete and of the correct color, type, width and length • placed to meet the TMUTCD and TxDOT's Pavement Marking Standard Sheets 	24 hrs	28 days	6 months	a) Markings - General Portable retroreflectometer, which uses 30 meter geometry, meeting the requirements described in ASTM E 1710 Physical measurement b) Profile Markings Visual inspection	Percentage of total length of pavement marking in each auditable section meeting the minimum retroreflectivity 175 med/sqm/lx for white Percentage of total length of pavement marking in each auditable section meeting the minimum retroreflectivity 125 med/sqm/lx for white Length of pavement marking in each auditable section with more than 5% loss of area of material at any point Length of pavement marking in each auditable section with spread more than 10% of specified dimensions. Percentage of total length of pavement marking in each auditable section performing its intended function and compliant with relevant regulations	100% 100% Nil Nil 100%
4.2	Raised reflective markers	Raised reflective pavement markers are:	24 hrs	28 days	6 months	Visual inspection	Number of markers associated with road markings that are ineffective in any 10 consecutive markers. (Ineffective includes missing, damaged, settled or sunk)	Nil

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
4.2 Cont.		<ul style="list-style-type: none"> • clean and clearly visible • of the correct color and type • reflective or retroreflective in accordance with TxDOT standards • correctly located, aligned and at the correct level • are firmly fixed • are in a condition that will ensure that they remain at the correct level. 					<p>A minimum of four markers are visible at 80' spacing when viewed under low beam headlights.</p> <p>Uniformity (replacement raised reflective pavement markers have equivalent physical and performance characteristics to adjacent markers).</p>	100%
4.3	Delineators & Markers	<p>Object markers, mail box markers and delineators are:</p> <ul style="list-style-type: none"> • clean and visible • of the correct color and type • legible and reflective • straight and vertical 	24 hrs	28 days	6 months	Visual inspection	Number of object markers or delineators in each Auditable Section that is defective or missing	Nil
5) GUARDRAILS, SAFETY BARRIERS AND IMPACT ATTENUATORS								
5.1	Guardrails and safety barriers	<p>All guardrails, safety barriers, concrete barriers, etc. are maintained free of Defects. They are appropriately placed and correctly installed at the correct height and distance from roadway or obstacles.</p> <p>Installation and repairs shall be carried out in accordance with the requirements of NCHRP 350 standards.</p>	24 hrs	28 days	6 months	Visual inspection	<p>Auditable Sections with all guard rails and safety barriers appropriately placed and correction installed</p> <p>Auditable Sections with all guard rails and safety barriers free from defects</p> <p>Auditable Sections with all guard rails and safety barriers at correct heights</p>	100%

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	
		Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair				
5.1 Cont.						Auditable Sections with all guard rails and safety barriers at correct distances from roadway obstacles	100%	
5.2	Impact attenuators	All impact attenuators are appropriately placed and correctly installed	24 hrs	7 days	6 months	Visual inspection	Auditable Sections will all impact attenuators appropriately placed and correctly installed.	100%
6) TRAFFIC SIGNS								
6.1	General - All Signs	i) Signs are clean, correctly located, clearly visible, legible, reflective, at the correct height and free from structural and electrical defects ii) Identification markers are provided, correctly located, visible, clean and legible iii) Sign mounting posts are vertical, structurally sound and rust free iv) All break-away sign mounts are clear of silt or other debris that could impede break-away features and shall have correct stub heights v) Obsolete and redundant signs are removed or replaced as appropriate vi) Visibility distances meet the stated requirements vii) Sign information is of the correct size, location, type and wording to meet its intended purpose and any statutory requirements viii) All structures and elements of the signing system are kept clean and free from debris and have clear access provided.	24 hrs	28 days	6 months	a) Retroreflectivity Determination of Coefficient of retro-reflectivity b) Face damage Visual inspection c) Placement Visual inspection d) Obsolete signs Visual inspection e) Sign Information Visual inspection	Number of signs with actual reflectivity below the requirements of TxDOT's TMUTCD in each auditable section Number of signs in each auditable section with face damage greater than 5% of area All signs in each auditable section are placed in accordance with TxDOT's Sign Crew Field Book including not twisted or leaning Number of obsolete signs in each auditable section All sign information in each auditable section is of the correct size, location, type and wording to meet its intended purpose	Nil Nil 100% 100%

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	
		Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair				
6.1 Cont.		ix) All replacement and repair materials and equipment are in accordance with the requirements of the TMUTCD x) Dynamic message signs are in an operational condition				f) Dynamic Message Signs Visual inspection	All dynamic message signs in each auditable section are fully functioning	100%
6.2	General - Safety critical signs	Requirements as 6.1, Plus: "Stop," "Yield," "Do Not Enter," "One Way" and "Wrong Way" signs are clean legible and undamaged.	2hrs	1 week	6 months	Visual inspection	Number of damaged Safety critical signs in each auditable section	Nil
7) TRAFFIC SIGNALS								
7.1	General	i) Traffic Signals and their associated equipment are: • clean and visible • correctly aligned and operational • free from damage caused by accident or vandalism • correctly aligned and operational ii) Signal timing and operation is correct iii) Contingency plans are in place to rectify Category 1 defects not immediately repairable to assure alternative traffic control is provided during a period of failure	2hrs	24 hrs	6 months	a) General condition Visual inspection b) Damage Visual inspection c) Signal timing Timed measurements d) Contingency plans Records Review	All Signals in each auditable section are clean and visible All Signals in each auditable section are undamaged All Installations in each auditable section have correct signal timings Full contingency plans are in place in each auditable section	100% 100% 100% 100%
7.2	Soundness	Traffic signals are structurally and electrically sound	24 hrs	28 days	6 months	a) Structural soundness Visual inspection b) Electrical soundness Testing to meet NEC regulations	Inspection records showing safe installation and maintenance in each auditable section	100%
7.3	Identification marking	Signals have identification markers and the telephone number for reporting faults are correctly located, clearly visible, clean and legible	N/A	28 days	6 months	Visual inspection	Inspection records showing identification markers and other information are easily readable in each auditable section	100%

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
7.4	Pedestrian Elements and Vehicle Detectors	All pedestrian elements and vehicle detectors are correctly positioned and fully functional at all times	24 hrs	28 days	6 months	Visual inspection	Inspection records showing compliance with requirements for positioning and functionality in each auditable section with pedestrian elements and vehicle detectors.	100%
8) LIGHTING								
8.1	Roadway Lighting – General	i) All lighting is free from defects and provides acceptable uniform lighting quality ii) Lanterns are clean and correctly positioned iii) Lighting units are free from accidental damage or vandalism iv) Columns are upright, correctly founded, visually acceptable and structurally sound	24 hrs	28 days	6 months	a) Mainlane lights operable Night time inspection or automated logs b) Mainlane lights out of action Night time inspection or automated logs	Auditable Sections with 10 or more lights with more than 90% of lights functioning correctly / Auditable Sections with less than 10 lights with no more than 1 light not functioning correctly Number of instances of more than two consecutive lights out of action in each auditable section	100% Nil
8.2	Sign Lighting	Sign lighting is fully operational	24 hrs	28 days	6 months	Night time inspection or automated logs	Number of instances of more than one bulb per sign not working in each auditable section	Nil
8.3	Electrical Supply	Electricity supply, feeder pillars, cabinets, switches and fittings are electrically, mechanically and structurally sound and functioning	24 hrs	7 days	1 month	Testing to meet NEC regulations, visual inspection	Inspection records showing safe installation and maintenance in each auditable section	100%
8.4	Access Panels	All access panels in place at all times.	24 hrs	7 days	1 month	Visual Inspection	Number of instances of missing access panels in each auditable section	Nil
8.5	High Mast Lighting	i) All high mast luminaries functioning on each pole ii) All obstruction lights are present and working (if required) iii) Compartment door is secure with all bolts in place iv) All winch and safety equipment is correctly functioning and maintained without rusting or corrosion	24 hrs	48 days	1 month	Yearly inspection and night time inspections or automated logs	Number of instances of two or more lamps not working per high mast pole in each auditable section Number of other high mast lighting defects identified in each auditable section	Nil Nil

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	
		Hazard Mitigation	Permanent Remedy	Permanent Repair				
8.5 Cont.		(for structural requirements refer to Element Category 3)						
9) FENCES, WALLS AND SOUND ABATEMENT								
9.1	Design and Location	Fences and walls act as designed and serve the purpose for which they were intended	24 hrs	28 days	6 months	Visual Inspection	Inspection records for fences and walls showing compliance with fence and wall requirements in each auditable section	100%
9.2	Construction	Integrity and structural condition of the fence is maintained	24 hrs	28 days	6 months	Structural assessment if visual inspection warrants	Inspection records for fences and walls showing compliance with fence and wall requirements in each auditable section	100%
10) ROADSIDE MANAGEMENT								
10.1	Vegetated Areas - Except landscaped areas - General	Vegetation is maintained so that: i) Height of grass and weeds is kept within the limits described for urban and rural areas. Mowing begins before vegetation reaches the maximum height. ii) Spot mowing at intersections, ramps or other areas maintains visibility of appurtenances and sight distance. iii) Grass or vegetation does not encroach into or on paved shoulders, main lanes, sidewalks, islands, riprap, traffic barrier or curbs. iv) A herbicide program is undertaken in accordance with the TxDOT Herbicide Manual to control noxious weeds and to eliminate grass in pavement or concrete. v) A full width mowing cycle is completed after the first frost.	24 hrs	7 days	28 days	a) Urban areas Physical measurement of height of grass and weeds b) Rural areas Physical measurement of height of grass and weeds c) Encroachment Visual inspection of instances of encroachment of vegetation d) Wildflowers Visual Inspection with audit of process. e) Sight lines Visual inspection	Individual measurement areas in each auditable section to have 95% of grass and weeds between 5” and 18” in height. Individual measurement areas in each auditable section to have 95% of height of grass and weeds between 5” and 30” in height. Number of occurrences of vegetation encroachment in each auditable section Adherence to vegetation management manuals Number of instances of impairment of sight lines or sight distance to signs in each auditable section	100% 100% Nil 100% Nil

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
10.2	Landscaped Areas	<p>i) All landscaped areas are maintained to their originally constructed condition. Landscaped areas are as designated in the plans.</p> <p>ii) Mowing, litter pickup, irrigation system maintenance and operation, plant maintenance, pruning, insect, disease and pest control, fertilization, mulching, bed maintenance, watering is undertaken as per MMP.</p> <p>iii) The height of grass and weeds is kept between 2" and 8". Mowing begins before vegetation reaches 8 in.</p> <p>iv) Damaged or dead vegetation is replaced.</p>	24 hrs	7 days	28 days	Visual inspection	Inspection records showing compliance with requirements for landscaping in each auditable section.	100%
10.3	Fire Hazards	Fire hazards are controlled	24 hrs	7 days	28 days	Visual inspection	Number of instances of dry brush or vegetation forming fire hazard in each auditable section.	Nil
10.4	Trees, brush and ornamentals	<p>i) Trees, brush and ornamentals on the right of way, except in established no mow areas, are trimmed in accordance with TxDOT standards.</p> <p>ii) Trees, brush and ornamentals are trimmed to insure they do not interfere with vehicles or sight distance, or inhibit the visibility of signs.</p> <p>iii) Dead trees, brush, ornamentals and branches are removed. Potentially dangerous trees or limbs are removed.</p> <p>iv) All undesirable trees and vegetation are removed. Diseased trees or limbs are treated or removed by licensed contractors.</p>	24 hrs	7 days	28 days	Visual inspection	Inspection records showing compliance with requirements for trees, brush and ornamentals in each auditable section.	100%
10.5	Wetlands	Wetlands are managed in accordance with the permit requirements.	24 hrs	7 days	28 days	Visual inspection, assessment of permit issuers	Number of instances of permit requirements not met in each auditable section	Nil

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	
		Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair				
11) REST AREAS AND PICNIC AREAS (Not Used)								
12) EARTHWORKS, EMBANKMENTS AND CUTTINGS								
12.1	Slope Failure	All structural or natural failures of the embankment and cut slopes of the Project are repaired	24 hrs	28 days	6 months	Visual inspection by geotechnical specialist and further tests as recommended by the specialist	Number of recorded instances of slope failure in each Auditable Section	Nil
12.2	Slopes - General	Slopes are maintained in general conformance to the original graded cross-sections, the replacement of landscaping materials, reseeding and re-vegetation for erosion control purposes and removal and disposal of all eroded materials from the roadway and shoulders	24 hrs	28 days	6 months	Visual inspection by geotechnical specialist and further tests as recommended by the specialist	Inspection records showing compliance with requirements for slopes in each auditable section.	100%
13) ITS EQUIPMENT								
13.1	ITS Equipment - Maintenance	All ITS equipment is fully functional and housing is functioning and free of defects. i) All equipment and cabinet identification numbers are visible, sites are well drained and access is clear. ii) Steps, handrails and accesses are kept in a good condition. iii) Access to all communication hubs, ground boxes, cabinets and sites is clear. iv) All drainage is operational and all external fixtures and fittings are in a satisfactory condition. v) All communications cable markers, cable joint markers and duct markers are visible and missing markers are replaced. vi) Backup power supply system is available at all times	24 hrs	14 days	1 month	Visual Inspection	Inspection records showing compliance with requirements for maintenance of ITS equipment in each auditable section.	100%

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
13.2	Dynamic Message Sign Equipment	Dynamic Message Signs are free from faults such as: i) Any signal displaying a message which is deemed to be a safety hazard. ii) Failure of system to clear sign settings when appropriate. iii) 2 or more contiguous sign failures that prevent control office setting strategic diversions. iv) Signs displaying an incorrect message.	2 hrs	24 hrs	14 days	Defect measurement dependent on equipment	Inspection records showing compliance with requirements for Dynamic Message Signs in each auditable section	100%
13.3	CCTV Equipment	CCTV Systems are free from serious faults that significantly limit the availability of the operators to monitor the area network, such as: i) Failure of CCTV Systems to provide control offices with access and control of CCTV images. ii) Failure of a CCTV camera or its video transmission system. iii) Failure of a Pan / Tilt unit or its control system. iv) Moisture ingress onto CCTV camera lens. v) Faults that result in significant degradation of CCTV images.	2 hrs	24 hrs	14 days	Defect measurement dependent on equipment	Inspection records showing compliance with requirements for CCTV equipment in each auditable section	100%
13.4	Vehicle Detection Equipment	All equipment free of defects and operational problems such as: i) Inoperable loops. ii) Malfunctioning camera controllers.	2 hrs	24 hrs	1 month	Defect measurement dependent on equipment Traffic Detector Loops: Loop circuit's inductance to be > 50 and < 1,000 micro henries. Insulation resistance to be > 50 meg ohms.	Inspection records showing compliance with requirements for vehicle detection equipment in each auditable section	100%
14) TOLLING Facilities and Buildings (Not Used)								

ELEMENT CATEGORY	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	
		Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair				
15) AMENITY								
15.1	Graffiti	Graffiti is removed in a manner and using materials that restore the surface to a like appearance similar to adjoining surface.s	24 hrs	N/A	N/A	Visual Inspection	Inspection records showing compliance with requirements regarding graffiti in each auditable section	100%
16) SNOW AND ICE CONTROL								
16.1	Travel lanes	Maintain travel way free from snow and ice	2 hrs	N/A	N/A	Maximum 1hr response time to complete manning and loading of spreading vehicles. Maximum 2hrs from departure from loading point to complete treatment and return to loading point. Maximum 1hr response time for snow and ice clearance vehicles to depart from base.	Inspection records showing compliance with requirements for snow and ice control in each auditable section	100%
16.2	Weather Forecasting	Weather forecast information is obtained and assessed and appropriate precautionary treatment is carried out to prevent ice forming on the travel way.	2 hrs	N/A	N/A	Operations plan details the process and procedures in place and followed.	Inspection records showing compliance with requirements for weather forecasting in each auditable section	100%
16.3	Operational Plans	Operate snow and ice clearance plans to maintain traffic flows during and after snowfall and restore the travel way to a clear condition as soon as possible.	2 hrs	N/A	N/A	Operations plan details the process and procedures in place and followed.	Inspection records showing compliance with snow and ice clearance plans in each auditable section	100%
17) INCIDENT RESPONSE								
17.1	General	Monitor the Project and respond to Incidents in accordance with the Maintenance Management Plan (MMP).	1 hr	N/A	N/A	Maintenance Specifications are met for 98% of incidents measured on a 1 year rolling basis. No complaints from Emergency Services.	Inspection records showing compliance with the MMP and requirements regarding incident response times in each auditable section	100%
17.2	Hazardous Materials	Monitor the Project and respond to Incidents involving Hazardous Materials in accordance with the Maintenance Management Plan (MMP).	1 hr	N/A	N/A	MMP details the process and procedures in place and followed.	Inspection records showing compliance with the MMP details regarding hazardous materials in each auditable section	100%

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
17.3	Structural assessment	Evaluate structural damage to structures and liaise with emergency services to ensure safe working environment while clearing the incident	1 hr	N/A	N/A	Inspections and surveys as required by incident	Inspection records showing compliance with the MMP and requirements for incidents in each auditable section	100%
17.4	Temporary and permanent remedy	Propose and implement temporary measures or permanent repairs to Defects arising from the incident. Ensure the structural safety of any structures affected by the Incident.	24 hrs	28 days	N/A	Review and inspection of the incident site	Auditable inspection records showing compliance with requirements for temporary and permanent remedy for incidents in each auditable section	100%
18) CUSTOMER RESPONSE								
18.1	Response to inquiries	Timely and effective response to customer inquiries and complaints.	48 hrs	28 days	N/A	Contact the customer within 48 hours following initial customer inquiry. All work resulting from customer requests is scheduled within 48 hours of customer contact. Follow-up contact with the customer within 72 hours of initial inquiry. All customer concerns/requests are resolved to TxDOT's satisfaction within 2 weeks of the initial inquiry.	Percentage of responses within specified times in each auditable section.	100%
18.2	Customer contact line	Telephone line manned during business hours and 24 hour availability of messaging system. Faults to telephone line or message system rectified.	24 hrs	28 days	N/A	Instances of line out of action or unmanned	Number of operations records showing non availability of the customer contact line in each auditable section including complaints from public.	Nil
19) SWEEPING AND CLEANING								
19.1	Sweeping	i) Keep all channels, hard shoulders, gore areas, ramps, intersections, islands and frontage roads swept clean, ii) Clear and remove debris from traffic lanes, hard shoulders, verges and central reservations, footways and cycle ways	24 hrs	28 days	6 months	Buildup of dirt, ice, rock, debris, etc. on roadways and bridges not to accumulate greater than 24" wide or 1/2" deep	Inspection records showing compliance with requirements for sweeping in each auditable section.	100%

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
19.1 Cont.		iii) Remove all sweepings without stockpiling in the right of way and dispose of at approved tip.						
19.2	Litter	i) Keep the right of way in a neat condition, remove litter regularly. ii) Pick up large litter items before mowing operations. Dispose of all litter and debris collected at an approved solid waste site.	24 hrs	28 days	6 months	No more than 20 pieces of litter per roadside mile shall be visible when traveling at highway speed.	Inspection records showing compliance with requirements regarding litter pick-up in each auditable section.	100%