Texas Department of Transportation
Book 2 - Technical Provisions

North Tarrant Express Project
Segments 3A and 3B Facility

Attachment 19-1
Performance and Measurement Table Baseline

September 30, 2012

Performance and Measurement Table Baseline

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	D/B PHASE INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD FOR D/B PHASE	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair						
* - Items in these columns shall be reviewed annually by Developer as part of the MMP to comply with Technical Documents and/or Good Industry Practice.												
1) ROADWAY												
							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.			***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.***		
	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	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 Pavement Condition Score of Auditable Sections exceeding: • Mainlanes and ramps - 80 • Frontage roads - 70	 100% 100% 100% 100%	Pavement condition score will not be measured for this phase.		
	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	**b) Ruts – Mainlanes, shoulders & ramps** Depth as measured using an automated device in compliance with TxDOT Standards. 10ft straight edge used to measure rut depth for localized areas.	Perecentage of wheel path length with ruts greater than ¼" in depth in each Auditable Section • Mainlanes, shoulders and ramps - 3% • Frontage roads - 10% Depth of rut at any location greater than ½"	 Nil Nil Nil	Visual inspection at travel speed 10ft straight edge used to measure rut depth for localized areas.	Perecentage of wheel path length with ruts greater than ¼" in depth in each Auditable Section • Mainlanes, shoulders and ramps - 3% • Frontage roads - 10% Depth of rut at any location greater than ½"	 Nil Nil 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	**c) Ride quality** Measurement of International Roughness Index (IRI) according to TxDOT standard Tex-1001-S, Operating Inertial Profilers and Evaluating Pavement Profiles	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** • Frontage roads - 120" per mile**	 100% 100%	Ride quality will not be measured during this phase.		
	1.2	Pavement	All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and	24 hrs	28 days	6 months	** To allow for measurement bias, an adjustment of -10 (minus ten) is made to IRI measurements for concrete pavements before assessing	IRI throughout 98% of each Auditable Section is less than or equal to:				

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				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair						
	1.2 Cont.		boxes) with adequate skid resistance and free from Defects.				threshold compliance.	• Mainlanes, ramps - 120" per mile**	100%			
								• Frontage roads - 150" per mile**	100%			
							(Renewal Work and new construction subject to construction quality standards)	Mainlanes, ramps, 0.1 mile average - 150" per mile**	100%			
								Frontage roads, 0.1 mile average - 180" per mile**	100%			
								IRI measured throughout 98% of each lane containing a bridge deck in any Auditable Section, 0.1 mile average - 200" per mile**	100%			
							3-ft straightedge used to measure discontinuities	Individual discontinuities greater than 3/4”	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	**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	Occurance of any failure	Nil	**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	Occurrence of any failure	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	**e) Edge drop-offs** Physical measurement of edge drop-off level compared to adjacent surface	Number of instances of edge drop-off greater than 2"	Nil	**e) Edge drop-offs** Visual inspection of edge drop-off level compared to adjacent surface	Number of instances of edge drop-off greater than 2"	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	**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	• 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.	100%	**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.	• 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.	100%
								• 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.	100%		• 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.	100%

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	1.2 Cont.							• When the skid number is below 25 and/or when required by the Wet Weather Accident Reduction Program, areas categorized as high risk, Developer shall perform a site investigation and perform required corrective action.	100%		• When the skid number is below 25 and/or when required by the Wet Weather Accident Reduction Program, areas categorized as high risk, Developer shall perform a site investigation and perform required corrective action.	100%
	1.2	Pavement	Road users warned of potential skidding hazards	24hrs	7days	N/A	**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	Instances where road users are warned of a potential skidding hazard where remedial action is identified.	100%	**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	Instances where road users are warned of a potential skidding hazard where remedial action is identified.	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**	Number of potholes of low severity or higher	Nil	**a) Potholes**	Number of potholes of low severity or higher	Nil
							b) Base failures	Number of base failures of low severity or higher	Nil	**b) Base failures**	Number of base failures of low severity or higher	Nil
	1.4	Joints in concrete	Joints in concrete paving are sealed and watertight	24 hrs	28 days	6 months	Visual inspection of joints	Length of unsealed joints greater than ¼"	Nil	Visual inspection of joints	Length of unsealed joints greater than ¼"	Nil
			Longitudinal joint separation				Measurement of joint width and level difference of two sides of joints	Joint width more than 1" or faulting more than ¼"	Nil	Measurement of joint width and level difference of two sides of joints	Joint width more than 1" or faulting more than ¼"	Nil
	1.5	Curbs	Curbs are free of defects	24 hrs	28 days	6 months	Visual inspection	Length of curb out of alignment	Nil	Visual inspection	Length of curb out of alignment	Nil
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 arithmatic mean of the clear cross-sectional areas of individual 10 feet lengths of pipes and channels in each Auditable Section.	Nil	Visual inspection following heavy rain	Areas of water back up	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%	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	Visual inspection of water on surface	Number of instances of hazardous water build-up	Nil

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	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%	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%	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 of abutments or springlines of arches or extreme ends of openings or multiple boxes	Substructures and superstructures are free of: • graffiti • 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	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 Occurance of condition rating, in accordance with the TxDOT Bridge Inspection Manual, below seven for any deck, super structure or substructore Auditable Sections with structure components with condition states of one	Nil 100%		Records as required in the TxDOT Bridge Inspection Manual Occurance of condition rating, in accordance with the TxDOT Bridge Inspection Manual, below seven for any deck, super structure or substructore Auditable Sections with structure components with condition states of one	Nil 100%
	3.2	Structure components	i) Expansion joints are free of: • dirt debris and vegetation • defects in drainage systems • loose nuts and bolts • defects in gaskets ii) The deck drainage system is free of all and operates as intended. iii) Parapets are free of: • loose nuts or bolts	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 Occurance of condition rating, in accordance with the TxDOT Bridge Inspection Manual, below seven for any deck, super structure or substructore Auditable Sections with structure components with condition states of one	Nil 100%		Records as required in the TxDOT Bridge Inspection Manual Occurance of condition rating, in accordance with the TxDOT Bridge Inspection Manual, below seven for any deck, super structure or substructore, superstructure or substructure Auditable Sections with structure components with condition states of one	Nil 100%

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	3.2 Cont.		• 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: • vegetation and debris and silt • defects in sealant to movement joints • scour damage	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 Number of non-bridge class culverts with scour damage in each Auditable Section	Nil Nil Nil	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 Number of non-bridge class culverts with scour damage in each Auditable Section	Nil Nil Nil
	3.4	Gantries and high masts	Sign signal gantries, high masts are structurally sound and free of: • loose nuts and bolts • defects in surface protection systems	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	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

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	3.4 Cont.		• graffiti					Number of gantries and high masts with graffiti in each Auditable Section	Nil		Number of gantries and high masts with graffiti in each Auditable Section	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	Load rating calculations in accordance with the Manual for Bridge Evaluation and the TxDOT Bridge Inspection Manual	Number of structures with load restrictions for Texas legal loads (including legally permitted vehicles) in each Auditable Section	Nil
4) PAVEMENT MARKINGS, OBJECT MARKERS, BARRIER MARKERS AND DELINEATORS												
	4.1	Pavement markings	Pavement markings are: • 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	Percentage of total length of pavement marking in each auditable section meeting the minimum retroreflectivity 175 med/sqm/lx for white	100%	a) Markings - General Portable retroreflectometer, which uses 30 meter geometry, meeting the requirements described in ASTM E 1710	Percentage of total length of pavement marking in each auditable section meeting the minimum retroreflectivity 175 med/sqm/lx for white	100%
								Percentage of total length of pavement marking in each auditable section meeting the minimum retroreflectivity 125 med/sqm/lx for white	100%		Percentage of total length of pavement marking in each auditable section meeting the minimum retroreflectivity 125 med/sqm/lx for white	100%
							Physical measurement	Length of pavement marking in each auditable section with more than 5% loss of area of material at any point	Nil	Visual inspection	Length of pavement marking in each auditable section with more than 5% loss of area of material at any point	Nil
								Length of pavement marking in each auditable section with spread more than 10% of specified dimensions.	Nil		Length of pavement marking in each auditable section with spread more than 10% of specified dimensions.	Nil
							b) Profile Markings Visual inspection	Percentage of total length of pavement marking in each auditable section performing its intended function and compliant with relevant regulations	100%	b) Profile Markings Visual inspection	Percentage of total length of pavement marking in each auditable section performing its intended function and compliant with relevant regulations	100%
	4.2	Raised reflective markers	Raised reflective pavement markers are: • clean and clearly visible • of the correct color and type • reflective or retroreflective in	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	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

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	4.2 Cont.		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.					A minimum of four markers are visible at 80' spacing when viewed under low beam headlights. Uniformity (replacement raised reflective pavement markers have equivalent physical and performance characteristics to adjacent markers).	100% 100%		A minimum of four markers are visible at 80' spacing when viewed under low beam headlights. Uniformity (replacement raised reflective pavementmarkers have equivalent physical and performance characteristics to adjacent markers).	100% 100%
	4.3	Delineators & Markers	Object markers, mail box markers and delineators are: • 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	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	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. Installation and repairs shall be carried out in accordance with the requirements of NCHRP 350 standards.	24 hrs	28 days	6 months	Visual inspection	Auditable Sections with all guard rails and safety barriers appropriately placed and correction installed Auditable Sections with all guard rails and safety barriers free from defects Auditable Sections with all guard rails and safety barriers at correct heights Auditable Sections with all guard rails and safety barriers at correct distances from roadway obstacles	100% 100% 100% 100%	Visual inspection	Auditable Sections with all guard rails and safety barriers appropriately placed and correction installed Auditable Sections with all guard rails and safety barriers free from defects Auditable Sections with all guard rails and safety barriers at correct heights Auditable Sections with all guard rails and safety barriers at correct distances from roadway obstacles	100% 100% 100% 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 plasced and correctly installed.	100%	Visual inspection	Auditable Sections will all impact attenuators appropriately plasced and correctly installed.	100%

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ELEMENT CATEGORY	**REF**	**ELEMENT**	**PERFORMANCE REQUIREMENT**	**RESPONSE TO DEFECTS**			**INSPECTION AND MEASUREMENT METHOD***	**MEASUREMENT RECORD***	**TARGET**	**D/B PHASE INSPECTION AND MEASUREMENT METHOD**	**MEASUREMENT RECORD FOR D/B PHASE**	**TARGET**
				Cat 1 Hazard Mitigation	**Cat 1 Permanent Remedy**	**Cat 2 Permanent Repair**						
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	24 hrs	28 days	6 months	**a) Retroreflectivity** Determination of Coefficient of retro-reflectivity	Number of signs with actual reflectivity below the requirements of TxDOT's TMUTCD in each auditable section	Nil	**a) Retroreflectivity** Determination of Coefficient of retro -reflectivity	Number of signs with actual reflectivity below the requirements of TxDOT's TMUTCD in each auditable section	Nil
			ii) Identification markers are provided, correctly located, visible, clean and legible				**b) Face damage** Visual inspection	Number of signs in each auditable section with face damage greater than 5% of area	Nil	**b) Face damage** Visual inspection	Number of signs in each auditable section with face damage greater than 5% of area	Nil
			iii) Sign mounting posts are vertical, structurally sound and rust free				**c) Placement** Visual inspection	All signs in each auditable section are placed in accordance with TxDOT's Sign Crew Field Book including not twisted or leaning	100%	**c) Placement** Visual inspection	All signs in each auditable section are placed in accordance with TxDOT's Sign Crew Field Book including not twisted or leaning	100%
			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				**d) Obsolete signs** Visual inspection	Number of obsolete signs in each auditable section	Nil	**d) Obsolete signs** Visual inspection	Number of obsolete signs in each auditable section	Nil
			v) Obsolete and redundant signs are removed or replaced as appropriate				**e) Sign Information** Visual inspection	All sign information in each auditable section is of the correct size, location, type and wording to meet its intended purpose	100%	**e) Sign Information** Visual inspection	All sign information in each auditable section is of the correct size, location, type and wording to meet its intended purpose	100%
			vi) Visibility distances meet the stated requirements				**f) Dynamic Message Signs** Visual inspection	All dynamic message signs in each auditable section are fully functioning	100%	**f) Dynamic Message Signs** Visual inspection	All dynamic message signs in each auditable section are fully functioning	100%
			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.									
			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									
	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	Visual inspection	Number of damaged Safety critical signs in each auditable section	Nil

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				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair						
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%	**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%	**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%	Visual inspection	Inspection records showing identification markers and other information are easily readable in each auditable section	100%
	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 funcionality in each auditable section with pedestrian elements and vehicle detectors.	100%	Visual inspection	Inspection records showing compliance with requirements for positioning and funcionality 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	24 hrs	28 days	6 months	**a) Mainlane lights operable** 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	100%	**a) Mainlane lights operable** 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	100%

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	8.1 Cont.		vandalism iv) Columns are upright, correctly founded, visually acceptable and structurally sound				**b) Mainlane lights out of action** Night time inspection or automated logs	Number of instances of more than two consecutive lights out of action in each auditable section	Nil	**b) Mainlane lights out of action** Night time inspection or automated logs	Number of instances of more than two consecutive lights out of action in each auditable section	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	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%	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	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 (for structural requirements refer to Element Category 3)	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 lightng defects identified in each auditable section	Nil Nil	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 lightng defects identified in each auditable section	Nil Nil
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%	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%	Structural assessment if visual inspection warrants	Inspection records for fences and walls showing compliance with fence and wall requirements in each auditable section	100%

Performance and Measurement Table Baseline

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	D/B PHASE INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD FOR D/B PHASE	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair						
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 occurences 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	**a) Urban areas** Visual inspection of height of grass and weeds **b) Rural areas** Visual inspection 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 occurences 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
	10.2	Landscaped Areas	i) All landscaped areas are maintained to their originally constructed condition. Landscaped areas are as designated in the plans. 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 FMP. iii) The height of grass and weeds is kept between 2” and 8”. Mowing begins before vegetation reaches 8 in. iv) Damaged or dead vegetation is replaced.	24 hrs	7 days	28 days	Visual inspection	Inspection records showing compliance with requirements for landscaping in each auditable section.	100%	Visual inspection	Inspection records showing compliance with requirements for landscaping in each auditable section.	100%

Performance and Measurement Table Baseline

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	D/B PHASE INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD FOR D/B PHASE	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair						
	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	Visual inspection	Number of instances of dry brush or vegetation forming fire hazard in each auditable section.	Nil
	10.4	Trees, brush and ornamentals	i) Trees, brush and ornamentals on the right of way, except in established no mow areas, are trimmed in accordance with TxDOT standards. ii) Trees, brush and ornamentals are trimmed to insure they do not interfere with vehicles or sight distance, or inhibit the visibility of signs. iii) Dead trees, brush, ornamentals and branches are removed. Potentially dangerous trees or limbs are removed. iv) All undesirable trees and vegetation are removed. Diseased trees or limbs are treated or removed by licensed contractors.	24 hrs	7 days	28 days	Visual inspection	Inspection records showing compliance with requirements for trees, brush and ornamentals in each auditable section.	100%	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	Visual inspection, assessment of permit issuers	Number of instances of permit requirements not met in each auditable section	Nil
11) REST AREAS AND PICNIC AREAS												
	11.1	Rest areas and picnic areas	i) Picnic areas are clean and neat in appearance. ii) Trash barrels are painted and attached to their supports to prevent stealing. iii) Site free of any visible litter, all litter properly disposed. Litter removed from the picnic area grounds and barrels before being allowed to accumulate outside of the barrels. iv) All vehicles used in transporting litter are equipped to prevent the accumulated litter from being strewn along the roadway.	24 hrs	28 days	6 months	Inspection records showing compliance with requirements for rest areas and picnic areas.	Number of instances where 90% of measured area in each auditable section to have grass and weeds between 2" and 8" in height. Number of bare ground areas larger than 5 square feet in each auditable section Number of prohibited, invasive or noxious weeds present in each auditable section. Number of occurences of encroachment of vegetation or debris for more than two (2) inches onto any curb or sidewalk located throughout each rest area in each auditable section.	100% Nil Nil Nil	Inspection records showing compliance with requirements for rest areas and picnic areas.	Number of instances where 90% of measured area in each auditable section to have grass and weeds between 2" and 8" in height. Number of bare ground areas larger than 5 square feet in each auditable section Number of prohibited, invasive or noxious weeds present in each auditable section. Number of occurences of encroachment of vegetation or debris for more than two (2) inches onto any curb or sidewalk located throughout each rest area in each auditable section.	100% Nil Nil Nil

Performance and Measurement Table Baseline

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	D/B PHASE INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD FOR D/B PHASE	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair						
	11.1 Cont.		v) Vegetation damaged due to improper or careless mowing and trimming operations or any other reason is replaced. vi) Weeds, grass and other undesirable growth are removed from beds of plants and shrubs as needed. Trees and shrubs are trimmed neatly. All curbs and sidewalks are edged and repaired. vii) All picnic tables are clean, free of stains and free of any defect. viii) All directional, informational, safety and any other sign is properly installed, contains accurate information and is visible from a reasonable distance. ix) All striping is intact and all parking and travel areas are clearly marked. x) All curbs are in place and intact.					Number of occurences of deviation of soil or mulch above or below the top of the curb in each auditable section. Percentage of paved surfaces maintained clean and safe with minimal obstruction in each auditable section. Number of occurrences of pavement undermining greater than 2” in each auditable section Number of unsealed cracks greater than ½” at rest areas and picnic areas in each auditable section. Percemtage of fully functional lights at rest areas and picnic areas in each Auditable Section	Nil 100% Nil Nil 100%		Number of occurences of deviation of soil or mulch above or below the top of the curb in each auditable section. Percentage of paved surfaces maintained clean and safe with minimal obstruction in each auditable section. Number of occurrences of pavement undermining greater than 2” in each auditable section Number of unsealed cracks greater than ½” at rest areas and picnic areas in each auditable section. Percemtage of fully functional lights at rest areas and picnic areas in each Auditable Section	Nil 100% Nil Nil 100%
12) EARTHWORKS, EMBANKMENTS AND CUTTINGS												
	12.1	Slope Failure	All structural or natural failures of the embankment and cut slopes of the Facility 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	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%	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 and ETCS EQUIPMENT												
	13.1	ITS and ETCS Equipment - Maintenance	All ITS and ETCS equipment is fully functional and housing is functioning and free of defects. i) All equipment and cabinet identification numbers are	24 hrs	14 days	1 month	Visual Inspection	Inspection records showing compliance with requirements for maintenance of ITS and ETCS equipment in each auditable section.	100%	Visual Inspection	Inspection records showing compliance with requirements for maintenance of ITS and ETCS equipment in each auditable section.	100%

Performance and Measurement Table Baseline												
ELEMENT CATEGORY	**REF**	**ELEMENT**	**PERFORMANCE REQUIREMENT**	**RESPONSE TO DEFECTS**			**INSPECTION AND MEASUREMENT METHOD***	**MEASUREMENT RECORD***	**TARGET**	**D/B PHASE INSPECTION AND MEASUREMENT METHOD**	**MEASUREMENT RECORD FOR D/B PHASE**	**TARGET**
				Cat 1 Hazard Mitigation	**Cat 1 Permanent Remedy**	**Cat 2 Permanent Repair**						
	13.1 Cont.	TxDOT and Developer recognize that such threshold performance standards and requirements may be at lower levels, consistent with Good Industry Practice, than the performance standards and requirements set forth in the Performance and Measurement Table Baseline because of normal need for ramp-up and optimization of performance at the beginning of regular operations.	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									
	13.2	Video Exception Sub-system Equipment - Maintenance	All Video Expection Sub-system equipment is kept clean, the identification numbers are visible.	24 hrs	14 days	1 month	Visual Inspection	Inspection records showing compliance with requirements for Video Exception Sub-system equipment maintenance in each auditable section	100%	Visual Inspection	Inspection records showing compliance with requirements for Video Exception Sub-system equipment maintenance in each auditable section	100%
	13.3	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.	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%	Defect measurement dependent on equipment	Inspection records showing compliance with requirements for Dynamic Message Signs in each auditable section	100%

Performance and Measurement Table Baseline

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	D/B PHASE INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD FOR D/B PHASE	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair						
			iv) Signs displaying an incorrect message.									
	13.4	CCTV Equipment	CCTV Systems are free from serious faults that significantly limit the availability of the operators to monitor the area network, such as:	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%	Defect measurement dependent on equipment	Inspection records showing compliance with requirements for CCTV equipment in each auditable section	100%
	13.4 Cont.		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.									
	13.5	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 Number of instances of loops out of compliance with requirements for vehicle detection equipment	100% Nil	Defect measurement dependent on equipment	Inspection records showing compliance with requirements for vehicle detection equipment in each auditable section Number of instances of loops out of compliance with requirements for vehicle detection equipment	100% Nil
14) TOLLING Facilities and Buildings (Not Used)												
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 grafitti in each auditable section	100%	Visual Inspection	Inspection records showing compliance with requirements regarding grafitti 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.	Inspection records showing compliance with requirements for snow and ice control in each	100%	Maximum 1hr response time to complete manning and loading of spreading vehicles.	Inspection records showing compliance with requirements for snow and ice control in each	100%

Performance and Measurement Table Baseline

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	D/B PHASE INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD FOR D/B PHASE	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair						
							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.	auditable section		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.	auditable section	
	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%	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%	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	Respond to Incidents in accordance with Section 22 of Book 2-Technical Provisions.	1 hr	N/A	N/A	Response times in accordance with Section 22, Book 2 Technical Provisions are met for 98% of incidents measured on a 1 year rolling basis. No complaints from Emergency Services.	Inspection records showing compliance with requirements regarding incident response times in each auditable section	100%	Response times in accordance with Section 22, Book 2 Technical Provisions are met for 98% of incidents measured on a 1 year rolling basis. No complaints from Emergency Services.	Inspection records showing compliance with requirements regarding incident response times in each auditable section	100%
	17.2	Hazardous Materials	For any hazardous materials spills, comply with the requirements of Section 22 of Book 2-Technical Provisions.	1 hr	N/A	N/A	FMP details the process and procedures in place and followed.	Inspection records showing compliance with FMP details regarding hazardous materials in each auditable section	100%	FMP details the process and procedures in place and followed.	Inspection records showing compliance with FMP details regarding hazardous materials in each auditable section	100%
	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 requirements for incidents in each auditable section	100%	Inspections and surveys as required by incident	Inspection records showing compliance with 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%	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												

Performance and Measurement Table Baseline

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET	D/B PHASE INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD FOR D/B PHASE	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair						
	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.	Precentage of responses within specified times in each auditable section.	100%	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.	Precentage of responses within specified times in each auditable section.	100%
	18.1 Cont.						All customer concerns/requests are resolved to TxDOT's satisfaction within 2 weeks of the initial inquiry.			All customer concerns/requests are resolved to TxDOT's satisfaction within 2 weeks of the initial inquiry.		
	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	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%	Visual inspection	Inspection records showing compliance with requirements for sweeping in each auditable section.	100%
			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%	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%

Texas Department of Transportation
Book 2 - Technical Provisions

North Tarrant Express Project
Segments 3A and 3B Facility

Attachment 19-2
Residual Life Requirements

September 30, 2012

Table 19-2 Residual Life Requirements

Element Category	Required Final Residual Life (yrs)	Element Category	Required Final Residual Life (yrs)	Element Category	Required Final Residual Life (yrs)
Structures		**Road Pavement**		**Ancillary**	
Reinforced concrete	50	Main lanes	10	Earthwork slopes	50
Pre-stressed concrete	50	Ramps/direct connectors	10	Metal beam guard rail	10
Structural steelwork	50	Frontage/access roads	10	Concrete barrier	20
Weathering steel	50	Toll plaza approaches	10	Impact attenuators	0
Corrugated steel	50	Local/collector roads	10	Lighting columns	10
Corrosion protection for structural steelwork	10	High mast lighting	10	Overhead signs	10
Deck surfacing	10			Traffic signal housing and mountings	10
Deck joints	10	**Buiding and Maintenance Facilities**	25	Fences	10
Bearings	30			Manhole covers, gratings, frames, and boxes	50
Railing	50	**Toll Collection and TM Facilities**		curbs and gutters	10
Sign/signal gantries	50			Lanterns (lamps/luminaires)	
Retaining walls	50	**Drainage**		Roadside traffic signs	
Noise Walls	50	Underground storm sewer systems	50	Pavement markings	
Traffic signal poles	10	Culverts	50	Delineators	
High mast lighting	10	Ditches	10		
		Inlets	50		