

EXECUTION VERSION

I-95/I-395 HOV/HOT Lanes Project

Exhibit C-4

Technical Requirements

Attachment 4.5

Performance Requirements Baseline Tables

EXECUTION VERSION

The Performance Requirements are stated in the Performance Requirements Baseline Tables.

An Asset meets a Performance Requirement provided that, where applicable:

- the requirement(s) stated in Table 4.5a under Performance Requirement are fulfilled;
- the Asset fulfils the “Asset Condition Criteria” set forth in the third column of Table 4.5a to the extent required in the fourth column of Table 4.5a (entitled “Target”) as a percentage of the total measurements performed with respect to each criterion; and
- the outcome (s) stated in Table 4.5b (second column) are fulfilled;
- the Asset fulfils the “Ordinary Maintenance Criteria” set forth in the fourth column of Table 4.5b to the extent required in the third column of Table 4.5b (entitled “Minimum”) as a percentage of the total measurements performed with respect to each criterion; and
- the Concessionaire meets the “Timeliness Requirements” set forth in the fourth column of Table 4.5b, subject to environmental conditions and ability to perform maintenance or as mutually agreed in the Life Cycle Maintenance Plan.

The Performance Baseline Tables are reviewed and updated following Final Completion as defined in the ARCA.

1 Asset Condition Performance Requirements

Table 4.5a: Asset Condition Performance Requirements Baseline Table			
Asset	Performance Requirement	Asset Condition Criteria and Timeliness Requirements	Target
Pavement	<p>Roadways have a smooth and quiet surface course with adequate skid resistance and free from defects.</p> <p>All measurement methods and application for the HOT lanes based on the asset condition reports and a full 5-year period maintenance plan prepared will be considered in determination of performance requirements for Pavement.</p>	<p>The methodology of data collection, quality assurance of data, derivation of condition measures, and the use of pavement condition data to assess pavement deficiencies, and develop the 5-year period maintenance plan shall be consistent with the latest VDOT roadway condition assessment and maintenance practice guidelines(1). The condition data shall be compatible with VDOT Pavement Manager System database.</p> <p>(1) The latest practice guidelines and related standards can be found in the "State of the Pavement" - an annual statewide pavement condition report issued by VDOT Maintenance Division.</p>	NA
		<p>Maximum Rut Depth of 3/4"</p> <p>Timeliness Requirement</p> <p>Pavement rut depth is brought below maximum within 3 months of the measurement of failure to meet the target.</p>	100%
		<p>International Roughness Index Rating (IRI) shall be 170 or less for each 0.10 mile segment of pavement measured.</p> <p>Timeliness Requirement</p> <p>Pavement rut depth is brought below Target within 3 months of the measurement of failure to meet the target.</p>	100%
		<p>Critical Condition Index (CCI)⁽¹⁾ of 70 or above for each 0.10 mile segment of pavement measured.</p>	100%

EXECUTION VERSION

Table 4.5a: Asset Condition Performance Requirements Baseline Table			
Asset	Performance Requirement	Asset Condition Criteria and Timeliness Requirements	Target
		<p><u>Asset Condition Criteria</u> CCI is calculated as the lower of Load Rated Distress Rating (LDR) and Non Load Rated Distress Rating (NDR)</p> <p><u>Timeliness Requirement</u> CCI is brought above minimum within 6 months of measurement of failure to meet target.</p>	
Paved Shoulder		Condition assessment of the paved shoulder will be subjective, simply for safety, convenience and efficiency.	100%
Bridges and Bridge Class Culverts	Bridges and Bridge Class Culverts are safe, fully functional, and structurally sound.	<p><u>Asset Condition Criteria</u> Maintain a general condition rating for Decks (Item 58), Superstructures (Item 59), Substructures (Item 60), Channels and Channel Protections (Item 61), and Bridge Class Culverts (Item 62) at a level of 5"Fair Condition" or better, as defined in the <i>FHWA Recording and Coding Guide for Structure Inventory and Appraisal of the Nation's Bridges</i>.</p> <p>For Bridges and Bridge Class Culverts, the Handback Requirements shall be as follows: The general condition rating for Decks (Item 58), Superstructures (Item 59), Substructures (Item 60), Channels and Channel Protections (Item 61), and Bridge Class Culverts (Item 62) at a level of 6" Satisfactory Condition" or better, as defined in the <i>FHWA Recording and Coding Guide for Structure Inventory and Appraisal of the Nation's Bridges</i>.</p> <p>Maintain the following bridge element state</p>	100%

EXECUTION VERSION

Table 4.5a: Asset Condition Performance Requirements Baseline Table			
Asset	Performance Requirement	Asset Condition Criteria and Timeliness Requirements	Target
		<p>condition as defined in <i>the VDOT Element Data Collection Manual</i> for:</p> <ol style="list-style-type: none"> 1. Coated Steel/Metal Elements (Paint) at a condition state 2 or higher. 2. Expansion Joints at a condition state of 1. 3. Bearings at a condition state of 2 or higher. <p>The Department will perform inspections and assessment in accordance with the requirements of federal National Bridge Inspection Standards (NBIS) of the Code of Federal Regulations, 23 Highways – Part 650 and IIM-S&B 27-Bridge Safety Inspections and IIM-S&B-86 -Load Rating and Posting of Structures (Bridges and Culverts).</p> <p>Bridge deck ride quality shall conform to “Localized Roughness” criteria for pavement (i.e., Continuous IRI ≤300 in/mi per 0.01-mile segment length).</p> <p>There are no Structurally Deficient Bridges⁽²⁾ or Bridge Class Culverts.</p> <p>There are no weight restricted bridges⁽³⁾ or Bridge Class Culverts.</p> <p>Timeliness Requirements</p> <p>Structure condition ratings are brought above minimum performance levels within 6 months of measurement of failure to meet minimum.</p> <p>Localized roughness is brought below maximum within 6 months of measurement of failure to meet minimum.</p>	
Drainage	Drainage system is effective at ensuring travel way is free from water such that the water does not present a hazard by virtue of its location, size and depth	<p>Asset Condition Criteria</p> <p>Length of roadway with visual inspection confirming no hazardous free standing water</p> <p>Timeliness Requirements</p>	90%

EXECUTION VERSION

Table 4.5a: Asset Condition Performance Requirements Baseline Table			
Asset	Performance Requirement	Asset Condition Criteria and Timeliness Requirements	Target
		Conditions giving rise to hazardous free standing water are rectified within 3 months of discovery.	
Electrical supply	Electrical supply, feeder pillars, cabinets, switches and fittings are electronically, mechanically and structurally sound and functioning	<p><u>Asset Condition Criteria</u> Percentage of pillars, cabinets and fittings confirmed sound and functioning by visual inspection</p> <p><u>Timeliness Requirements</u> Instances of unsound and non-functioning equipment are rectified within three months of discovery or as agreed in the Life Cycle Maintenance Plan.</p>	90%
Hazardous materials / spillage	Control of hazardous materials shall be in accordance with Chapter 13, NFPA 502	<p><u>Asset Condition Criteria</u> Incident reports showing compliance</p> <p><u>Timeliness Requirements</u> Failures to comply with Chapter 13, NFPA 502 are investigated and revised procedures put in place within 1 month of completion of investigation.</p>	100%
Structural assessment	Evaluate structural damage to structures and liaise with emergency services to ensure safe working in clearing incidents	<p><u>Asset Condition Criteria</u> Inspections and surveys as required by incident that are correctly reported.</p> <p><u>Timeliness Requirement</u> Failures to evaluate damage to structures and to assist emergency services with clearing of incidents are investigated and revised procedures put in place within 1 month of completion of investigation.</p>	90%

(1) The latest practice guidelines and related standards can be found in the “State of the Pavement” – an annual renewable pavement condition report issued by the VDOT Maintenance Division

EXECUTION VERSION

I-95/I-395 will utilize the prevailing methods of pavement assessment the Department employs at a given time in the future. The year 2011 Department condition assessment method for the pavement utilizes a continuous digital imaging and automated crack detection technology. The surface condition of only one travel lane in each direction along the I-95/I-395 HOT Lanes will be inspected annually. The assessment data will then be processed and characterized into a series of rating indices to represent the overall condition of the pavement and the basis for the maintenance and rehabilitation schedules.

Where existing pavement remains as part of the I-95/I-395 HOT Lanes, the Department's maintenance history and assumptions in regards to conditions, including the information documented in the I-95/I-395 Asset Condition Study will be the basis for the I-95/I-395 reporting in the future

- (2) Structurally Deficient: A bridge or a bridge class culvert is deemed structurally deficient if any of its NBI general condition rating (deck, superstructure, substructure, or culvert) is 4 or less, or one of two appraisal ratings (structural condition or waterway adequacy) is 2 or less.
- (3) Weight Restricted: When the load carrying capacity of a structure as a result of a structural evaluation is determined to be less than Virginia's legal loads, the bridge is then posted in accordance with VDOT's policies. All structures are to be analyzed and load rated in accordance with the National Bridge Inspection Standards, AASHTO Bridge Evaluation Manual, and the latest VDOT Structure and Bridge Division's IIM-S&B-86-Load Rating and Posting of Structures (Bridges and Culverts), and memorandum dealing with load ratings.

2 Ordinary Maintenance Performance Requirements

The Project shall be subject to the Department’s Maintenance Rating Program (MRP), or subsequent update or replacement program. The Concessionaire shall use the MRP to verify performance of each Asset against the criteria set out in the Performance Requirements Baseline Tables. The Concessionaire shall include in the end of year report outlined in Section 1.10 of the Technical Requirements, a summary of the results of annual assessments in a format to be agreed between the Concessionaire and the Department.

The Concessionaire shall achieve and maintain an MRP rating of 90% or above for all Assets in accordance with the most current Northern Virginia BIMS performance requirements in effect on other similar highways within Northern Virginia, unless otherwise noted in Table 4.5b below. The Concessionaire shall achieve the criteria in BIMS or Table 4.5b and shall cause the level of maintenance attained to be uniform and consistent at all times. All Asset Groups shall achieve a minimum rating of 90% unless otherwise noted herein.

Table 4.5b – Ordinary Maintenance Performance Requirements Baseline Table				
Asset	Outcome	Minimum (%)	Ordinary Maintenance Criteria and Timeliness Requirements	UOM
ROADSIDE ASSET GROUP – In accordance with the most current VDOT BIMS requirements in place in Northern Virginia on other similar highways.				
DRAINAGE ASSET GROUP – In accordance with the most current VDOT BIMS requirements in place in Northern Virginia on other similar highways.				
TRAFFIC ASSET GROUP– In accordance with the most current VDOT BIMS requirements in place in Northern Virginia on other similar highways or as specified below.				
Cable Locating: Electric, Fiber, Communications	Maintain Cable Facilities	90	Ordinary Maintenance Criteria <ul style="list-style-type: none"> • No errors per cable markings. • <2 linear ft. tolerance from actual cable plant. • Must maintain any and all cable infrastructure as as-built drawings. • Excavators are not to begin until all underground utilities have been marked including those that might be maintained by Miss Utility. • Concessionaire will mark all VDOT cables, Concessionaire responsible for Miss Utility for work done under the contract 	

EXECUTION VERSION

Table 4.5b – Ordinary Maintenance Performance Requirements Baseline Table				
Asset	Outcome	Minimum (%)	Ordinary Maintenance Criteria and Timeliness Requirements	UOM
			<p>Timeliness Requirement:</p> <ul style="list-style-type: none"> All cable marking requests must be logged and accomplished within 72 hrs of request or as otherwise agreed. All emergency cable marking requests must be accomplished within 4 hrs, unless agreed otherwise, or emergency cable marking preclude access. Emergency situations are defined as “a sudden or unexpected occurrence involving a clear and immediate danger, demanding immediate action to prevent or mitigate loss of, or damage to life, health, property or essential public services.” Damaged facilities due to mis-marked cables must be repaired or replaced within 8 hrs, or as otherwise agreed. 	
Junction Boxes	Maintain Junction Boxes	90	<p>Ordinary Maintenance Criteria</p> <ul style="list-style-type: none"> All junction or pull boxes shall be free from damage or missing parts. Boxes, frames, and covers shall be watertight except for approved weep holes. Must maintain any and all junction boxes infrastructure as as-built drawings. Covers shall be fitted with gaskets and secured with approved securing screws. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> All damaged cable junction boxes and or pull boxes must be repaired within 7 days of discovery or notification if hazardous conditions exist, or within 30 day otherwise. 	
ROADWAY & SHOULDER ASSET GROUP– In accordance with the most current VDOT BIMS requirements in place in Northern Virginia on other similar highways.				
BRIDGE ASSET GROUP – In accordance with the most current VDOT BIMS requirements in place in Northern Virginia on other similar highways.				
SERVICES GROUP – In accordance with the most current VDOT BIMS requirements in place in Northern Virginia on other similar highways, or as specified below				

EXECUTION VERSION

Table 4.5b – Ordinary Maintenance Performance Requirements Baseline Table				
Asset	Outcome	Minimum (%)	Ordinary Maintenance Criteria and Timeliness Requirements	UOM
Emergency Access Barrier Gates	Clean and Fully Operational	100	Timeliness Requirements: <ul style="list-style-type: none"> • Quarterly operations check and inspection (or as needed) due to maintenance monitoring alert • Quarterly cleaning or as needed 	Each
TRAFFIC MANAGEMENT SERVICE – In accordance with the most current VDOT BIMS requirements in place in Northern Virginia on other similar highways, or as specified below				
MISCELLANEOUS INFRASTRUCTURE AND REST AREA ASSET GROUP				
Building Maintenance and Repair	Buildings structurally sound and serviceable	90	Ordinary Maintenance Criteria <ul style="list-style-type: none"> • structural integrity of all buildings is maintained at all times • Electrical systems, HVAC systems, and communication lines, fully functioning • No material paint blistering or peeling, mildew, or mold, rusted metal fittings. Timeliness Requirements <ul style="list-style-type: none"> • General maintenance issues of a material nature to be addressed within 7 days of notification or discovery. • Issues affecting public safety to be addressed immediately 	Annual Report