

EXHIBIT N-3

TECHNICAL REQUIREMENTS – OPERATIONS AND MAINTENANCE

[See attached]

Exhibit N-3
Operations, Maintenance and Tolling
Technical Requirements

OPERATIONS, MAINTENANCE AND TOLLING TECHNICAL REQUIREMENTS

The purpose of these Operations, Maintenance and Tolling Technical Requirements (“O&M Technical Requirements”) is to identify the minimum scope and technical requirements to operate and maintain the Project during the Operating Period. The Work required by the Technical Requirements will be undertaken by or on behalf of the Concessionaire. The Concessionaire shall be governed by the Agreement, including these O&M Technical Requirements, in the performance of the Work and remains responsible to the Department for its completion. Capitalized terms used herein but not otherwise defined have the respective meanings set forth in Exhibit A to the Agreement.

4.1 General

- A. The Concessionaire shall meet all operations, maintenance, and tolling performance requirements in accordance with the Agreement.
- B. The Concessionaire is responsible for operation of the HOT Lanes and establishment of an effective operations management framework that includes: traffic management, traffic monitoring, traffic control and enforcement, facility management and administration, and electronic tolling administration, operations, enforcement and collection, in accordance with the Agreement.
- C. Subject to the requirements of the Agreement, the Concessionaire is responsible for maintenance of the HOT Lanes, including the Concessionaire’s signs located outside the Project Right of Way, the Project HOT-OC, and the fiber optic cable linking the HOT-OC to the interagency communications system in accordance with the Agreement. Maintenance responsibilities include: asset management, routine maintenance, Major Maintenance and accident damage repairs, and traffic management and tolling system asset renewal as necessary in accordance with the Agreement.
- D. The Concessionaire shall implement an effective maintenance management system to record inventory, failures, repairs, maintenance activities, inspections performed, and defects.
- E. The limits of maintenance activities are defined in the revised Joint Operations and Maintenance Protocols (JOMP) for the HOT Lanes.
- F. The Concessionaire shall update selected Project Development Plans from the construction phase to serve as Management Plans for the Operating Period (“Management Plans”) in accordance with requirements and schedule set forth in Attachment 4.1
- G. Reporting During Operating Period:
 - 1. The Concessionaire shall prepare and provide to the Department regular reports during the Operating Period (as more fully described below). All reports prepared by Concessionaire shall include, at a minimum, those items shown

below in a format mutually agreed to with the Department and sufficient to allow the Department to meet its regulatory reporting responsibilities.

2. During the Operating Period, the Concessionaire's Quarterly O&M Report shall be mutually agreed to with the Department and may include the following:
 - a. planning and implementation of operations, including work plans for the future periods;
 - b. roadway operations;
 - c. incident response;
 - d. routine maintenance activities, Major Maintenance, accident damage repairs, and traffic management and tolling system asset renewal;
 - e. customer service log, detailing complaints or requests, and their disposition;
 - f. O&M inspections;
 - g. long term participation SWaM goal;
 - h. a summary of issues related to Performance Points during the reporting period;
 - i. quality management activities and
 - j. performance timeliness.
 3. During the Operating Period, in addition to all other reporting required by the Agreement and Law, the Concessionaire's annual report shall include the following:
 - a. Summary of quarterly issues and trends as required for the Department's reporting to FHWA;
 - b. Annual projects budgets as required in the Agreement;
 - c. Summary of issues related to Performance Points; and
 - d. Update on the O&M overhead costs of the O&M Contractor or its Affiliates.
 4. The Concessionaire Management Plan shall describe the proposed formats, means of distribution, and recipients of the reports.
 5. The Concessionaire shall maintain at all times, at its office, a minimum of one hard copy complete set of all reports shown above for the previous six months only. All reports shall be available to the Department for inspection and audit. Additional reports may be required as future needs dictate, and the reports listed above may be deleted (by mutual consent of the parties).
- H. The Department will maintain shared bridges; the Concessionaire will pay the Department based on the percentage of Concessionaire footprint (including travel lanes and shoulder).

- I. The Department will maintain shared sign structures; the Concessionaire will pay the Department for their percentage share based on square footage of the sign panels on the structure.
- J. There are service panels which provide power to both Concessionaire and Department assets. These service panels will be individually defined as the sole cost responsibility of one party or the other in the JOMP.
- K. The Concessionaire shall perform all Major Maintenance in accordance with the Life Cycle Maintenance Plan approved by the Department. All Work during the Operating Period must comply with the Agreement and applicable Technical Requirements.
- I. Any lane or shoulder closures necessary for routine or preventative maintenance activities and Major Maintenance shall comply with the Department's current *Lane Closure Guidelines for Northern Virginia*, unless otherwise agreed to by the Department.

4.2 Inspection Requirements

4.2.1 General

- A. The Concessionaire shall employ and cause trained and competent personnel to plan and implement a program of inspections of the HOT Lanes, the ETTM Facilities and the ETTM System on the HOT Lanes Project, which:
 - 1. provides for the continuing safety of the HOT Lanes for drivers;
 - 2. prioritizes defects requiring immediate and urgent attention because they are likely to create a danger or serious inconvenience to drivers;
 - 3. identifies other defects to be included for repair within the Concessionaire's annually recurring HOT Lanes maintenance and repair program (Life Cycle Maintenance Plan);
 - 4. is responsive to reports or complaints received from stakeholders;
 - 5. takes account of incidents and emergencies affecting the HOT Lanes;
 - 6. monitors the effects of extreme weather conditions; and
 - 7. collates data to monitor performance of the HOT Lanes and to establish priorities for future maintenance operations.
- B. The Concessionaire shall cause personnel performing inspections of road pavements and structures to be certified as inspectors in accordance with Standards and Specifications set forth in Exhibit N-2, Attachment 1.5a.
- C. Defects that are subject to the performance requirements in Attachment 4.5, Table 4.5a and the timeliness requirements in Table 4.5b are those that require prompt attention, because they represent an immediate or imminent hazard, or there is a

risk of immediate or imminent structural deterioration, or there is an immediate or imminent risk of damage to a third party's property or equipment, or there is an immediate or imminent risk of damage to the environment, all to the extent that the Concessionaire can control.

- D. All shared and Department bridges and structures shall be inspected by the Department. For structures and traffic structures including ETTM Equipment that are maintained by the Concessionaire it shall be the responsibility of the Concessionaire to perform all safety inspections for these structures required by the Structure and Bridge Division's Instructional and Informational Memorandum S&B-IIM-27 Bridge Safety Inspections, S&B-IIM-82/TE-357 Traffic Structures, or then-current applicable standards.

4.2.2 Inspection Frequency

- A. The Concessionaire shall establish inspection procedures and carry out inspections so that:
1. All defects that present a hazard or could cause serious driver inconvenience are identified and repaired, such that the hazard is mitigated within the timescales set out in the Level of Service Requirements specified in Section 4.5;
 2. All defects that present a hazard or could cause serious driver inconvenience are identified and remedied within the timescales set out in the Level of Service Requirements; and
 3. All other defects are identified and repaired within the timescales set out in the Level of Service Requirements.
- B. The periods stated in the Level of Service Requirements shall be deemed to be periods from the time the relevant defect was first identified by or notified to the Concessionaire.
- C. The Concessionaire shall investigate reports and complaints on the condition of the HOT Lanes received from all sources. The Concessionaire shall record these as O&M records together with details of all relevant inspections and actions taken in respect of defects, including temporary protective measures and repairs.

4.2.3 Inspection Standards

In performing inspections to identify defects, the Concessionaire shall conform, as a minimum, to the inspection standards set forth for each asset in the Level of Service Requirements tables in Attachment 4.5

4.2.4 Safety Inspections

The record of a safety inspection shall include details of the weather conditions, road surface condition and any unusual features of the method of inspection.

4.2.5 General Inspections

- A. The Concessionaire shall perform general inspections in accordance with the Operations and Maintenance Plan, so that the repairs of all defects are included in planned programs of work.
- B. O&M records, with respect to general inspections, shall include details of the manner of inspection (e.g. center lane closure or shoulder), the weather conditions, and any other unusual features of the inspection.

4.3 Maintenance Requirements

4.3.1 General Obligations

- A. The Concessionaire shall maintain the HOT Lanes as governed by the Agreement and shall take all necessary action to:
 - 1. operate and maintain the HOT Lanes according to Good Industry Practice appropriate for a highway of the character of the HOT Lanes and for use by the traffic which is reasonably expected to use the HOT Lanes;
 - 2. minimize delay to drivers;
 - 3. respond to all incidents and defects as quickly as possible and minimize their adverse effects according to Good Industry Practice;
 - 4. provide users adequate information and forewarning of any events on, or any matters affecting, the smooth operation of the HOT Lanes as will enable them to minimize any associated adverse consequences according to Good Industry Practice;
 - 5. protect the safety of users, workers or other persons on the HOT Lanes, on land adjacent to the HOT Lanes or using related transportation facilities to the extent the Concessionaire has or can control, according to Good Industry Practice;
 - 6. respect and protect the environment by minimizing the risk of adverse effects on the environment and on the amenity enjoyed by the owners and occupiers of land adjacent to the HOT Lanes and to related transportation facilities to the extent the Concessionaire has or can control;
 - 7. minimize the risk of damage or disturbance to or destruction of third party property;
 - 8. enable the Department and others with statutory duties or functions in relation to the HOT Lanes or related transportation facilities to perform those duties and functions through agreed protocols; and
 - 9. Perform inspections in accordance with Section 4.2.

4.3.2 O&M Data Management

- A. In performance of the O&M Work, the Concessionaire shall implement the data and records management requirements set in the Concessionaire's Management Plan.
- B. Concessionaire and the Department will mutually agree to the format needed for O&M records to be capable of being integrated into their respective asset management systems consistent with Good Industry Practice.
- C. The data and records shall be kept updated and operational throughout the Operating Period.

4.4 Operation Requirements

4.4.1 Incident Management

- A. The Concessionaire shall provide equipment/personnel as necessary to support incident and emergency management operations on the HOT Lanes 24 hours a day, 7 days a week. The Concessionaire shall take necessary actions using appropriate resources to handle any and all traffic control needs to insure the safety of the incident scene and traveling public and to minimize the potential for pollution of watercourses or groundwater.
- B. The Concessionaire shall liaise with the Department in developing the incident management plans and when carrying out incident management operations.
- C. The Concessionaire shall cause a trained member of staff to be on standby 24 hours a day, seven days a week to coordinate the Concessionaire's response to any incident or emergency.
- D. Where structural damage to HOT Lanes structures is suspected, the Concessionaire shall ensure that qualified personnel meeting qualification requirements in Article 650.307 of the National Bridge Inspections Standards and/or suitably qualified bridge/structural engineer, licensed as a Professional Engineer (P.E.) is available to evaluate the structure. Also, a suitably qualified bridge/structural engineer, holding a P.E. license, shall be available to advise on temporary repairs and/or shoring that may be needed to provide safe clearance of the incident or emergency. Subject to the requirements of the Agreement, the Concessionaire shall not remove any vehicle or other item that may assist the incident or emergency investigation until authorized to do so by the relevant law enforcement agencies.
- E. The Concessionaire shall not reopen any area of the HOT Lanes that has been closed, until all appropriate safety and traffic management measures have been completed.
- F. The Concessionaire must ensure that procedures are in place for: public/agency notifications, incident management, ensuring the safety of motorists, handling of hazardous waste, coordination with the Department, police and other emergency personnel with respect to emergency incidents and occurrences.
- G. The Concessionaire shall identify a management-level, on-call person.

4.4.2 Traffic Management

- A. Incidents are to be detected and classified within 5 minutes of occurrence 95% of the time within areas monitored by the video based AID system.
- B. Traffic Management Messages that contribute to the safety of motorists and road workers are to be applied within 5 minutes of the detection and classification of an incident or the identification of deteriorated road conditions.
- C. Appropriate, relevant, and up-to-date messages are to be displayed at all times on Dynamic Message Signs.
- D. Incident information is to be communicated to the Department within 5 minutes of incident detection.

4.4.3 Driver Information (HOT Lanes)

- A. In Service Availability for each Tolling and Driver Information Dynamic Message Sign (each sign) to be at least 99.9%. In-Service Availability for each Traffic Management Dynamic Message Sign to be at least 99.9%.
- B. The Concessionaire shall utilize the ETTM Equipment, including the DMS, to provide road users with relevant information in accordance with the Operations and Maintenance Plan, including the use of DMS to impart information on behalf of the Virginia Department of Emergency Management.

4.4.4 Waste Disposal; Use of Hazardous Materials

- A. Subject to the requirements of the Agreement the Concessionaire shall:
 - 1. dispose of, or cause the disposal of, all waste, residue, debris, materials and supplies (including paints, herbicides and chemicals), grass and foliage clippings, dead animals, and all other waste materials produced or generated by the O&M Contractor;
 - 2. use, contain, store and dispose of all Hazardous Materials employed in connection with its activities during the Operating Period; and
 - 3. be responsible, subject to direction from emergency responders taking responsible charge of an incident, for the cleanup, containment, removal, transportation, storage or disposal of any hazardous material spills or releases on the HOT Lanes.

4.5 Level of Service Requirements

- A. The baseline service levels for routine maintenance will be equal to that of other

similar highways in the Commonwealth of Virginia. The Baseline Level of Service Requirements are set out in Attachment 4.5.

- B. Concessionaire shall set forth, as part of the Operations and Maintenance Plan, reviewed and updated as necessary, comprehensive maintenance standards. This shall be based on a performance requirements table consistent with Attachment 4.5 (Performance Requirements Baseline Tables)
- C. The Concessionaire’s Performance Requirements Table shall set forth the following information:

Heading in Attachment 4.5	Contents of Concessionaire’s Submitted Performance Requirements Table
Asset	As per Attachment 4.5
Performance Requirement	As per Attachment 4.5
Inspection / Measurement Method	Subject to proposed amendment by Concessionaire as part of annual review of Operations and Maintenance Plan
Target	As Attachment 4.5; subject to future changes required mutually agreed with the Department as Good Industry Practice dictates on similar highways in the Commonwealth of Virginia, and subject to proposed amendment by Concessionaire as part of annual review of Operations and Maintenance Plan

- D. In its submittals of the Performance Requirements Table, the Concessionaire shall propose such amendments to improve the inspection and measurement methods, measurement records, performance minimums, tolerances, and criteria as are necessary to comply with the current Northern Virginia BIMS criteria in place on similar highways in Northern Virginia and targets to achieve continuous improvement in industry practice.
- E. The Concessionaire will be responsible for measuring and recording performance across each item in Attachment 4.5.
- F. Performance will be reported quarterly, in a format to be agreed between Concessionaire and the Department, before the HOT Lanes Service Commencement Date. Performance shall also be summarized in an end of year report.

4.6 Tolling Requirements

4.6.1 General

The Tolling System shall be operated and maintained by the Concessionaire to fulfill his obligations under the Electronic Toll Collection Agreement such that the performance requirements are met.

4.6.2 Performance Requirements

- A. Roadside Equipment shall have an In Service Availability of at least 99%. This shall exclude scheduled down time and loss of power outside Concessionaire control.
- B. The Tolling System shall have an In-Service Availability of at least 99.9% of time, excluding scheduled down time and loss of power.
- C. At least 99.8% of transponder records shall be correct, i.e., the data supplied is complete and relates correctly to the transponder detected for properly fitted and operating transponders, and excluding non-normal operation due to signal attenuation due to a metallic wind screen or similar.
- D. At least 99.8% of payment claim records shall be correct, i.e., the data supplied is complete and relates correctly to the payment due for the trip, the displayed prices and the transponder to which it relates.
- E. Records shall be transmitted to the Department in the IAG specification format, or as otherwise agreed between the Department and the Concessionaire, except where VES manual quality control checks have not been completed.
- F. Tag status files are to be loaded and distributed through the system and utilized for each transaction to ensure images are recorded for the correct vehicles. This should be completed within 1 hour of receipt from the Department, (in accordance with the ETC Agreement) 99% of the time subject to receipt of a confirmed accurate tag status file from the Department.
- G. The tag number captured from a tag shall be recorded without error at least 99.99999 percent of the time (no more than one error in 10 million). In addition, no more than one such error in ten (one error in 100 million) shall result in the wrong tag number becoming associated with the capture. This is subject to the transponder supplier performance requirements.
- H. In the event the Department receives two or more representations from customers in a calendar month claiming to have been charged a HOT Lane toll, from the same toll point, while using the GP lanes the concessionaire will present to the Department a management plan to investigate system performance. The Department and Concessionaire agree that the customer confidence in the tolling system is essential and that misreads from the GP lanes must be addressed as a matter of urgency

- I. Accuracy for correctly assigning the transponder to the correct vehicle and therefore license plate, to be 99.9% for properly fitted and operating transponders, and excluding non-normal operation due to signal attenuation due to a metallic wind screen or similar.

4.6.3 Transactions

- A. The Department (in accordance with the ETC Agreement) will supply Tag status information which should be loaded and distributed through the system and utilized for each transaction to ensure images are recorded for the correct vehicles. The Department reserves the right to reject duplicate transactions.
- B. Upon notification that the Concessionaire has requested payment from an account which the Department has previously informed the Concessionaire is invalid and/or no longer in good standing the Concessionaire must reconcile or audit the data transmission within three Business Day to identify all other instances that may have occurred.
- C. Upon notification of a duplicate transaction or an incorrect toll amount, the Concessionaire must reconcile or audit the data transmission within three Business Days to identify any and all other duplicate transactions or incorrect toll charges that may have occurred

4.6.4 Roadside Equipment Support and Maintenance

- A. The Concessionaire shall support and maintain all roadside equipment and infrastructure installed on the HOT Lanes, related to HOT Lanes Operations. Shared roadside equipment and infrastructure shall be maintained by either the Concessionaire or the Department in accordance with the JOMP.
- B. The Department shall support and maintain all roadside equipment and infrastructure on the GP lanes, all other roadways and overpasses, including signalized intersections.

4.6.5 IT Support and Maintenance

The Concessionaire shall carry out IT service management in accordance with Good Industry Practice.

4.6.6 Anti-virus Scanning and Protection

- A. The Concessionaire shall maintain anti-virus and protection procedures to protect the Tolling System from viruses and other destructive devices, and to manage the impact of virus attacks including transmission to the Department System or other Department or Third Party systems

- B. Any infection by computer virus or similar destructive devices shall be immediately notified to the Department upon identification.

4.6.7 Interfaces

The Concessionaire shall continuously monitor all interfaces for the Tolling System. The monitoring should include availability, throughput, performance, buffer usage, queue lengths, hardware status, system alarms and warnings, and any other diagnostic data provided by the Concessionaire's implementation of the interfaces.

4.6.8 System Back-up and Recovery

- A. The Concessionaire shall provide data security for the Tolling System. Data security may include, but not be limited to:
 - 1. Backup of all software and configuration following each release of, or change to, the system, including any Disaster Recovery site;
 - 2. Daily back-up of all new/changed data held on the Tolling System;
 - 3. Removal of the media used for the daily back-up to a secure off-site location within 24 hours (or other agreed timeframe); and
 - 4. Storage of one month of the data back-ups in a secure off-site location.
- B. Backups shall not affect the Tolling System's ability to capture, store or process detection data.

4.6.9 System Failure

- A. The Concessionaire shall notify the Department without delay on it becoming aware of any event of or the likely event of any system failure that results in a critical element of the Tolling System not functioning or results in or is likely to result in an unacceptable impact on the public or on the Department or a Third Party
- B. The Department shall notify the Concessionaire without delay on it becoming aware of any event or of the likely event of any system failure that results in a critical element of the Department system not functioning or results in or is likely to result in an unacceptable impact on the public or on the Concessionaire or a Third Party
- C. Where the relevant system failure affects or may affect, a Third Party or the Department or its agents, the Concessionaire shall give the Department all necessary co-operation in resolving the relevant system failure by co-operating fully and expeditiously with the Third Party or the Department or its agents, as appropriate, to resolve the same.

- D. Where the relevant system failure was caused by the Department or its agents, the Department shall give the Concessionaire all necessary co-operation in resolving the relevant system failure, by co-operating fully and expeditiously with the Third Party or Concessionaire, as appropriate, to resolve the same.

4.6.10 Reporting

The Concessionaire shall report on the performance achieved against each of the Performance Requirements in each reporting period in accordance with the Agreement. Performance will be reported quarterly, in a format to be mutually agreed between Concessionaire and the Department, before the HOT Lanes Service Commencement Date. Performance shall also be summarized in an end of year report.)

4.7 Maintenance and Handback Requirements

- A. The Concessionaire shall return the HOT Lanes Project to the Department accordance with the Handback Requirements set forth in Section 16.09 of the Agreement.
- B. The Concessionaire shall perform all Major Maintenance in accordance with the Life Cycle Maintenance Plans approved by the Department. All Work during the Operating Period must comply with the applicable Technical Requirements and shall meet the Performance Requirements and any other applicable standards and requirements set forth in the Agreement.
- C. The Life Cycle Maintenance Plan updates during the last five years of the Term will be subject to additional oversight by the Department in accordance with the Agreement to ensure that the Handback Requirements will be met.
- D. The Concessionaire shall prepare a Transition Plan to manage the handback process. The Transition Plan shall include a checklist of relevant activities in sufficient detail to facilitate a smooth transition from Concessionaire to Department operations of the HOT Lanes Project. A draft Transition Plan shall be provided to the Department at least 180 days before the end of the Operating Period; the final Transition Plan shall be submitted within 30 days of receipt of the Department's comments.
- E. During the last 180 days of the Operating Period, the Concessionaire shall meet with the Department regularly (at least monthly) to advance the transition from Concessionaire to Department operations and resolve any outstanding handback issues.

ATTACHMENT 4.1

OPERATIONS PERIOD MANAGEMENT PLANS

- A. The Management Plans during the Operations Period required to comply with the Agreement are listed below:

Plan	Purpose and Contents
Concessionaire Management Plan	The Concessionaire Management Plan describes the Concessionaire's overall organization and management approach, strategy, and quality procedures during the Operating Period, including all aspects necessary to effectively operate and maintain the HOT Lanes. The Concessionaire Management Plan shall clearly identify responsibilities and procedures for each Project management activity and demonstrate a thorough understanding of the Agreement and Project requirements. The Concessionaire Management Plan shall include an organization chart outlining the basic structure of the Concessionaire's organization for operations and maintenance; sub-organizations (such as consulting, subcontractors, suppliers) and a description of the roles; relationship with the Department and third parties; organizational chart with responsibilities, and Work to be accomplished by each member of the management team and each sub-organization, including identified subcontractors and suppliers. The Concessionaire Management Plan shall address the process and procedures for submission of any documentation required and describe the Concessionaire's approach for records management and storage
Quality Management System Plan	The Quality Management System Plan details the Concessionaire's approach to quality assurance during the Operating Period, including: a) roles and responsibilities of key personnel, b) policies and procedures for compliance and auditing, c) document management and records retention, and d) quality requirements for Concessionaire consultants and contractors.
Health, Safety and Environment Management Plan	The Health, Safety and Environment (HSE) Management Plan describes the approach and framework the Concessionaire will use to manage its HSE responsibilities at the asset level during the Operating Period, including specific policies and procedures to be used to manage risks, reduce hazards, and oversee the HSE performance of Concessionaire consultants and contractors.
Environmental Management Plan	The Environmental Management Plan details the approach and framework the Concessionaire will use to manage environmental commitments and incidents during the Operation Period, including specific policies and procedures to be used to manage risks, reduce hazards, and oversee the performance of its consultants and contractors.
Hazardous Substances Release Management Plan	The Hazardous Substances Release Management (a component of the overall Environmental Management Plan) details the Concessionaire's approach to managing hazardous substances or incidents involving such substances during the Operating Period. This plan is intended to serve as a guide for any personnel and contractors providing emergency response to a hazardous substance incident.

Communications Plan	The Communications Plans describes the Concessionaire’s approach and framework for management of communications and stakeholder engagement during the Operating Period to: a) maximize public awareness of features and benefits of the HOT Lanes, and ensure that information regarding the HOT Lanes operations (and incidents) are easily and readily accessible to the public.
DBE/SWaM Plan	The DBE/SWaM Plan describes the Concessionaire’s approach and framework for managing DBE and SWaM participation during the Operating Period, including outreach, engagement, and reporting.
Operations and Maintenance Plan	<p>The Operations and Maintenance Plan describes the approach and framework the Concessionaire will use to manage its operations and maintenance obligations during the Operating Period, including: a) roles and responsibilities of key personnel and contractors, b) applicable policies and procedures, c) incident management approach, d) inspection methods, and e) maintenance activities scheduling. The Operations and Maintenance Plan is intended to address routine and seasonal operation and maintenance planning and activities. The Operations and Maintenance Plan shall address the following areas:</p> <ol style="list-style-type: none"> i. organization structure including key operations and maintenance personnel and their responsibilities and level of authority; ii. key suppliers and subcontractors; iii. service delivery and operating procedures; iv. incident management; v. inspection methods and inspection schedule; vi. identification and scheduling of routine maintenance; vii. stakeholder communication program; viii. environmental compliance; ix. site safety; x. emergency response; xi. tolling operations and maintenance plan; xii. documentation and reporting procedures; xiii. an internal audit program and recording of findings, conformances, non- conformances, corrective actions and preventative actions; xiv. making available documentation for external audits; xv. submission of quarterly reports indicating all activities and requirements as noted in Section 4.1 G. of the Technical Requirements Exhibit N-3; xvi. submission of annual operations and maintenance report addressing the requirements in Section 4.1 G. of the Technical Requirements Exhibit N-3. xvii. reporting and documentation mechanism; xviii. coordination with other projects, including the Route 495 HOT Lanes in Virginia Project; and xix. linkage to other Project Development Plans.
Tolling, Enforcement and Customer Management Plan	The Tolling, Enforcement and Customer Management Plan describes the Concessionaire’s approach and processes for managing toll collection, violation enforcement, and the customer interface during the Operating Period.
Life Cycle Maintenance Plan	The Life Cycle Maintenance Plan, as specified in Section 8.06 of the Agreement, describes the Major Maintenance to be undertaken by the Concessionaire in the specified five-year period, by component, item or discrete project, the estimated costs and timing relating of each. The Life Cycle Maintenance Plan is intended to focus on non- routine maintenance, such as annual or seasonal maintenance, and provide a status of the assets under the control of the Concessionaire. The Life Cycle Maintenance Plan shall provide

	the procedures in place for successful management of maintenance, operation, and handover of the assets to the Department.
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- B. These Management Plans shall comply with the requirements of the Agreement including these Operations & Maintenance Technical Requirements, and the Concessionaire shall ensure that when implemented, the Work covered by the Plans will comply with such requirements.
- C. The current Management Plans for the 495 HOT Lanes shall be updated to incorporate elements of Project NEXT prior to the Scheduled Service Commencement Date and updated thereafter in accordance with the schedule set forth below.

Management Plan	Initial Submittal for Project NEXT	Updates*
Concessionaire Management Plan	90 days prior to anticipated Service Commencement for Project NEXT.	Annually (during the Term), if required. To be submitted no later than January 31 st of each calendar year.
Quality Management System Plan	90 days prior to anticipated Service Commencement for Project NEXT.	Annually (during the Term), if required. To be submitted no later than January 31 st of each calendar year.
Health, Safety and Environment Management Plan	90 days prior to anticipated Service Commencement for Project NEXT.	Annually (during the Term), if required. To be submitted no later than January 31 st of each calendar year.
Environmental Management Plan	90 days prior to anticipated Service Commencement for Project NEXT.	Annually (during the Term), if required. To be submitted no later than January 31 st of each calendar year.
Hazardous Substances Release Management Plan	90 days prior to anticipated Service Commencement for Project NEXT.	Annually (during the Term), if required. To be submitted no later than January 31 st of each calendar year.
Communications Plan	90 days prior to anticipated Service Commencement for Project NEXT.	Annually (during the Term), if required. To be submitted no later than January 31 st of each calendar year.
DBE/SWaM Plan	90 days prior to anticipated Service Commencement for Project NEXT.	Annually (during the Term), if required. To be submitted no later than January 31 st of each calendar year.
Tolling, Enforcement and Customer Management Plan	90 days prior to anticipated Service Commencement for Project NEXT.	Annually (during the Term), if required. To be submitted no later than January 31 st of each calendar year.

Management Plan	Initial Submittal for Project NEXT	Updates*
Operations and Maintenance Plan	90 Days prior to anticipated Service Completion for Project NEXT	<p><u>Quarterly</u>: Operations and Maintenance status and update reports. To be submitted within 30 days of the end of the reporting quarter.</p> <p><u>Annually</u>: Operations and Maintenance Plan update and report on previous year activities. To be submitted by January 31st of each calendar year.</p>
Life Cycle Maintenance Plan	90 days prior to anticipated Service Commencement for Project NEXT.	Annually (during the Term). To be submitted no later than September 30 th of each calendar year.

* Changes as required will be in accordance with the Agreement and these O&M Technical Requirements. "Updates" means a revision or updates to an already approved version of a Plan.

- D. These Management Plans, and associated records and logs shall be available for review by the Department on an ongoing basis in accordance with the Agreement.
- E. Each Management Plan (and any associated policies or procedures) will be reviewed and, if necessary, updated if it:
1. does not adequately address the matters it is intended to address;
 2. does not conform or is otherwise necessary to comply with the Agreement;
 3. has to be changed because of an audit;
 4. no longer represents current or appropriate practice; or
 5. is required by the Agreement to be updated

ATTACHMENT 4.5

PERFORMANCE REQUIREMENTS BASELINE TABLES

1 Asset Condition Requirements

Table 4.5a: Asset Condition Requirements Baseline Table

[Note: Table developed with reference to VDOT intervention levels and major maintenance practices]

Asset	Performance Requirement	Inspection / Measurement Method	Target
Pavement	Roadways have a smooth and quiet surface course with adequate skid resistance and free from defects All measurement methods and application for the HOT lanes based on the asset condition reports and Lifecycle Maintenance Plan prepared will be considered in determination of performance requirements for Pavement	Pavement condition scores as outlined in ASTM D 5340. Pavement condition score will consider the following pavement deficiencies : potholes, cracking, joints, raveling, shoving, rutting, etc.	90
		Percentage of wheel path length with ruts greater than 3/4 " in depth, measured using a straight edge, at localized areas / auditable section	3%
		Rut depth measured using a straight edge at localized areas / auditable section	Maximum 3/4"
		International Roughness Index Rating (IRI)	max 170 inches per mile or lower
		Critical Condition Index (CCI) (1) CCI is calculated as the lower of Load-related Distress Rating (LDR) and Non Load-related Distress Rating (NDR)	70 or Above ("Good" or better)
		Skid resistance, using standard test method, compared to mean skid resistance of I-495 GP Lanes	Exceeds mean
Structures	Structures fully functional and structurally sound. All measurement methods and application for the HOT lanes based on the asset	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.	All condition ratings to be fair or more for any deck, superstructure or substructure. All condition states to be one (1) for all

Asset	Performance Requirement	Inspection / Measurement Method	Target
	condition reports and Lifecycle Maintenance Plan prepared will be considered in determination of performance requirements for Structures		structure components
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	Visual inspection	90% (no hazardous free standing water)
Electrical Supply	Electrical supply, feeder pillars, cabinets, switches and fittings are electronically, mechanically and structurally sound and functioning	Visual inspection	90%
Hazardous Materials / Spillage	Control of hazardous materials shall be in accordance with Chapter 13, NFPA 502	Incident reports show compliance	100%
Structural Assessment	Evaluate structural damage to structures and liaise with emergency services to ensure safe working in clearing incidents	Inspections and surveys as required by incident	90%

(1) A Guide to Evaluating Pavement Distress Through the Use of Digital Images, Virginia Department of Transportation, Asset Management Division, Apr. 2006.

2 O&M Performance Requirements

2.1 Northern Virginia BIMS Performance Requirements – Baseline Level of Service

The Concessionaire shall achieve and maintain a Maintenance Rating Program (MRP) rating of 90% or above for all assets for each route unless otherwise noted. The Concessionaire shall use the criteria in Table 4.5b the level of maintenance attained to ensure a uniform consistent level of Maintenance at all times. All Asset Groups (roadway & shoulder, roadside, traffic services, drainage, and bridge) shall have a minimum rating of 90% unless otherwise noted herein.

Table 4.5b – O&M Baseline Level of Service

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
ROADSIDE ASSET GROUP				
Vegetation	Healthy Growing Neat Appearance Acceptable Coverage Proper Sight Distance	90	<ul style="list-style-type: none"> <10% of mowable area per 1/10th mile section to exceed 12" in height (unless otherwise noted). All sight distances are clear. Neat/trimmed around guardrail, headwalls, paved ditches, concrete barriers, curb and gutters, rock or median areas, signs, and other fixed objects. <10% bare ground per 1/10th mile section. No cut less than 4" in height. No invasive species in mowable areas (Canadian Thistle, Kudzu Vine, Johnson Grass, Japanese Knotweed). Litter pickup shall occur in advance of each mowing cycle. Prevent the growth of unwanted weeds, grass, brush and trees. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Vegetation-affecting sight distance presenting a safety hazard shall be removed within 24 hours of notification or discovery. All other vegetation deficient areas shall be corrected within 4 days of notification or discovery. 	Acre
Brush & Trees	No Hazardous Trees Unobstructed Sight Distance Vertical Clearance Structure Inspection & Repairs	90	<ul style="list-style-type: none"> No trees or brush affecting sight distance. Vertical clearance of 20' over roadway (includes shoulders). Vertical clearance of 7' over sidewalks. No leaning or dead trees that present a hazard. No brush or trees that affect the inspection or repair of bridges or other structures. No brush or trees that affect utility company reading or 	Acre

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
	Unobstructed Proper Notification shall be provided to local owners before trimming trees		inspection. <ul style="list-style-type: none"> No trees within the clear zone or mowing areas. Timeliness Requirement: <ul style="list-style-type: none"> Trees/brush affecting sight distance to regulatory signs and/or creating safety hazard shall be removed within 48 hours of notification. All other tree issues shall be removed within 2 weeks. Safety issues shall be mitigated immediately. 	
Debris & Road kill	Roadway Free of Debris & Road Kill No Dump Sites	100	<ul style="list-style-type: none"> No dump sites on right-of-way. Debris and Road kill promptly removed from the right-of-way and properly disposed. Owner of household pets to be notified if identification is available. Timeliness Requirement: If road kill is in roadway, Concessionaire shall respond immediately upon notification or discovery, 60 minute response time during normal work hours and 60 minute response time outside normal work hours. If not in roadway, Concessionaire shall respond within 24 hours.	Each
Litter	Right-of-way Neat & Attractive	90	<ul style="list-style-type: none"> <30 items (greater than the size of a sheet of paper or a standard brick) per 1/10th mile section. Timeliness Requirement: <ul style="list-style-type: none"> Concessionaire shall respond to locations of excessive litter with 3 days of notification or discovery. 	Acre
Landscaping, Wildflowers Beds, Bulb Beds, Ornamental Shrub Beds	Neat Attractive Growing	90	<ul style="list-style-type: none"> <10% of bed contains weeds. Beds will be mulched. <10% of bed not growing. Neat appearance and pruned. Timeliness Requirement: <ul style="list-style-type: none"> Concessionaire shall insure compliance within 14 days of notification or discovery. 	Acre
Illegal signs/	Right-of-way Free of Illegal Signs or	100	<ul style="list-style-type: none"> No illegal signs on the right-of-way. No illegal structures on the right-of-way. 	Each

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
structures	Structures		<p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Concessionaire shall remove illegal signs/structures within 3 days of notification or discovery. • Safety issues shall be mitigated immediately. 	
Concrete Barriers	Safe Structurally Sound	90	<ul style="list-style-type: none"> • Free of vegetation. • <10% joint material damaged or missing. • Weep Holes \geq 90% free of obstruction. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damaged or misaligned barriers due to accidents/ incidents shall be mitigated immediately upon notification or discovery or before accident scene is cleared. • Repairs to barriers shall be completed within 10 days of notification or discovery. • Safety issues shall be mitigated immediately. 	Each
Sound Walls & Barriers	Structurally Sound Functional	90	<ul style="list-style-type: none"> • Free of damaging vegetation. • <10% damage to surface materials. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damaged or misaligned barriers or walls due to accidents/incidents shall be mitigated immediately upon notification or discovery or before accident scene is cleared. • A plan for repairs to barriers or walls shall be completed within 10 days of notification or discovery. • Safety issues shall be mitigated immediately 	LFT
Slopes	Stable No Erosion	90	<ul style="list-style-type: none"> • <8" deep erosion. • No pattern of erosion that endangers the stability of the slope. • <105 feet greater than 2" lower than paved shoulder within .1 mile sample unit. • <105 feet greater than 2" higher than paved shoulder within .1 mile sample unit. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Any safety hazard that results from a sink hole, slide, high slope or low slope areas shall be mitigated immediately. 	LFT

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
			<ul style="list-style-type: none"> Repairs to sink holes and slides shall be completed within in 7 days of notification or discovery. High and or low slope areas shall be repaired within 30 days. Safety issues shall be mitigated immediately 	
Fence	Functional Structurally Sound	90	<ul style="list-style-type: none"> <10% fence in need of repair. No damage that allows access. Fee of damaging vegetation. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Any damaged or fallen fencing that allows access shall be mitigated immediately and replaced/repared within 7 days after notification or discovery. Safety issues shall be mitigated immediately. 	LFT
Crossovers/Police Parking Locations	Safe Functional	95	<ul style="list-style-type: none"> Properly signed if open Properly signed / blocked if restricted access Free of potholes Properly maintained driving surface (as constructed) <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Damage crossovers/police parking locations shall be repaired within 30 days of notification or discovery. Safety issues shall be mitigated immediately. 	Each
Retaining Walls	Structurally Sound Safe Clean Stable	90	<ul style="list-style-type: none"> Free of damaging vegetation. Weep holes open. No damaged or missing parts. Metal components free of rust. Joints and joint material intact. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Damage to retaining walls shall be repaired within 30 days of notification or discovery. Safety issues shall be mitigated immediately. 	Each

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
DRAINAGE ASSET GROUP				
Pipes & Box Culverts (≤36 sq. ft.)	Structurally Sound Open & Drains Joints Intact Functional Free of Damage	90	<ul style="list-style-type: none"> • <10% diameter closed. • No separated joints. • No missing joint material. • <1' deep erosion at ends. • End walls & end section intact and free of damage (includes load carrying grates). <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Culverts or structures beyond 50% diameter closed shall be cleaned and opened within 7 days. • Culverts/structures structurally near collapse shall be mitigated immediately. • Safety issues shall be mitigated immediately. 	Each
Pipes & Box Culverts (>36 sq. ft.)	Structurally Sound Open & Drains Joints Intact Functional Free of Damage	90	<ul style="list-style-type: none"> • <10% diameter closed. • No missing joints material. • <1' deep erosion at ends. • Free of damaging vegetation. • End walls & end sections intact and free of damage (includes load carrying grates). <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Culverts or structures beyond 25% diameter closed shall have a planned action for permanent resolution submitted for approval within 14 days of discovery. • Culverts/structures structurally near collapse shall be mitigated immediately. • Safety issues shall be mitigated immediately. 	Each
Ditches, Paved	Structurally sound Joints intact Open & Drains	90	<ul style="list-style-type: none"> • <2 inches settlement & joints intact. • No undermining or undercutting. • No obstructions impeding the flow of water. • <25% spalling of surface area. • <10% surface area cracking > ¼" wide. 	LFT
			<ul style="list-style-type: none"> • No damaged or missing sections (includes energy dissipaters). 	

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
			<p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Open complete blockages and abate significant erosion immediately upon discovery or notification. • Clean debris or remove vegetation impeding flow to clear flow lines within 30 days from notification or discovery. • Damage to paved ditch should be repaired within 90 days of notification or discovery, unless flow is impaired. Refer to the above for timeframes. • Safety issues shall be mitigated immediately. 	
<p>Ditches, Unpaved</p>	<p>Open & Drains Minimal Erosion</p>	<p>90</p>	<ul style="list-style-type: none"> • No water ponding. • No erosion > 6" deep. • No obstruction impeding the flow of water. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Open complete blockages and abate significant erosion immediately upon discovery or notification. • Clean debris or remove vegetation to clear flow lines within 30 days from notification or discovery. • Safety issues shall be mitigated immediately. 	<p>LFT</p>
<p>Under drains & Edge drains</p>	<p>Structurally Sound Functional</p>	<p>90</p>	<ul style="list-style-type: none"> • <10% damage or deterioration to outlet pipe. • <10% blockage of pipe or end protection. • No damaged or missing end protection (includes rodent screen). <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Conduct repairs within 90 days from notification or discovery. • Safety issues shall be mitigated immediately. 	<p>Each</p>
<p>Storm Drains & Drop Inlets</p>	<p>Structurally Sound Functional</p>	<p>90</p>	<ul style="list-style-type: none"> • No damage or missing parts (includes steps, grate, cover & throat). • No obstructions (<10% of opening) (includes top, throat & drop inlet). <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Storm Drains and Drop Inlets beyond 25% closed shall be cleaned within 14 days. 	<p>Each</p>

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
			<ul style="list-style-type: none"> Storm Drains and drop Inlets beyond 50% diameter closed shall be cleaned and opened within 7 days. Safety issues shall be mitigated immediately. 	
<p>Curb & Gutter, Curbing Raised, Concrete Median</p>	<p>In Line Draining Structurally Sound</p>	<p>90</p>	<ul style="list-style-type: none"> No obstruction which impedes the flow of water. <25% of surface area spalling. No damaged or missing section. No separation > 1/2" from asphalt surface. Joints and joint material intact. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Open complete blockages and abate significant erosion immediately upon discovery or notification. Clean debris or remove vegetation impeding flow to clear flow lines within 30 days from notification or discovery. Damages should be repaired within 90 days of notification or discovery unless flow is impaired (refer to the above for timeframes). <p>Safety issues shall be mitigated immediately.</p>	<p>LFT</p>
<p>Storm Water Management Facilities</p>	<p>Safe Structurally Sound Functional</p>	<p>90</p>	<ul style="list-style-type: none"> No damage to stem pipes, weirs, grates, drainage tubing or debris racks. Free of debris (stem pipes, weirs, grates, drainage tubing & debris racks). No vegetation that affects the function (mowed, sprayed). No fence missing or damaged (if present at start of contract). No grass or vegetation greater than 12 inches. Conduct inspections at least once every six months. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Inspection once every six months and after every significant storm event (documentation shall be maintained according to applicable state regulations). All deficiencies reported or discovered shall be corrected within 45 days. Safety issues shall be mitigated immediately. 	<p>Each</p>

TRAFFIC ASSET GROUP

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
<p>Signs (static) – Post Mounted</p>	<p>Meets Reflectivity Standards Clean & Clear Free of Damage</p>	<p>95</p>	<ul style="list-style-type: none"> • Meets current reflectivity standards (Type VIII sheeting or better), as updated (replacements). Reflective at 120' day or night. • Surface clean & legible. • <10% Damage to surface of sign (scratches, dents, graffiti, bullet holes, etc.). • No down or missing signs. • Mile markers are 60" in height to achieve uniform appearance. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damaged Regulatory/Warning signs shall be mitigated immediately upon notification or discovery. • Damaged Regulatory/Warning signs shall be repaired or replaced within 2 days of notification or discovery. • Damaged lane use informational signs shall be repaired or replaced within 10 days of notification or discovery. • All other signs repaired or replaced within 30 days of notification or discovery. 	<p>Each</p>
<p>Cable Locating: Electric, Fiber, Communications</p>	<p>Maintain Cable Facilities</p>	<p>100</p>	<ul style="list-style-type: none"> • <Than (1) error per 100 cable markings. • <Than (2 linier 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. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • All cable marking requests must be logged and accomplished within 72 hrs of request. • All emergency cable marking requests must be accomplished within 4 hrs. 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 mismarked cables must be repaired or replaced within 8 hrs. 	

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
<p>Signs (static) – Post Mounted</p>	<p>Meets Reflectivity Standards Clean & Clear Free of Damage</p>	<p>95</p>	<ul style="list-style-type: none"> • Meets current reflectivity standards (Type VIII sheeting or better), as updated (replacements). Reflective at 120' day or night. • Surface clean & legible. • <10% Damage to surface of sign (scratches, dents, graffiti, bullet holes, etc.). • No down or missing signs. • Mile markers are 60" in height to achieve uniform appearance. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damaged Regulatory/Warning signs shall be mitigated immediately upon notification or discovery. • Damaged Regulatory/Warning signs shall be repaired or replaced within 2 days of notification or discovery. • Damaged lane use informational signs shall be repaired or replaced within 10 days of notification or discovery. • All other signs repaired or replaced within 30 days of notification or discovery. 	<p>Each</p>
<p>Cable Locating: Electric, Fiber, Communications</p>	<p>Maintain Cable Facilities</p>	<p>100</p>	<ul style="list-style-type: none"> • <Than (1) error per 100 cable markings. • <Than (2 linier 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. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • All cable marking requests must be logged and accomplished within 72 hrs of request. • All emergency cable marking requests must be accomplished within 4 hrs. 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 mismarked cables must be repaired or replaced within 8 hrs. 	

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
Junction Boxes	Maintain Junction Boxes	100	<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 cable junction boxes and or pull boxes must be repaired within 7 days discovery or notification. 	
Signs (static) - Overhead and Bridge Mounted	Structurally Sound Meets Reflectivity Standards Free of Damage	90	<ul style="list-style-type: none"> • Meets current reflectivity standards (Type VIII sheeting or better), as updated (replacements). • Reflective at 120' day or night. • Surface clean & legible. • <10% Damage to surface of sign (scratches, dents, bullet holes, graffiti, etc). • No damage or missing parts. • Structure & support areas kept free of dirt & debris... (clean & flush). • Lifecycle Maintenance Plan shall be used for other maintenance needs. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damaged sign structures shall be mitigated immediately upon notification or discovery. • Damaged sign structures shall be repaired within 60 days of notification or discovery. • Damaged Regulatory/Warning signs shall be mitigated immediately upon notification or discovery. • Damaged Regulatory/Warning signs shall be repaired or replaced within 2 days of notification or discovery. • Damaged lane use informational signs shall be repaired or replaced within 10 days of notification or discovery. • All other signs shall be repaired or replaced within 30 days of notification or discovery. 	Each

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
Pavement Markings	Present Reflective	90	<ul style="list-style-type: none"> • <10% damaged or missing due to incidents, patching operations, or snow removal operations. • <10% covered by debris. • All markings to be VDOT approved durable, high quality materials per specifications. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damage to pavement markings shall be corrected within 5 business days unless adverse winter conditions exist. 	LFT
Pavement Markers (Raised & Recessed)	Present Reflective	90	<ul style="list-style-type: none"> • <30% missing or damaged within a tenth mile section. • Meets reflectivity standards. • Missing pavement marker lenses shall be repaired or replaced. <p>Timeliness Requirement</p> <ul style="list-style-type: none"> • Pavement markers that present a hazard shall be removed immediately upon notification, discovery or inspection. • Inspections will be conducted every 30 days and within 48 hours after every weather event that requires the use of snow plows. • Units will be repaired or replaced within 10 days. 	Each
Pavement Messages	Present Reflective	90	<ul style="list-style-type: none"> • <10% damaged. • <10% covered by debris. • Meets reflectivity standards. • All markings to be VDOT approved, and must be durable and high quality materials. 	Each
Lighting - Roadway	Operational Structurally Sound	90	<ul style="list-style-type: none"> • Conventional Lighting (single bulb structure): Working at all times. • High Mast Lighting: >75% of bulbs per structure working at all times, during functional conditions. • No damaged or missing parts. • Lifecycle Maintenance Plan shall be used for other maintenance needs. • Daytime burning lamps and circuits shall be repaired immediately upon discovery or notification. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damaged or non-functional lamps shall be repaired or replaced 	Each

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
			within 7 days of notification or discovery. <ul style="list-style-type: none"> • Damaged or non-functional structures shall be repaired or replaced within 7 days of notification or discovery. • Daytime burning lamps and circuits shall be repaired within 24 hrs. of notification or discovery. 	
Lighting – Sign	Operational Structurally Sound	90	<ul style="list-style-type: none"> • No damaged or missing parts. • Lifecycle Maintenance Plan shall be used. • 90% of lamps shall be working properly at all times, per structure, during functional conditions. • Daytime burning lamps and circuits shall be repaired immediately upon discovery or notification. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damaged or non-functional lamps shall be repaired or replaced within 7 days of notification or discovery. • Damaged or non-functional structures shall be repaired or replaced within 7 days of notification or discovery. • Daytime burning lamps and circuits shall be repaired within 8 hrs. of notification or discovery. 	Each
Lighting - Under Deck or Tunnel	Operational Safe	90	<ul style="list-style-type: none"> • No damaged or missing parts. • Lifecycle Maintenance Plan shall be used. • Daytime burning lamps and circuits shall be repaired immediately upon discovery or notification. • 90% of lamps shall be working properly at all times, per structure, during functional conditions. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damaged or non-functional lamps shall be repaired or replaced within 7 days of notification or discovery. • Damaged or non-functional structures shall be repaired or replaced within 7 days of notification or discovery. • Daytime burning lamps and circuits shall be repaired within 8 hrs. of notification or discovery. 	Each
Lights – Warning, Bridge Mounted	Operational Structurally Sound	100	<ul style="list-style-type: none"> • Functional at all times. • No damaged or missing parts. 	Each

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
Navigation, Anti-Collision			<p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Repair or replace as per Coast Guard requirements after notification or discovery. 	
Guardrail	Functional Undamaged	100	<ul style="list-style-type: none"> No damage or rust that affects the structural integrity, no missing damaged post. No loose or missing parts. No cables loose or improperly secured. No graffiti. Meets NCHRP 350 standards. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Non-functional guardrail shall be mitigated immediately upon notification or discovery. Non-functional guardrail shall be repaired or replaced permanently within 3 days of notification or discovery. Damaged but functional guardrail shall be repaired or replaced within 7 days of notification or discovery. 	LFT
Impact Attenuators	Functional Undamaged	100	<ul style="list-style-type: none"> No damaged or missing parts. Properly maintained. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Damaged attenuators shall be mitigated and area protected immediately upon notification or discovery. Damaged attenuators shall be repaired within 7 days of notification or discovery. 	Each
Object Markers & Delineators	Present Reflective Functional	90	<ul style="list-style-type: none"> <10% missing or damaged parts. Post mounted delineator height shall be 4 feet (+/-) 6 inches to achieve uniform appearance) mileage markers are at least 60" high to achieve uniform appearance. Meets reflectivity standards. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Damaged object markers & delineators shall be repaired or replaced within 7 days of notification or discovery. 	Each
	Present	90	<ul style="list-style-type: none"> <10% missing or damaged. 	Each

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
Glare Foils	Functional		<ul style="list-style-type: none"> • Properly mounted. • Uniform in appearance. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Damaged glare foils shall be repaired or replaced within 14days of notification or discovery. 	
ROADWAY & SHOULDER ASSET GROUP				
Asphalt Surface	Safe Durable Smooth	95	<ul style="list-style-type: none"> • No potholes. • Patches <1/2" higher or lower than surrounding pavement. • No pavement obstructions that present a safety hazard. <p>Timeliness Requirement</p> <ul style="list-style-type: none"> • Temporary repairs to potholes 6" x 6" x 1 1/2" or equivalent deep or larger shall be repaired immediately upon notification or discovery. All others within 2 days of notification or discovery. • Permanent repairs to potholes/ pavement failures shall be completed within 30 days of notification or discovery during seasons when asphalt plants are operating or within 30 days of asphalt plants opening for the season with a product listed on the VDOT approved patching material list. • Pavement obstructions that present a safety hazard shall be mitigated immediately. 	Sq. Ft
Paved Shoulders and Rumble Strips (Asphalt)	Safe Smooth Functional	90	<ul style="list-style-type: none"> • No potholes. • <105 linear feet edge drop-off high or low >1 1/2". • <105 linear feet separation >1/2" wide. • No false ditch or build up on shoulder that causes water to stand on shoulder or drain onto the travel lanes. • <10% of rumble strips needs to be sealed. • No accumulated shoulder debris that will pose a safety hazard. • <20 items (greater than the size of a standard brick) per 1/10th mile section. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Temporary repairs to potholes >6" X 6" X 1 1/2" or equivalent deep shall be completed within 2 days of notification or 	Sq. Ft.

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
			discovery. <ul style="list-style-type: none"> Permanent repairs to potholes shall be completed within 30 days of notification or discovery during seasons when asphalt plants are operating or within 30 days of asphalt plants opening for the season with a product listed on the VDOT approved patching material list. Concessionaire shall respond to locations of excessive litter within 48 hours upon notification or discovery. 	
Unpaved Shoulders	Safe Smooth	90	<ul style="list-style-type: none"> No potholes. <105 linear feet edge drop off high or low >1 ½”. No false ditch or build up on shoulder that causes water to stand on shoulder or drain onto the travel lanes. No erosion >2” deep. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> All potholes shall be repaired within 7 days of notification or discovery with a product listed on the VDOT approved patching material list. Erosion or drop offs >2” deep shall be repaired within 7 days of notification or discovery. 	Sq. Ft
Concrete Surface	Safe Durable Smooth	95	<ul style="list-style-type: none"> No potholes. <10% of surface area has cracks >¼” wide. <25% surface area has spalling >1” deep. <25% of joint material missing No silt, debris, or grass growing in joint. No pavement obstructions that present a safety hazard. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Temporary repairs to potholes 6” x 6” x 1 ½” or equivalent deep or larger shall be repaired immediately upon notification. All others within 2 days. Permanent repairs to potholes/ pavement failures shall be completed within 30 days of notification with a product listed on the VDOT approved concrete patching material list. Pavement obstructions that present a safety hazard shall be mitigated immediately. 	Sq. Ft

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
BRIDGE ASSET GROUP				
Deck	Safe Structurally Sound Free of Dirt & Debris	90	<ul style="list-style-type: none"> • Perform all routine/ordinary maintenance including sweeping, washing and cleaning. • No potholes. • ≤10% surface area spalling <1” deep. • Temporary patches ≤ ½” higher or lower than surrounding concrete deck surface. • No damaged or missing bridge railings. Railings are intact and connections are tight. • Drains/scuppers open and functional. • The deck is free of foreign material (grass, stones, limbs, trash, etc.). • Joints are clean, intact, and joint material is present and functioning as designed. • Drainage system (drains, scuppers, trough, etc) is clean and functioning as designed. • Lifecycle Maintenance Plan shall be reference for other routine maintenance and minor repair needs. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> • Temporary repairs to potholes 6” x 6” x 1 ½” or equivalent deep or larger shall be repaired immediately upon notification or discovery. All others within 2 days of notification or discovery. • Permanent repairs to potholes shall be completed within 30 days of notification or discovery and flush with surrounding surface. • Damaged/ missing bridge railing shall be mitigated immediately upon notification or discovery. • Damaged/ missing railing shall be repaired or replaced within 30 days. 	Sq. Ft
Superstructure (Includes Parapet Walls)	Structurally Sound Free of Debris	90	<ul style="list-style-type: none"> • Perform all routine/ordinary maintenance including sweeping, washing, clearing of all obstructions. • No spalling >1” deep. • All structural steel and bearing assemblies will be clean and free of debris. • No damaged or missing parts. • Bridge components are free of damaging vegetation. 	Sq. Ft

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
			<ul style="list-style-type: none"> Lifecycle Maintenance Plan shall be reference for other routine maintenance and minor repair needs. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Clean annually. 	
Substructure	Structurally Sound Free of Debris	90	<ul style="list-style-type: none"> Seats & Pier Caps clean and free of debris. Lifecycle Maintenance Plan shall be reference for other routine maintenance and minor repair needs. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Clean every 24 months. 	Sq. Ft
Slope Protection	Structurally Sound Minimal Erosion	90	<ul style="list-style-type: none"> No trend or pattern of erosion > 2" deep. No settlement >2". No damaging vegetation. <p>Timeliness Requirement:</p> <p>Repair within 30 days of notification or discovery.</p>	Sq. Ft
Weep Holes	Functional	90	<ul style="list-style-type: none"> ≥90% of diameter opens. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Repair within 30 days of notification or discovery. 	Each
SERVICES GROUP				
Incident/Emergency Response	Timely Efficient Safe Effective	100	<ul style="list-style-type: none"> The Concessionaire shall provide equipment and labor resources necessary for Incident Management Operations for 24 hours a day & 7 days a week. The Concessionaire after arriving on site shall report to the HOT Operations Center, provide and support appropriate resources to handle any and all traffic control needs to insure the safety of the incident scene and traveling public. The HOT Operations Center shall provide timely notification of arrival and departures covering all incidents to the Smart Traffic Center. <p>Timeliness Requirement:</p>	Each
As it relates to the HOT Lanes and Subject to Tech Requirements Section 4.4 and Joint Operating and Maintenance Protocol.				

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
			<ul style="list-style-type: none"> On site response during normal business hours of 05:00 to 19:00 hours (considered normal business hours) shall be no greater than 60 minutes, once notification or discovery of the incident. On site response during the hours of 19:00 to 05:00 hours (after normal business hours) shall be no greater than 120 minutes once notification or discovery of the incident. Temporary lane closures shall be installed immediately or as directed by HOT Operations Center. Traffic detours and diversions, if needed, shall be installed within 120 minutes after being directed by HOT Operations Center. Permanent lane closures if needed shall be installed within 120 minutes after being directed by HOT Operations Center. 	
<p>Customer Response As it relates to the HOT Lanes and Subject to Tech Requirements Section 4.4 and Joint Operating and Maintenance Protocol</p>	<p>Timely Efficient Effective Productive</p>	<p>100</p>	<ul style="list-style-type: none"> All customer concerns/ requests relating to maintenance shall be resolved to the Concessionaire's and Department's satisfaction. <p>Timeliness Requirement:</p> <ul style="list-style-type: none"> Contact the Call Center and the Program & Contract Management Team within 12 hrs. following the initial customer inquiry, if the request has been provided by the Departments. Call Center and the Program & Contract Management Team Work resulting from request shall be scheduled within 2 days of the initial customer contact or advice from the Department. Follow-up contact with Call Center and customer within 3 days of the completion of work. 	<p>Each</p>
<p>Roadway Sweeping</p>	<p>Neat, Clean Free of Debris</p>	<p>90</p>	<ul style="list-style-type: none"> <1/2" Debris (sand, gravel, dirt) at barrier walls, retaining walls, sidewalks, or curb and gutter. Concessionaire to provide schedule of planned sweeping operations. <p>Timeliness Requirements:</p> <ul style="list-style-type: none"> Sweeping shall be performed every 4 months and spot sweeping shall be performed as necessary. 	<p>Each</p>

ASSET	OUTCOME	TARGET (%)	TOLERANCE & CRITERIA	UOM
Graffiti Removal	None Present	90	<ul style="list-style-type: none"> • Concessionaire is to remove all graffiti. <p>Timeliness Requirements:</p> <ul style="list-style-type: none"> • Graffiti to be removed within 48 hours from notification or discovery. • Graffiti hit pictures are to be taken for each site and shared with law enforcement as requested. 	Each