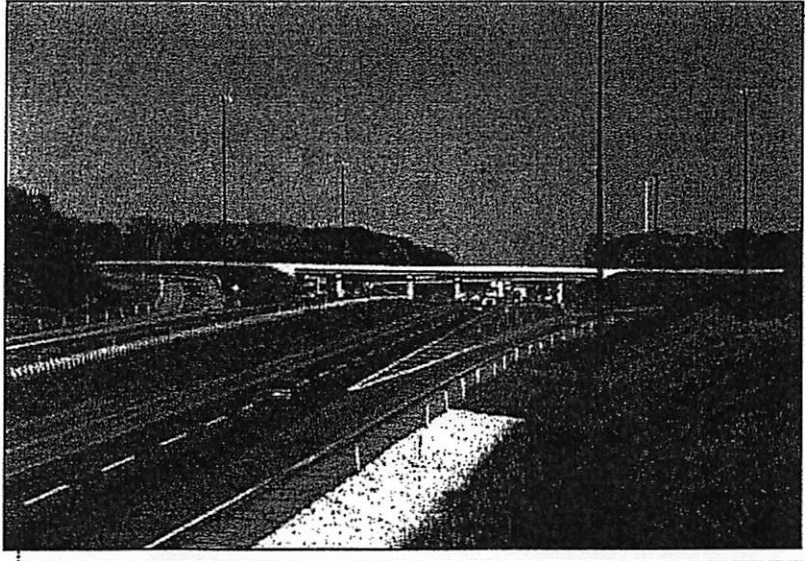


CONCESSION AND LEASE AGREEMENT FOR THE INDIANA TOLL ROAD

Volume I of III MAINTENANCE MANUAL



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CHAPTER A: ORGANIZATION AND GENERAL INFORMATION

A.1 Purpose of Manual

The purpose of this Volume I of the Operating Standards is to provide guidelines and criteria to the Concessionaire for performing maintenance activities on the Indiana Toll Road (ITR).

A.2. Maintenance Objective

The objective of maintenance work on the ITR is to provide a safe and pleasant passage on the ITR for ITR users, while maintaining the ITR as a capital asset. The major objectives of the Concessionaire's maintenance program include, but are not limited to, the following:

- ❖ Maintaining all ITR features, elements, components and systems in the best possible condition at all times.
- ❖ Improving sub-standard features, with the ultimate goal to meet and exceed the minimum standards.
- ❖ Preserving the rights-of-way and each type of roadway, structure, safety convenience or device, planting, illumination equipment and other facility, in a safe and usable condition to which it has been improved or constructed.
- ❖ Providing proper maintenance, safety and traffic devices for minimal disruptions and hazards to traffic.
- ❖ Identifying and correcting inadequate safety features and situations.
- ❖ Establishing an inventory of maintenance features, including a method of locating/referencing those features.
- ❖ Establishing maintenance procedures.
- ❖ Maintaining a regular program of maintenance for all aspects of the ITR.
- ❖ Providing immediate and proper response to emergency and third-party events.
- ❖ Performing routine, preventative, on-demand and emergency maintenance activities and work.
- ❖ Maintaining the toll revenue systems, special safety conveniences and devices, and illumination equipment.

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A.3. Review of Construction Projects & As-Built Drawings

Whenever maintenance requires that a member, component, system or element be replaced, or significantly repaired, the Concessionaire shall create a set of original construction documents and drawings, sealed by a Professional Engineer licensed by the State of Indiana. The construction drawings and documents will be subject to review and permit by the Indiana Finance Authority (IFA), as appropriate for the work proposed.

Upon completion of construction, the Concessionaire shall prepare and submit to the IFA a complete set of original and as-built drawings in both hard copy and electronic format for the construction completed. In addition, the Concessionaire shall be responsible for creating and maintaining a separate original and as-built set of drawings for the record. The as-built drawings shall be stamped or marked "AS-BUILT", dated, and shall be placed in order with all other drawings that exist for the ITR.

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CHAPTER B: ROADWAY MAINTENANCE

B.1. Definitions

Annual Pavement Certification: The Concessionaire shall provide an Annual Pavement Certification, in a form to be mutually agreed to by the Parties, in which the Concessionaire shall certify that its smoothness and rutting ratings meet or exceed the required levels. The Certification shall also include the Concessionaire's Capital Expenditures for the previous year and its current Capital Expenditure forecast. Should there be an imminent material change to the pavement conditions, the Concessionaire shall immediately notify the IFA of such potential change and conduct an analysis that is satisfactory to the IFA.

Access Roads: Those roadways located on the ITR that are closed to the general public and are intended only for use by maintenance, inspection or utility traffic. These are low-type pavements constructed of gravel, grindings, or earth.

Asphalt: A brown to black solid material, soluble in gasoline or naphtha.

Bleeding: An area where the Asphalt mix is too rich, causing the Asphalt material to ooze to the surface in puddles and leaving a slick and slippery area.

Bridge: A structure consisting of single or multiple spans more than 20 feet in length that provides a means of transit for vehicles and/or pedestrians above the land, water surface, roadway, railroad or other obstruction.

Debris: Litter, rubbish, vegetation, rocks, dead animals, spilled materials, brush or other items which are not part of or which impede drainage.

Litter: Trash, Debris, waste, refuse, accident and construction residue.

Heave or Settle: Displacement of rigid type pavement by a combination of vertical and horizontal stresses due to expansion or contraction of the Subgrade. When Heave or Settlement in a concrete pavement is caused by pavement expansion from excessive heat, it is also commonly referred to as a pavement blowup.

Mainline: The portion of the multi-lane ITR traveled way extending from Shoulder line to Shoulder line or from curb line to curb line.

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Pothole: An area where a piece of pavement has broken free and been removed, leaving a hole.

Ramp: The portion of the traveled way that provides access between the Mainline and the local street network, extending from Shoulder line to Shoulder line or from curb line to curb line.

Raveling: The progressive loosening of the material in the courses of a road as aggregates separate from the Asphalt binding material.

Resurfacing: Placing of one or more new layers of material on an existing pavement surface.

Rutted and Shoved Pavement: Deformations in which the surface of the pavement has worn into longitudinal ruts due to repetitive passes of vehicle tires, or transverse corrugations due to vehicle deceleration and acceleration.

Shoulder: The portion of the roadway extending from edge of the Mainline or Ramp pavement to the unpaved top of earth embankment, or to the base of a barrier wall.

Subbase: An auxiliary course to furnish needed stability, usually due to poor Subgrade.

Subgrade: That portion of the roadbed on which pavement, surfacing, base, Subbase, or a layer of any other material which may be specified, is to be placed.

Toll Booth: A physical enclosure that includes protective cover and safe refuge for toll collectors toll-lane payment, processing equipment, communications and emergency response alarms.

Toll Plaza: A facility within which toll payments are collected from vehicles. The Toll Plaza includes, but is not limited to, the toll canopies, the Toll Booths, service buildings and vehicle lanes.

Travel Plaza: A facility that provides restaurant services, refueling services, limited shopping, public restrooms, RV dump station, pet walk, rest area, personal vehicle parking and RV and truck parking adjacent to the roadway that can only be accessed from the roadway.

Wedge and Level: Pavement surface treatment which consists of milling off approximately 1 1/4" of surface and replacing it with new Asphalt surface material. This process is used to extend the life of relatively sound pavements that are beginning to show minor to moderate surface distresses.

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B.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "Standard Specifications", INDOT.
- ❖ "Supplemental Specifications and Recurring Special Provisions", INDOT.
- ❖ "Standard Drawings", INDOT.
- ❖ "Indiana Design Manuals", INDOT.
- ❖ "Guide for Design of Pavement Structures, Volume I", AASHTO.
- ❖ "A Policy on Geometric Design of Highways and Streets", AASHTO.
- ❖ "Pavement Management Guide", AASHTO.
- ❖ "SHRP-H-348: Asphalt Pavement Repair Manuals of Practice", FHWA.
- ❖ "SHRP-H-349: Concrete Pavement Repair Manuals of Practice", FHWA.
- ❖ Indiana Law.
- ❖ Federal Law.
- ❖ "2005 Annual Report", INDOT, Toll Road District.
- ❖ Maintenance Quality Survey Manual & OPI Measures for the ITR (Draft - 11-1-05).
- ❖ Highway Performance Monitoring System Manual.
- ❖ Pavement Condition Manual, INDOT.

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B.3. Policy for Performing Pavement and Shoulder Maintenance Work

B.3.1. Objective

The objective of ITR roadway maintenance is to ensure to the greatest extent reasonably possible that all pavements on the ITR remain safe, smooth, durable and stable, and that maintenance is conducted in a manner so as to prevent deterioration of the roadway and Shoulder pavement, thereby ensuring the safe and orderly movement of traffic.

Roadways require, without limitation: repairs to cracks, Spalls and Potholes, removal, repair and replacement of pavement sections, reconstruction of the pavement structure, continual maintenance and sweeping and cleaning of the roadway surfaces.

B.3.2. Responsibility of Concessionaire

In order to meet the requirements of this Chapter, the Concessionaire shall ensure to the greatest extent reasonably possible that all ITR pavements remain functional, carry the intended traffic, provide a safe means of passage to ITR users, and meet all Laws. The Concessionaire shall perform its obligations in accordance with this Chapter in a manner that maintains and/or improves the condition and functionality of the ITR.

The Concessionaire shall perform ITR roadside maintenance, inspection and work activities at a frequency that complies with all Laws, and the requirements specified within this Chapter.

From its routine inspections of the pavement, the Concessionaire shall develop a Resurfacing and Wedge and Level program that maintains the condition of pavements throughout the ITR. Where deficiencies have developed in the pavement, full depth Resurfacing shall be done to restore the pavements to a like-new condition. Wedge and Level Resurfacing may be utilized to extend the life of those pavements that are developing minor to moderate surface deterioration.

The ITR roadways pavements to be maintained include: Mainline, interchange Ramps, parking lots at all administrative and maintenance facilities, Travel Plazas, Toll Plazas, commuter parking lots and truck make-up/break-up lots, Access Roads and Mainline and Ramp Shoulders.

All materials and construction requirements for ITR roadway maintenance performed by the Concessionaire shall conform to the appropriate requirements of the INDOT Standard Specifications and the Referenced Documents noted in Section

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B.2 of this Chapter.

To the extent commercially reasonable, when performing Roadway maintenance the Concessionaire shall utilize the newest techniques approved state-wide for major highway contracts so as to provide longer pavement life, maximize the reuse of materials, and to minimize motorist inconvenience.

During all maintenance periods, the Concessionaire shall continually maintain traffic control and protection as provided for in Volume II - Operations and Procedures Manual, Chapter G, "Traffic and Travel Management Plan".

Once a particular repair has commenced, the repair shall continue during consecutive days as weather permits until a complete repair has been achieved. The objective of every repair is to cure all roadway deficiencies, to preserve the economic value of the ITR as a capital asset, and to restore a riding quality reasonably satisfactory to the ITR users.

The Concessionaire shall make routine roadway maintenance inspections part of its daily activities, and all Concessionaire staff who travel the ITR for any reason shall be instructed to report any roadway maintenance need that is observed.

Maintenance on the ITR that shall be conducted by the Concessionaire includes, without limitation, the following:

❖ **General:**

- ◆ Investigate and inspect the underlying cause or the origin of the defect or damage before commencing repair work.
- ◆ Perform all pavement repairs relating to structural thicknesses pursuant to applicable Law, construct pavement repairs to a minimum depth equal to that of the distressed pavement, and perform pavement repairs so as to provide a dense, smooth and level transition between the treated area and the adjacent undisturbed pavement surface.
- ◆ Repair all pavement surfaces in a manner to match the profile, grades and cross slopes of the ITR roadway; and ensure that all repair areas are free of depressions or humps and there is no separation at the adjacent undisturbed pavement joints.
- ◆ Perform temporary repairs and patching with appropriate materials and workmanship to withstand traffic loading until a permanent repair can be made.

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- ◆ Remove and dispose of all Debris and loose material in accordance with applicable Law, this Chapter and the Reference Documents noted in Section B.2 of this Chapter, and leave the work site in a clean condition.

- ❖ **Bituminous Surface Repairs:**
 - ◆ Repair bituminous surfaces and pavement when defects, including, but not limited to, the following, are present: Rutting, Raveling, Shoving, Bleeding, depressions, Settlements, Heave, weathering, fatigue and loss of traction.
 - ◆ Maintain all roadway bituminous surfaces as smooth, stable, durable and in a safe condition for ITR users.
 - ◆ Repair Shoulders that have been damaged by erosion, settlement or traffic use.
 - ◆ Resurface pavement surfaces that would be classified as slippery with a skid resistant pavement.

- ❖ **Potholes:**
 - ◆ Repair all Potholes with temporary and permanent repairs within the time frames indicated in Table B.3.3.1.
 - ◆ Monitor temporary Potholes and failed areas and re-treat them until the permanent work can be completed.

- ❖ **Joints and Cracks:**
 - ◆ Repair all pavement cracks in accordance with INDOT Standard Specifications and the Reference Documents noted in Section B.2 of this Chapter.
 - ◆ Repair all joint separations and joint failures in all pavements as they develop, within the time frames stated in Table B.3.3.1.
 - ◆ Monitor and reseal cracks and joints that do not withstand or that fail.
 - ◆ Assessment of cracks, holes and defects shall be pursuant to the Pavement Condition Rating identified in the INDOT Standard Specifications and the Pavement Condition Manual noted in Section B.2. Reports regarding cracks, holes and defects to pavement shall be provided to the IFA or its designee on an annual basis. If necessary, a

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remediation plan to correct the pavement or Bridge shall be submitted for approval to the IFA or its designee.

❖ Spalled Pavement:

- ♦ Repair all pits, chips, pop-outs, scaling or other surface defects that can be identified or classified as Spalls, as defined in the INDOT Standard Specifications and the Referenced Documents noted in Section B.2 of this Chapter.

❖ Settled and Heaved Pavement:

- ♦ Inspect, evaluate and perform repairs to pavements that have Settled or Heaved, as defined in the INDOT Standard Specifications and the Referenced Documents noted in Section B.2 of this Chapter.

❖ Pavement Smoothness:

- ♦ Pavement surface smoothness shall be maintained below an average of 150 in/mi as determined by the International Roughness Index (IRI). The IRI shall be measured annually on all traveled Mainline surfaces including Bridges and reported as an average IRI per 0.1 mile segment throughout the length of the ITR. IRI readings shall start at the 0 Mile Post. The average of any given one (1) mile section shall not exceed 170 IRI. No individual 1/10th mile segment average IRI shall exceed 190 in/mi. IRI data submissions regarding pavement smoothness shall be provided to the IFA or its designee once every four years (commencing July 1, 2018). An Annual Pavement Certification shall be provided to the IFA each year the four-year report is not due. All IRI data submissions shall be in electronic format and shall be capable of being aggregated in various segment lengths. If necessary, a remediation plan to correct the pavement or Bridge shall be submitted for approval to the IFA or its designee.

❖ Asphalt Surfaced Pavement:

- ♦ Rutting in Asphalt pavement in the wheel paths shall be minimized to prevent steering and hydro-planing problems. The Rut depths in the wheel paths shall be measured in accordance with INDOT Standard Specifications, but more detailed methods are acceptable. The average Rut depth shall not exceed 3/8" average in a one (1) mile segment and no individual 1/10th mile segment shall exceed 5/8". Spot measures may be conducted using a 4" straight edge for determination of tolerable conditions. Reports regarding Asphalt shall be provided to the IFA or its designee once every four years (commencing July 1, 2018). An Annual Pavement Certification shall be provided to the IFA each year the four-year report is not due. If necessary, a remediation plan to correct the pavement or Bridge shall be submitted for approval to the IFA or its

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designee.

❖ **Pavement Strength:**

- ◆ The IFA or its designee will periodically monitor and measure the strength of the pavement structure. The Concessionaire shall be provided with this information for planning and needs assessment. Excessive Deflections (as defined in the Pavement Management Guide (AASHTO)) will be reported to the Concessionaire and the Concessionaire shall strengthen such pavement in accordance with INDOT Standard Specifications and the Reference Documents note in Section B.2.

❖ **Pavement Surface Friction:**

- ◆ The IFA or its designee will periodically monitor and measure the pavement surface for the tire friction capabilities of the pavement surface. Any readings of the surface friction below 30 shall require investigation by INDOT for possible remediation and shall be reported to the Concessionaire. Investigation of safety incidents, extent of area effected and visual assessment of the area shall be conducted by the Concessionaire. If necessary, a remediation plan to correct the pavement or Bridge shall be submitted for approval to the IFA or its designee.

❖ **Base and Subbase Repairs:**

- ◆ Remove unsuitable materials, complete backfill and compact materials in accordance with the requirements of the Reference Documents noted in Section B.2 of this Chapter.
- ◆ Install drainage appliances or materials that will prevent conditions from redeveloping.
- ◆ Provide a base that reasonably drains the road base in areas where surface damage and/or frost heaving is evident.
- ◆ Provide support for imposed vehicle loadings where surface damage has resulted from insufficient strength of the road base.

❖ **Grinding and Profiling:**

- ◆ Grind and/or profile pavement to provide for a smooth and safe driving surface for ITR users, as required in the INDOT Standard Specifications and the Referenced Documents noted in Section B.2 of this Chapter.

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- ❖ **Access Roads:**
 - ◆ Maintain the integrity of the shape and driving surface of the Access Roads to provide smooth and safe passage.
 - ◆ Repair all voids, Potholes, erosion and Ruts in a manner and time frame so as to permit safe and continual passage across Access Roads.

- ❖ **Sweeping and Cleaning:**
 - ◆ Clean roadway surfaces by removing accumulations of dirt, Debris, sand and/or gravel from Shoulders, curbs, Toll Plaza lanes, Ramps, and along Medians and/or roadside barriers to provide a safe, clean free-draining condition.
 - ◆ Dispose of all waste from the sweeping and cleaning operations in accordance with applicable Law and as required by this Chapter and the Reference Documents noted in Section B.2 of this Chapter.

B.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall complete the maintenance, repair or replacement to the Roadway features within the maximum time duration set forth in Table B.3.3.1:

Table B.3.3.1

Roadway Pavement Work to be Performed	Maximum Time Duration
Bituminous Surface Repairs	14 Days
<u>Pothole Repairs:</u>	
- Temporary	24 Hours
- Permanent	1 Month
Joint & Crack Repairs	3 Months
Spalled Pavement Repairs	6 Months
Settled and Heaved Pavement Repairs	48 Hours
Base and Subbase Repairs	1 Month
Grinding and Profiling Repairs	3 Months
Access Roads	6 Months

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The Concessionaire shall complete the maintenance, set forth in Table B.3.3.2 according to the minimum frequency of occurrence provided therein:

Table B.3.3.2

Maintenance to be Performed	Minimum Frequency of Occurrence
<u>Sweeping & Cleaning:</u> - Mainline (Not required on regular basis) - Ramps - Shoulders - Curbs, Median and Roadside Barriers - Toll Plaza Lane	(Clean-up of spills only) [6 Months] [12 Months] [6 Months (or as needed)] [1 Month (or as needed)]

B.3.4 Acceptance Criteria

Pavement and Shoulder maintenance work shall be deemed acceptable by the IFA when it meets requirements of the INDOT Standard Specifications, including but not limited to, those listed below:

- ❖ All repairs shall be completed with the proper materials, methods and equipment, in full compliance with the requirements stated in the Reference Documents noted in Section B.2 of this Chapter and in accordance with current IFA guidelines for OPI as outlined in the 2005 Annual Report.
- ❖ The underlying causes for the pavement defects shall be thoroughly evaluated and examined, and the appropriate repairs and remedies shall be made.
- ❖ All repairs shall restore the integrity to the pavement so that it is safe and capable of supporting the applied loads.
- ❖ Repair work shall provide a continual smooth transition from new to existing pavements, free of all defects and deficiencies.
- ❖ Temporary repairs shall be replaced with the proper and correct permanent repairs in a timely manner, and such temporary repairs shall withstand the loads applied for as long as the temporary repair is required.
- ❖ The work sites shall be left in a clean and tidy condition.

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CHAPTER C: PAVEMENT DELINEATION MAINTENANCE

C.1. Definitions

Barrier Walls: All concrete wall elements used as a protective barrier for vehicular or pedestrian traffic. Examples include Median barrier walls, permanent or temporary roadside concrete barrier, ground mounted barrier walls, and Parapets and barriers attached to retaining walls and MSE retaining walls.

Bridge: A structure consisting of single or multiple spans more than 20 feet in length that provides a means of transit for vehicles and/or pedestrians above the land, water surface, roadway, railroad or other obstruction.

Deck: The portion of a Bridge that supports the highway, from the top of the major structural members to the Wearing Surface, and is designed to distribute loads evenly across the Bridge.

Impact Attenuators: Protective systems that prevent errant vehicles from impacting hazards by either decelerating the vehicle to a stop after a frontal impact or by redirecting it away from the hazard after a side impact, accomplished by the use of either energy absorbing or energy transferring devices.

Median: The portion of the ITR forming the separation of the traveled ways for traffic in opposite directions.

Parapet: A wall-like member integrally connected to the fascia edge of a Deck to serve as a protective barrier for vehicular or pedestrian traffic.

Pavement Delineation: Devices designed and installed to assist in guiding motorists, or which express, by symbolism, certain traffic Laws and use prohibitions. Delineation includes pavement striping, Pavement Markings, Reflective Pavement Markers and Prismatic Reflectors.

Pavement Markings: Materials applied to the roadway surface, such as pavement striping, letters or symbols. Markings consist of paint, plastic tape and films, epoxy, or thermoplastic materials serving as a binder and substrate for reflective glass beading. Pavement Markings guide and control the movement of traffic.

Prismatic Reflectors: Products consisting of molded housings and reflective elements, applied to Parapets, metal posts (roadside delineators), Barrier Walls and temporary concrete barrier to improve the nighttime visibility of devices by reflecting light back toward the light source (i.e. vehicle headlamps).

Reflective Pavement Markers: Products consisting of metal or plastic castings and reflective elements set into the roadway surface as a lane delineation that work by reflecting a light pattern

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back toward the light source (i.e. vehicle headlamps).

Toll Booth: A physical enclosure that includes protective cover and safe refuge for toll collectors toll-lane payment, processing equipment, communications and emergency response alarms.

Toll Plaza: A facility within which toll payments are collected from vehicles. The Toll Plaza includes, but is not limited to, the toll canopies, the Toll Booths, service buildings and vehicle lanes.

Travel Plaza: A facility that provides restaurant services, refueling services, limited shopping, public restrooms, RV dump station, pet walk, rest area, personal vehicle parking and RV and truck parking adjacent to the roadway that can only be accessed from the roadway.

Wearing Surface: The portion of a Deck cross section which resists traffic wear.

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C.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "Standard Specifications", INDOT.
- ❖ "Supplemental Specifications and Recurring Special Provisions", INDOT.
- ❖ "Standard Drawings", INDOT.
- ❖ "Guide for Design of Pavement Structure, Volume I", AASHTO.
- ❖ "A Policy on Geometric Design of Highways and Streets", AASHTO.
- ❖ "Pavement Management Guide", AAHTO.
- ❖ "Procedural Manual for Preparing Environmental Studies", INDOT.
- ❖ Indiana Manual on Uniform Traffic Control Devices (MUTCD).
- ❖ "Work Zone Safety Manual" (WZSM), INDOT.
- ❖ "Indiana Design Manuals", INDOT.
- ❖ "2005 Annual Report", INDOT, Toll Road District.
- ❖ Maintenance Quality Survey Manual & OPI Measures for the ITR (Draft - 11-1-05).

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C.3. Policy for Performing Pavement Delineation Maintenance

C.3.1. Objective

The objective of Pavement Delineation maintenance is to ensure to the greatest extent reasonably possible that all pavement markings, pavement striping, Prismatic Reflectors and pavement markers are maintained so as to facilitate the safe and orderly movement of traffic on the ITR.

Pavement Delineation requires, without limitation: repairs due to wear, snow plow damage, construction and sunlight degradation, maintenance, removal, and replacement.

C.3.2. Responsibility of Concessionaire

In order to meet the requirements of this Chapter, the Concessionaire shall ensure to the greatest extent reasonably possible that all Pavement Delineation functions properly and is clearly displayed for the safe and orderly movement of traffic, and meets all Laws. The Concessionaire shall perform its obligations in a manner that maintains and/or improves the condition and functionality of the ITR and Pavement Delineation.

Each delineation shall be kept visible, legible and properly functioning under both day and nighttime conditions. The Concessionaire shall be responsible for all repair and replacement determinations, required resources, work assignments and oversight for all maintenance associated with or described for Pavement Delineation.

The Concessionaire shall make daily Pavement Delineation inspections and shall periodically inspect for missing, damaged and worn Pavement Delineation. Extra attention shall be placed during winter months when damage from snow plowing can be substantial.

Once maintenance on Pavement Delineation has started, the maintenance shall continue until a thorough and complete product has been produced. All maintenance that affects Pavement delineation shall conclude with a restoration of all delineation to a like-new condition.

All materials and construction requirements for Pavement Delineation maintenance performed by the Concessionaire shall conform to the applicable requirements of the INDOT Standard Specifications, and the Reference Documents noted in Section C.2 of this Chapter.

Pavement Delineation for public and private roadways that pass beneath the ITR and not defined by the Agreement are excluded.

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The Concessionaire shall perform the following with respect to the ITR and Permanent Delineation:

- ❖ Maintain all pavement striping and Pavement Markings so that they are well-defined, clear, legible, distinct and in accordance with the requirements of this Chapter and the Reference Documents noted in Section C.2 of this chapter.
- ❖ Repair and replace all faded, worn, debonded, damaged, non-reflective and/or missing pavement striping and Pavement Markings.
- ❖ Repair and replace all damaged, non-functioning, broken, missing or obstructed reflective Pavement Markings, Prismatic Reflectors, Barrier Wall reflectors, Impact Attenuator reflectors, and roadside delineators.
- ❖ Repair and replace all Pavement Markings so that the Pavement Markings are in compliance with Laws.
- ❖ Remove, repair and replace all pavement delineation as required by Law.
- ❖ Maintain the Pavement Delineation for all parking stall lines, handicap stall markings, and related pavement markings at all administrative and maintenance facilities, Travel Plazas, Toll Plazas, commuter parking lots and at truck make-up/break-up lots on the ITR.
- ❖ Maintain all replaced Pavement Delineation so that it matches the pre-existing Pavement Delineation, unless otherwise provided under the Reference Documents noted in Section C.2 of this Chapter, or by IFA.
- ❖ Install all new Pavement Delineation in compliance with the Reference Documents noted in Section C.2 of this Chapter, or as required by IFA.
- ❖ Dispose of all removed materials in compliance with all Laws and disposal and environmental Laws.
- ❖ Remove and destroy all Pavement Markings which are superfluous or obsolete, or as requested by IFA.
- ❖ Maintain pavement and other surfaces so that such surfaces are not damaged as a result of grinding or other eradication techniques. Maintain such surfaces

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in compliance with the Reference Documents noted in Section C.2 of this Chapter.

- ❖ Repair and replace all Pavement Markings and striping that are covered, obliterated or removed due to construction or maintenance work with temporary Pavement Delineation prior to reopening to traffic, and maintain the temporary delineation until permanent Pavement Delineation is installed.
- ❖ Maintain all temporary Pavement Delineation in compliance with the Reference Documents noted in Section C.2 of this Chapter.
- ❖ Install temporary Pavement Markings and striping to delineate traffic at locations where the absence of or deficiencies in the Pavement Delineations create unsafe conditions, or have the potential to become unsafe conditions for ITR users.

C.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall complete the maintenance, repair, replacement, and or relocation work to the Pavement Delineation, within the maximum time duration set forth below:

Pavement Delineation Item	Maximum Time Duration
Reflective Pavement Markers	30 Days
Roadside Delineators	45 Days
Prismatic Reflectors:	
- Attached to barriers, guardrails, etc.	30 Days
- Attached to Piers and Fenders In Various Waterways	30 Days
<u>Pavement Markings:</u>	
- Letters or symbols	45 Days
- Striping	30 Days

The Concessionaire shall, from the time a deficiency is detected by discovery or report, install temporary markings and striping within eight (8) hours.

The Concessionaire shall:

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- ❖ Maintain temporary Pavement Markings and striping so that they are clear, legible and bonded to the surface upon which they are placed for the length of time they are reasonably required.
- ❖ Remove and dispose of (in accordance with Laws) all waste materials from Pavement Delineation removal at the end of each day.
- ❖ Remove, repair and replace temporary Pavement Markings and striping with permanent delineation within seven (7) days after installation; unless temporary delineation is for a pre-planned construction work period which, when concluded, the above stated requirement applies.

C.3.4. Acceptance Criteria

Pavement Delineation shall be deemed acceptable by the IFA when the following standards are met or exceeded:

- ❖ **Prismatic Reflectors and Reflective Pavement Markers:**
 - ◆ The pavement marker bases shall be flush with the pavement surface and shall be securely set into the pavement.
 - ◆ The reflector and markers shall be unbroken and visible to traffic.
 - ◆ The markers shall be at the prescribed interval and are at the prescribed alignment according to the IFA.
- ❖ **Pavement Markings and Striping:**
 - ◆ Markings and striping shall be applied at the prescribed application rates, location, color, size, alignment, and symbol, are free of distortion or damage, and have the prescribed reflectivity according to the IFA.
 - ◆ Glass beads for reflectivity shall be applied at the prescribed amounts and shall meet the requirements of the Reference Documents noted in Section B.2 of this Chapter.
 - ◆ Pavement and other surfaces shall not be damaged by installation or eradication.
 - ◆ Temporary markings and striping shall be present where the absence of or deficiencies of markings create unsafe conditions.
 - ◆ All Pavement Markings shall indicate full bond, with no separation from the applied surface.
 - ◆ Materials shall not deteriorate when in contact with sodium chloride, calcium chloride, or traffic residues.
 - ◆ Pavement Markings shall indicate no appreciable deformation or discoloration under exposed traffic and road temperatures between -40°C and 40°C.
 - ◆ Pavement Markings shall maintain their original dimension and

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placement without chipping, peeling or cracking.

❖ **Roadside Delineation:**

- ◆ Supports shall be plumb and level.
- ◆ Intervals and locations shall be in accordance with the requirements of the Reference Documents noted in Section C.2 of this Chapter.
- ◆ Reflectors shall be unbroken, reflective and visible to traffic.

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CHAPTER D : DRAINAGE MAINTENANCE & SLOPE REPAIR

D.1. Definitions

Abutment: Earth retaining structures which support the Superstructure at the beginning and end of a Bridge.

Asphalt: A brown to black solid material, soluble in gasoline or naphtha.

Bridge: A structure consisting of single or multiple spans more than 20 feet in length that provides a means of transit for vehicles and/or pedestrians above the land, water surface, roadway, railroad or other obstruction.

Curb and Gutter: A concrete device with a given cross section, constructed along the edges of pavements or Shoulders that collects storm water runoff from the traveled way and conveys it to an intended discharge point.

Debris: Litter, rubbish, vegetation, rocks, dead animals, spilled materials, brush or other items which are not part of or which impede drainage.

Deck: The portion of a Bridge that supports the highway, from the top of the major structural members to the Wearing Surface, and is designed to distribute loads evenly across the Bridge.

Ditch: A trough-shaped excavation made to collect and transport water: includes unpaved and paved ditches. Unpaved Ditches are protected from erosion by Turf or grasses. Paved Ditches are protected from erosion by concrete or Asphalt.

Downspout: A pipe or conduit attached to a Bridge to direct water away from a Drain.

Drain: An aperture through a wall, curb or Deck to provide egress for water that would otherwise be trapped on the roadway.

Drainage System: An appurtenance that is intended to collect, convey, store or discharge storm water runoff. Drainage structures include systems in or under the roadway, such as Curb and Gutter, manholes, inlets and catch basins, Storm Sewers and Under-Drains; systems through the embankments such as culverts, and systems parallel to the embankments such as Ditches, berms, Erosion Control devices and outlet channels.

Earth Slope: An unpaved slope such as a Turf covered embankment, bare or stabilized Bridge cone, Ditch, or slope protected by riprap.

Erosion Control: A device used to limit the erosion of earth away from the site.

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Floor Beam: Transverse members which support the Stringers and transmit the loads to the main load carrying members of a structure.

Flow-Line: The bed or lowest point of a pipe, conduit, Ditch, stream or culvert.

Mainline: The portion of the multi-lane ITR traveled way extending from Shoulder line to Shoulder line or from curb line to curb line.

Piers: Substructure elements which support the Superstructure at intermediate points between the Abutments.

Ponding: An undesirable condition in which standing or slow draining water is trapped on the roadway surface or in Ditches.

Ramp: The portion of the traveled way that provides access between the Mainline and the local street network, extending from Shoulder line to Shoulder line or from curb line to curb line.

Scour: Erosive action of flowing water that removes soil and can undermine foundations, create void space behind walls or under slabs, lower river beds, and destabilize embankments.

Scupper: A drainage structure associated with Bridges, present in the deck, also referred to as floor Drains. Scuppers provide a means for rain or other water to drain off the Bridge roadway surface and lead to Downspouts and enclosed Drainage Systems.

Shoulder: The portion of the roadway extending from edge of the Mainline or Ramp pavement to the unpaved top of earth embankment, or to the base of a barrier wall.

Sign: A lettered board, message or other display which includes all regulatory, warning, guide or informational, advisory, construction and maintenance, route markers and all special or other messages/displays.

Storm Sewer: An underground conduit, pipe or Tunnel constructed to receive storm water from pavement and Bridge Drains and convey such water to a distinct outlet point.

Stringers: Longitudinal beams supporting the Deck, and in Truss Bridges framed into or upon the Floor Beams.

Substructure: The Pier and Abutment elements required to support the Superstructure.

Superstructure: The entire Bridge structure resting on the Piers and Abutments. consisting of Stringers, Decks, Floor Beams, Trusses, Wearing Surfaces and railings.

Truss: A jointed Bridge structure having open built web construction so arranged that the frame is divided into a series of triangular shaped figures.

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Turf: Surface earth ground cover containing a dense growth of grass and matted roots.

Under-Drain: A system built under pavements that collects storm waters that penetrate the roadway subbase through defects in the surface or percolating ground waters, and discharges the water into a drainage structure or onto an embankment slope.

Wearing Surface: The portion of a Deck cross section which resists traffic wear.

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D.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "Standard Specifications", INDOT.
- ❖ "Supplemental Specifications and Recurring Special Provisions", INDOT.
- ❖ "Standard Drawings", INDOT.
- ❖ "Guide for Design of Pavement Structures, Volume I", AASHTO.
- ❖ "A Policy on Geometric Design of Highways and Streets", AASHTO.
- ❖ "Pavement Management Guide", AASHTO.
- ❖ "Procedural Manual for Preparing Environmental Studies", INDOT.
- ❖ Indiana Manual on Uniform Traffic Control Devices (MUTCD)
- ❖ "Work Zone Safety Manual" (WZSM), INDOT.
- ❖ "Indiana Design Manuals", INDOT.
- ❖ General National Pollutant Discharge Elimination System, IDEM.
- ❖ "2005 Annual Report", INDOT, Toll Road District.
- ❖ Maintenance Quality Survey Manual & OPI Measures for the ITR (Draft - 11-1-05).

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D.3. Policy for Performing Drainage Maintenance and Slope Repair Work

D.3.1. Objective

The objective of drainage maintenance and slope repairs is to ensure to the greatest extent reasonably possible that all elements of the Drainage System (Curb and Gutter, inlets, catch basins, manholes, sewers, Scuppers, Downspouts, Ditches, outlet structures, miscellaneous drainage devices and Earth Slopes and Erosion Control features) are maintained so as to eliminate Ponding, flooding, Scour and erosion as potential hazards to the safe and orderly movement of traffic, and all ITR roadway and Bridge surfaces are efficiently, properly and continually drained.

Drainage Systems require: repairs due to aging, corrosion, soil loading, traffic weight or impact and flood damage, maintenance, cleaning to remove blockage caused by Debris, Litter or sediment and replacement.

Earth Slopes require repairs due to erosion, soil consolidation and Scour. Erosion Control devices are classified as permanent installations, or temporary installations erected during construction to limit erosion from disturbed, stripped surfaces. These devices require maintenance to remove trapped sediment.

D.3.2. Responsibility of Concessionaire

In order to meet the requirements of this Chapter, the Concessionaire shall ensure to the greatest extent reasonably possible that all roadway and Bridge drainage devices, Earth Slopes and Erosion Control systems are maintained in a functional manner and otherwise meet all Laws.

The Concessionaire shall be responsible for any maintenance required to alleviate flooding, repair flood damage, or to solve any drainage problems that arise from time to time on the ITR.

To the extent commercially reasonable, when performing drainage maintenance and Earth Slope repairs, the Concessionaire shall utilize the newest techniques that have been approved and implemented state-wide for major highway contracts so as to minimize the environmental impact of the ITR on adjacent lands and waters.

All materials and construction requirements for Drainage System and Earth Slope repair maintenance performed by the Concessionaire shall conform to the requirements of the INDOT Standard Specifications, and the Reference Documents noted in Section D.2 of this Chapter.

Work on Drainage Systems, Earth Slopes, and Erosion Control systems on the ITR that shall be performed by the Concessionaire include the following:

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- ❖ **Roadway Drainage System:**
 - ◆ Maintain frames and grates so that they are properly and securely fastened, set and anchored.
 - ◆ Clean, repair or replace all frames, grates, structures and pipes that are clogged, damaged or missing.
 - ◆ Clean catchment areas that are clogged.
 - ◆ Remove trapped or Ponding water on the ITR roadway.
 - ◆ Repair and replace the Drainage System components that have deteriorated to a condition that is unsafe or have the potential to become unsafe for ITR users, and repair and replace Drainage System components to prevent further deterioration of the pavement and the pavement structure.

- ❖ **Bridge Drainage System:**
 - ◆ Maintain frames and grates so that they are properly and securely fastened, set and anchored.
 - ◆ Clean, repair or replace all frames, grates, Downspouts, pipes reducers that are clogged, rusted, damaged, separated or missing.
 - ◆ Clean catchment areas that are clogged.
 - ◆ Remove trapped or Ponding water to prevent damage to Decks, bearings, Superstructure and Substructure.
 - ◆ Repair and replace Bridge Drainage System components that have deteriorated to a condition that is unsafe or have the potential to become unsafe for ITR users; and repair and replace Bridge Drainage System components to prevent further deterioration of the Bridge structure.

- ❖ **Earth Slopes:**
 - ◆ Repair, restore, contain and stabilize all Earth Slopes that have Scoured, eroded and/or slumped, and that have deteriorated to a condition that is unsafe or has the potential to become unsafe for ITR users.
 - ◆ Remove all obstructions that create or have the potential to create adverse erosion situations.
 - ◆ Inspect Earth Slopes during periods of heavy rainfall and/or rapid melting to so as to maintain containment of the Earth Slope, and the Earth Slopes are not undergoing Scour or erosion.
 - ◆ Dispose of waste materials from Earth Slope maintenance in a manner that is in compliance with all Laws and with the Reference Documents noted in Section D.2 of this Chapter.

- ❖ **Ditches:**
 - ◆ Remove and clean Debris, dams and all other obstructions from Ditches.
 - ◆ Restore, repair and stabilize Ditches that have eroded, Scoured and/or slumped, or have the potential to do so if not remedied.

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- ◆ Restore and maintain the full capacity and/or profile of Ditches on the ITR.
 - ◆ Inspect Ditches during periods of heavy rainfall and/or rapid melting to ensure the Ditch shape is maintained, and the Flow-Lines are not undergoing Scour or erosion.
 - ◆ Dispose of waste materials from Ditch operations in a manner and location that is in compliance with all Laws and the Reference Documents noted in Section D.2 of this Chapter.
- ❖ **Curb and Gutter:**
- ◆ Maintain all Curb and Gutter as unobstructed and capable of providing drainage as designed and intended.
 - ◆ Repair and replace all broken, settled, damaged, cracked, spalled and deteriorated sections of Curb and Gutter.
 - ◆ Replace curb sections to conform to INDOT standards for the type of Curb and Gutter; and match the section type with the adjacent Curb and Gutter.
- ❖ **Under-Drain System:**
- ◆ Maintain the roadway and Bridge Under-Drain so that it is free from silt deposits, clogs or other defects that would impede the Under-Drain from functioning as designed.
- ❖ **Erosion Control Systems:**
- ◆ Maintain, clean, repair, restore, replace and monitor all temporary and permanent Erosion Control features and systems on the ITR.

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D.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall complete the cleaning, adjustment, repair or replacement of the deficient element or component to full operation within the maximum time duration set forth below:

Item	Maximum Time Duration
<u>Roadway Drainage System:</u>	
- Frames & Grates	48 Hours
- Structures	30 Days
- Pipes & Conduits	30 Days
Bridge Drainage System	48 Hours
Earth Slopes	30 Days
Curb & Gutter	60 Days
Ditches	60 Days
<u>Under-Drain System:</u>	
- Roadway	30 Days
<u>Erosion Control System:</u>	
- Temporary	24 Hours
- Permanent	60 Days

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D.3.4. Acceptance Criteria

All Drainage Systems, Ditches, Curb and Gutter, Under-Drains, Earth Slopes and Erosion Control systems shall be deemed acceptable by the IFA when the following standards are met or exceeded:

- ❖ All roadway and Bridge Drainage Systems including under drains are maintained unblocked and function as designed to keep roadway and Bridge surfaces free of standing water.
- ❖ Missing, broken or unsecured grates and frames and other castings shall be promptly repaired and/or replaced.
- ❖ Curb and Gutter shall be maintained free of Litter and Debris; all damaged and deteriorated Curb and Gutter shall be repaired or replaced; and all work shall conform to the requirements of this Chapter and the Reference Documents noted in Section D.2 of this Chapter.
- ❖ Design, construction, backfill, repair and replacement of drainage structures and system components shall be in conformance with the Reference Documents noted in Section D.2 of this Chapter.
- ❖ Roadside Ditches shall be maintained free of Debris, Litter and excess vegetation, and shall function as designed to collect and transport storm water runoff to designated outfalls.
- ❖ Earth Slopes shall be maintained with a complete Turf or vegetative cover, and are monitored for evidence of excessive Scour and erosion at the Ditch line, undermining, excessive consolidation and movement, or other Signs of slope failure.
- ❖ Permanent Erosion Control systems shall be maintained in order to function as designed and any repair, replacement, and cleaning of trapped sediment from system components shall be performed when required.
- ❖ Permanent and temporary Erosion Control systems shall be designed, installed, serviced, and removed as appropriate in order to fulfill their design intent and shall meet all requirements of the IFA and the National Pollutant Discharge Elimination System (NPDES).
- ❖ All roadway and Drainage Systems shall be maintained in accordance with the IFA guidelines for OPI as outlined in the 2005 Annual Report.

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CHAPTER E: LANDSCAPE & ROADSIDE MAINTENANCE

E.1. Definitions

Bridge: A structure consisting of single or multiple spans more than 20 feet in length that provides a means of transit for vehicles and/or pedestrians above the land, water surface, roadway, railroad or other obstruction.

Debris: Litter, rubbish, vegetation, rocks, dead animals, spilled materials, brush or other items which are not part of or which impede drainage.

Ditch: A trough-shaped excavation made to collect and transport water: includes unpaved and paved ditches. Unpaved Ditches are protected from erosion by Turf or grasses. Paved Ditches are protected from erosion by concrete or Asphalt.

Fencing: Fabric, posts, gates, guy wires and braces configured to create a boundary or provide access control.

General Use Chemicals: Agents used to destroy pests and plant growth that will not cause unreasonable effects to the user or the environment when used in accordance with their registered labeling instructions. These products are generally available to the public without restrictions other than those specified on the labeling.

Landscaping: All vegetation, including Turf and grasses, trees, intentional plantings, as well as incidental items including block walls, planter boxes, planting beds, lawn edging, street furniture and irrigation sprinkler systems.

Litter: Trash, Debris, waste, refuse, accident and construction residue.

Mainline: The portion of the multi-lane ITR traveled way extending from Shoulder line to Shoulder line or from curb line to curb line.

Nuisance Vegetation: Large types of Weeds, and vegetation not desirable to the landscape. Examples include medium height shrubs, vines and brush such as buckthorn, honeysuckle, kudzu, purple loosestrife, multiflora rose and leafy spurge.

Ramp: The portion of the traveled way that provides access between the Mainline and the local street network, extending from Shoulder line to Shoulder line or from curb line to curb line.

Restricted Use Chemicals: Agents used to destroy pests and plant growth governed by Laws that require special training and/or licensing.

Shoulder: The portion of the roadway extending from edge of the Mainline or Ramp pavement to

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the unpaved top of earth embankment, or to the base of a barrier wall.

Sign: A lettered board, message or other display which includes all regulatory, warning, guide or informational, advisory, construction and maintenance, route markers and all special or other messages/displays.

Toll Booth: A physical enclosure that includes protective cover and safe refuge for toll collectors toll-lane payment, processing equipment, communications and emergency response alarms.

Toll Plaza: A facility within which toll payments are collected from vehicles. The Toll Plaza includes, but is not limited to, the toll canopies, the Toll Booths, service buildings and vehicle lanes.

Travel Plaza: A facility that provides restaurant services, refueling services, limited shopping, public restrooms, RV dump station, pet walk, rest area, personal vehicle parking and RV and truck parking adjacent to the roadway that can only be accessed from the roadway.

Turf: Surface earth ground cover containing a dense growth of grass and matted roots.

Weeds: Uncultivated plant growth. Examples include crabgrass and dandelions.

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E.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "Standard Specifications", INDOT.
- ❖ "Supplemental Specifications and Recurring Special Provisions", INDOT.
- ❖ "Standard Drawings", INDOT.
- ❖ "Work Zone Safety Manual" (WZSM), INDOT.
- ❖ "Indiana Design Manuals", INDOT.
- ❖ "Indiana ITR Landscape Master Plan".
- ❖ "Illegal Dumping Prevention Guidebook, EPA905-B-97-001", USEPA.
- ❖ "ANSI A300 - Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance: Standard Practices", ANSI.
- ❖ "American Standard of Nursery Stock", AAN.
- ❖ "2005 Annual Report", INDOT, Toll Road District.
- ❖ Maintenance Quality Survey Manual & OPI Measures for the ITR (Draft - 11-1-05).

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E.3. Policy for Performing Landscape Roadside Maintenance

E.3.1. Objective

The objective of Landscape maintenance is to: preserve trees and vegetation as an enhancement to the ITR at all the administrative and maintenance facilities, Toll Plazas and Travel Plazas on the ITR, provide aesthetically pleasing areas of lawns, shrub, flowers and trees, eliminate dangerous and overhanging trees and vegetation, allow unimpeded drainage, ensure safe sight distances, and control Weeds and eliminate Nuisance Vegetation.

The objective of roadside maintenance is to: remove Litter that prevents a clean appearance to the ITR or creates an unsafe situation, maintain all Fencing along the ITR to preserve a property boundary, control pedestrian access, and maximize the safety and security of ITR users.

E.3.2. Responsibility of Concessionaire

In order to meet the requirements of this Chapter, the Concessionaire shall ensure to the greatest extent reasonably possible that Landscape and roadside maintenance is completed in a regular, systematic and timely manner so that the safe and orderly movement of traffic is maintained, and meets the requirements of applicable Laws.

All materials and construction requirements for Landscape and roadside work performed by the Concessionaire shall conform to the applicable requirements of the INDOT Standard Specifications, and the Reference Documents noted in Section E.2 of this Chapter.

The Concessionaire shall make routine Landscape and roadside inspections part of its daily activities, and shall be watchful for obstructions from landscape features, locations of illegal dumping, damage to the Fencing, deficiencies in the irrigation system, full and overflowing Litter receptacles, and all situations that detract from the overall appearance of the ITR.

Maintenance on Landscape and roadside features as outlined in Section E.3.1 above on the ITR that shall be performed by the Concessionaire include the following:

❖ **Landscape:**

- ◆ Mow, trim and edge Turf areas at all ITR facilities.
- ◆ Mow roadside and interchange areas. Roadside mowing shall include mowing the Median and from the Shoulder to the Ditch line on both sides of the ITR.

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- ◆ Repair and replace all damaged, diseased, dead and worn Turf areas.
 - ◆ Aerate Turf areas.
 - ◆ Water landscape areas so that healthy plant life is maintained.
 - ◆ Control and remove Weeds, insects, pests and diseases in plants, tree shrubs and Turf areas.
 - ◆ Maintain all portions of the traveled lanes, Shoulders, curbs, gutters, drainage structures, sidewalks, and Bridges free of plant growth and vegetation waste.
 - ◆ Fertilize plants, trees, shrubs and Turf areas.
 - ◆ Mulch around plants, trees and shrubs.
 - ◆ Obtain and keep current all licenses required for the use of General Use Chemicals and Restricted Use Chemicals.
 - ◆ Train, and obtain required licensure for, employees with respect to General Use and Restricted Use Chemicals.
 - ◆ Recognize, diagnose and take measures to control all insects, rodents and other pests.
 - ◆ Apply General Use Chemicals and Restricted Use Chemicals in a manner so as to prevent spray drift and encroachment into non-target areas.
 - ◆ Remove and dispose of Landscape control cuttings that represent a hazard, obstruct drainage or create a nuisance.
 - ◆ Ensure that all trees and shrubs are pruned neatly and are maintained in a manner to minimize danger to the traveling public.
 - ◆ Remove vegetation that causes sight distance obstructions, obscures the visibility of Signs, delineators, or other roadside features, constitutes noxious or nuisance Weeds and impedes drainage.
 - ◆ Remove all dead, damaged, overhanging and unstable trees and tree limbs.
 - ◆ Replace all dead and damaged plantings and trees.
 - ◆ Inspect health and growth of all plants and shrubs.
 - ◆ Operate all equipment used for Landscaping in compliance with all Laws.
- ❖ **Litter & Debris Control:**
- ◆ Remove Debris and Litter from the roadway, roadside and planted areas.
 - ◆ Empty Litter receptacles.
 - ◆ Remove, dispose of and report all illegal dumping to the local authorities.
- ❖ **Fencing:**
- ◆ Repair or replace all damaged or deficient Fencing and its components.
- ❖ **Irrigation:**
-

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- ◆ Repair or replace all damaged or deficient irrigation, sprinkler heads, controllers, pumps and their components.
- ◆ Drain elements such as backflow preventers, valves and exposed plumbing for the irrigation systems so as to prevent damage from freezing during the cold weather months. In addition, seasonal maintenance shall be performed pursuant to the requirements stated in the Irrigation System Operation & Maintenance (O&M) Manuals.

E.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall complete the maintenance, repair or replacement to the Landscape and roadside features within the maximum time duration set forth in Table E.3.3.1:

TABLE E.3.3.1

Landscape or Roadside Feature	Maximum Time Duration
<u>Landscape:</u>	
- Sight Distance Obstruction	2 Hours
- Vegetative Waste	2 Days
- Trees	7 Days
- Plants, Shrubs, Flowers, Turf	14 Days
<u>Roadside Litter:</u>	
- Illegal Dumping	2 Hours
<u>Fencing:</u>	
- Temporary Repairs	2 Days
- Permanent Repairs	30 Days
Irrigation System	7 Days

The Concessionaire shall complete the maintenance set forth in Table E.3.3.2 according to the minimum frequency of occurrence provided therein:

TABLE E.3.3.2

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Maintenance to be Performed	Minimum Frequency of Occurrence
<u>Roadway and Facilities Mowing:</u> - Mainline - Interchanges - Facility Lawns	4 Times Yearly (Growing Season) As Needed Weekly (Or as needed)
<u>Landscape:</u> - Removal of Nuisance Vegetation	Every 30 Days (Growing Season)
<u>Litter Control:</u> - Roadside Litter Collection - Emptying of Litter Receptacles	Every 7 Days Every 2 Days, or once they become full; whichever occurs first

The Concessionaire shall also:

- ❖ Aerate all Turf areas once yearly in the fall or as established by the IFA.
- ❖ Establish a mowing frequency within the requirements of Table E.3.3.2.
- ❖ Cut and remove Weeds and Nuisance Vegetation prior to the development of reseeding.
- ❖ Pressurize the Irrigation System line yearly, in the spring and winterize the Irrigation System line yearly, in the fall.
- ❖ Test, remove and replace the RPZ backflow preventors yearly, by removing the RPZ backflow preventors in the fall, and replacing and testing the RPZ backflow preventors in the spring.
- ❖ Trim trees and shrubs to ensure visibility, to prevent shading of Signs and safety devices. Trim trees and shrubs to maintain seventeen (17) feet of vertical clearance above the traveled way and Shoulder.

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E.3.4. Acceptance Criteria

All landscape and roadside items in the following shall be maintained in accordance with the IFA guidelines for OPI as outlined in the 2005 Annual Report.

The landscape and roadside shall be deemed acceptable by the IFA when the following standards are met or exceeded:

❖ Landscape:

- ◆ Turf mowed at frequency noted in Table E.3.3.2.
- ◆ Turf, flowers, shrubs and all plant life are trimmed, edged, pruned, disease and pest-free, fertilized, watered and healthy.
- ◆ Turf shall be free from brown-patches, missing-patches and damage.
- ◆ Sight distance obstructions shall not be present from trees and vegetation.
- ◆ Trees shall be trimmed, and free from dangerous, damaged and overhanging limbs.
- ◆ Landscape shall be free from Weeds and Nuisance Vegetation.
- ◆ All portions of the traveled lanes, Shoulders, curbs, gutters, Bridges, drainage structures and sidewalks shall be free of plant growth and vegetation waste.
- ◆ Areas outside the target areas shall show no chemical damage.

❖ Roadside Litter:

- ◆ Roadside shall be free from Litter, and shall be in a neat and tidy condition.
- ◆ Locations of illegal dumping shall not be present.

❖ Fencing:

- ◆ Fence posts shall be plumb.
- ◆ Top rails shall be level with no sags or deflections.
- ◆ The fence fabric shall be taut and securely attached.
- ◆ The fence fabric shall be free from holes, section loss, wear and vegetation.
- ◆ The work site shall be left in a clean condition.

❖ Irrigation Systems:

- ◆ All irrigation piping, sprinkler heads, controllers, pumps and their components shall function properly, shall be unbroken and shall not leak.
- ◆ Water spray patterns shall adequately cover the specified Landscape areas.
- ◆ Winterizing and testing of the system shall be performed at the recommended times, in the prescribed manner.

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CHAPTER F: BRIDGE & STRUCTURE MAINTENANCE

F.1. Definitions

Abutment: Earth retaining structures which support the superstructure at the beginning and end of a bridge.

Anchor Bolt: A threaded rod, including hardware, used for holding a mechanism or structure in place.

Armor: A metal fitting installed to protect the underlying joint material.

Backwall: The component of the Abutment usually starting at the bearing seat elevation acting as a retaining structure and support for the approach pavement.

Bearings: A mechanical support system which transmits the vertical loads of the Superstructure to the Substructure. Bearings are composed of (among other things) steel, rubber and Teflon, and are separated into two general categories:

- ❖ Fixed: Permitting only rotational movements.
- ❖ Expansion: Permitting longitudinal as well as rotational movements.

Bridge: A structure consisting of single or multiple spans more than 20 feet in length that provides a means of transit for vehicles and/or pedestrians above the land, water surface, roadway, railroad or other obstruction.

Bridge Joint: Designated horizontal and vertical separation that forms a determined gap at the end of a Bridge deck. Bridge Joints include expansion joints and fixed joints of various systems and materials.

Debris: Litter, rubbish, vegetation, rocks, dead animals, spilled materials, brush or other items which are not part of or which impede drainage.

Deck: The portion of a Bridge that supports the highway, from the top of the major structural members to the Wearing Surface, and is designed to distribute loads evenly across the Bridge.

Dolphin: Groups of piles driven close together in water and tied together so that the group is capable of protecting Bridge elements by withstanding lateral forces from vessels and other floating objects.

Drainage System: An appurtenance that is intended to collect, convey, store or discharge storm water runoff. Drainage structures include systems in or under the roadway, such as

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Curb and Gutter, manholes, inlets and catch basins, Storm Sewers, and pipe under Drains; systems through the embankments such as culverts, and systems parallel to the embankments such as Ditches, berms, Erosion Control devices and outlet channels.

Fender System: Piles and/or timbers used as guides along a Bridge foundation face to absorb the shock of vessel impacts and to minimize damage to the structure and vessel.

Floor Beam: Transverse members which support the Stringers and transmit the loads to the main load carrying members of a structure.

Fracture Critical: A non-redundant steel tension member or component, whose failure is expected to result in the collapse of a Bridge or the inability of a Bridge to perform its function.

Litter: Trash, Debris, waste, refuse, accident and construction residue.

Parapet: A wall-like member integrally connected to the fascia edge of a Deck to serve as a protective barrier for vehicular or pedestrian traffic.

Piers: Substructure elements which support the Superstructure at intermediate points between the Abutments.

Scour: The lowering of the streambed by the erosive action of water as a result of a local obstruction or natural phenomena, occurring at Piers or Abutments in waterways.

Sign: A lettered board, message or other display which includes all regulatory, warning, guide or informational, advisory, construction and maintenance, route markers and all special or other messages/displays.

Spall: Circular or other shaped depression in a concrete surface resulting from the separation of a portion of the surface from its substrate.

Storm Sewer: An underground conduit, pipe or Tunnel constructed to receive storm water from pavement and bridge Drains and convey such water to a distinct outlet point.

Stringers: Longitudinal beams supporting the Deck, and in Truss Bridges framed into or upon the Floor Beams.

Substructure: The Pier and Abutment elements required to support the Superstructure.

Superstructure: The entire Bridge structure resting on the Piers and Abutments. consisting of Stringers, Decks, Floor Beams, Trusses, Wearing Surfaces and railings.

Truss: A jointed Bridge structure having open built web construction so arranged that the

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frame is divided into a series of triangular shaped figures.

Tunnel: A lined excavation built through a mass of earth and intended for the transport of traffic or people or for continuous access to an underground facility. See "Toll Plaza Access/Service Tunnels" in Section K.1 Definitions.

Wearing Surface: The portion of a Deck cross section which resists traffic wear.

Wingwall: A side wall to the Backwall or stem designed to assist in confining earth behind the Abutment.

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F.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "National Bridge Inspection Standards", FHWA.
- ❖ "Bridge Inspector's Training Manual," FHWA.
- ❖ "Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges," FHWA.
- ❖ "Standard Specifications", INDOT.
- ❖ "Supplemental Specifications and Recurring Special Provisions", INDOT.
- ❖ "2005 Annual Report", INDOT, Toll Road District.
- ❖ "Indiana Design Manuals", INDOT.
- ❖ "Design and Construction Memos & Consultant Service Bulletins", INDOT.
- ❖ "Standard Specifications for Highway Bridges", AASHTO.
- ❖ "Manual for Condition Evaluation of Bridges", AASHTO.
- ❖ "Guide Specifications for Fatigue Evaluation of Existing Steel Bridges", AASHTO.
- ❖ "Guide Specifications and Commentary for Vessel Collision Design of Highway Bridges", AASHTO.
- ❖ "The Maintenance and Management of Roadways and Bridges", AASHTO.
- ❖ "Bridge Inspection Manual", INDOT.
- ❖ "SSPC Painting Manual", 2-Volume Set. SSPC.
- ❖ "Lead-Based Paint Removal for Steel Highway Bridges", SSPC.
- ❖ "SSPC-VIS1 - Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning", SSPC.
- ❖ "SSPC-VIS2 - Standard Method for Evaluating Degree of Rusting on Painted Steel Surfaces", SSPC.
- ❖ "SSPC-VIS3 - Visual Standard for Power and Hand-Tool Cleaned Steel", SSPC.
- ❖ "SSPC-VIS4 - Guide and Reference Photographs for Steel Cleaned by Water Jetting", SSPC.
- ❖ "SSPC-VISS - Guide and Reference Photographs for Steel Prepared by Wet Abrasive Blast Cleaning", SSPC.
- ❖ Maintenance Quality Survey Manual & OPI Measures for the ITR (Draft - 11-1-05).

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F.3. Policy for Bridge & Structure Maintenance

F.3.1. Objective

The objective of Bridge and structure maintenance is to ensure to the greatest extent reasonably possible that the stability, safety, durability, strength and structural integrity of the ITR is continually and properly maintained so as to maximize the functional life of the structure.

Bridges and structures require repairs due to wear, vehicular impacts and chloride infiltration, maintenance, inspections, and replacement.

Bridges and structures include but are not limited to, all earth retention structures, such as cantilevered, sheet piling and soldier pile retaining walls.

Bridge and structure maintenance objectives for individual elements of a structure shall include the following:

- ❖ **Bridge Decks and Wearing Surfaces:** Provide safe, uniform, smooth, stable and durable surfaces.
- ❖ **Bridge Railings and Parapets:** Provide structurally sound and safe barriers for and between pedestrians, vehicles and hazards.
- ❖ **Bridge Joints:** Provide safe, smooth and stable conditions across planned openings for ITR users.
- ❖ **Bridge Superstructure and Substructure Elements:** Provide and maintain the structural integrity, durability and load carrying capacity of concrete and steel Superstructure and Substructure elements.
- ❖ **Bridge Bearings:** Transmit and distribute Superstructure loads to the Substructures, and maintain the Superstructure so that it can undergo necessary movements without developing damaging stresses.
- ❖ **Bridge Painting:** Prevent corrosion in steel elements of Superstructures and Substructures, and present a clean appearance.
- ❖ **Bridge and Structure Cleaning:** Preserve the Bridges and structures and remove dirt, Debris, and deleterious materials.
- ❖ **Bridge Waterway Protection:** Maintain structural strength, prevent Scour and maintain the impact resistance of the Fender System.
- ❖ **Retaining Structures:** Maintain the continued safe and stable condition of all retaining structures and associated components.
- ❖ **Tunnels:** Provide structurally sound and safe passageways for vehicles and pedestrians.
- ❖ **Structure Accessories:** Provide functionality and maintenance to ancillary Bridge and structure items including, but not limited to, walkways, sidewalks and slopewalls.
- ❖ **Bridge Inspections:** Provide current and accurate information on the condition

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and the structural adequacy of the Bridge and structure in accordance with the applicable Laws.

F.3.2. Responsibility of Concessionaire

In order to meet the requirements of this Section, the Concessionaire shall ensure to the greatest extent reasonably possible that all Bridges and Structures function properly as designed. In addition, the stability, strength, durability and structural integrity of the Bridges and structures shall not be compromised and there shall be a continuous, safe and orderly movement of traffic. The Concessionaire shall perform its obligations in accordance with this Chapter and in a manner that minimizes the overall deterioration and/or improves the condition of the Bridges and structures.

The Concessionaire shall be responsible for all management associated with the Bridges and structures including: conducting maintenance, emergency and mandatory inspections, filing inspection documents and reports with the IFA and INDOT (including, without limitation, a report submitted to the IFA or its designee for the annual report to the FHWA on the condition of the nation's bridges); assisting in independent inspections and replying to questions or comments that might arise from INDOT or the IFA. The Concessionaire shall also determine repair needs, create repair alternatives and procedures, schedule maintenance and oversee all maintenance so that it is compliant with all of the Reference Documents noted in Section F.2 of this Chapter.

The Concessionaire shall ensure to the greatest extent reasonably possible that all repair drawings are prepared and sealed by a Professional Engineer licensed by the State of Indiana. In addition, all repairs resulting in an alteration of a Bridge or structural element shall be recorded with an "As-Built" document, which shall also be filed with the IFA.

All materials and construction requirements for Bridge and structure work performed by the Concessionaire shall conform to the applicable requirements of the INDOT Standard Specifications and the Reference Documents noted in Section F.2 of this Chapter.

Once maintenance on a Bridge or structure has been started, the maintenance shall continue during consecutive working days until a complete and structurally adequate product has been achieved. All maintenance performed on Bridges and structures shall be made so as to correct all safety deficiencies, preserve the ITR as a capital asset, and restore a quality riding surface to ITR users.

Bridge approach pavement is considered a roadway item and is addressed in Volume I - Maintenance Manual, Section B, "Roadway Maintenance".

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Bridge Drainage Systems are considered drainage items and are addressed in Volume 1- Maintenance Manual, Section D, "Drainage Maintenance and Slope Repair".

Maintenance on Bridges and structures on the ITR that shall be performed by the Concessionaire includes the following:

❖ **Bridge Decks and Wearing Surfaces:**

- ◆ Make repairs to deteriorated, delaminated and unsound portions of the Decks and Wearing Surfaces including, but not limited to, full and partial depth repairs.
- ◆ Perform concrete crack sealing and replace Decks and Wearing Surfaces.
- ◆ Secure Decks and Wearing Surfaces to their support elements, and secure the support elements to the Decks, so that a safe, durable, structurally adequate condition is provided.
- ◆ Maintain all Decks and Wearing Surfaces so as to support vehicular and other design loads.
- ◆ Ensure that all repairs and replacement maintenance provides for the following:
 - A smooth and safe wearing and riding surface.
 - The repaired areas encompass all surrounding unsound and deficient areas.
 - Repairs are sound, durable and well-bonded to the substrate surface or support element.
- ◆ Perform repairs in accordance with the requirements of the Reference Documents noted in Section F.2 of this Chapter.

❖ **Bridge Railings and Parapets:**

- ◆ Maintain, repair or replace Bridge railings and Parapets that are unsafe or reasonably likely to become unsafe in the near future.
- ◆ Install temporary barriers or railings where and when necessary.
- ◆ Maintain, repair or replace Bridge railings and Parapets to the original design, unless entire segments or lengths are replaced, in which case the Concessionaire shall conform to the requirements stated in the Reference Documents noted in Section F.2 of this Chapter.
- ◆ Repair or replace all rusted, bent, loose, missing, unsafe and/or damaged steel railings and Parapets.
- ◆ Repair or replace all cracked, unsound, delaminated, missing, unsafe and/or damaged concrete railings and Parapets.

❖ **Bridge Joints:**

- ◆ Replace full or sectional lengths of Bridge Joints, seals and Bridge Joint Armor that are unsafe or have the potential to become unsafe, or that

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would accelerate the deterioration of other Bridge and structure elements such as the Bearings, the Superstructure beams, or the Substructure Piers and Abutments.

- ◆ Replace or repair all Bridge Joints that no longer function or operate as intended by the original design.
- ◆ Replace all Bridge Joint seal material that becomes damaged, missing, worn, torn, leaky, misaligned, or no longer functions as intended by the original design.
- ◆ Repair or replace all Bridge Joint Armor and components that become loose, bent, gouged, separated from its substrate, damaged, broken, cracked or missing.

❖ **Bridge Superstructure and Substructure Elements:**

- ◆ Ensure that all bolts are present, properly torqued, tight, and contain the proper nuts and washers.
- ◆ Repair or Replace all loose, damaged, rusted, cracked, missing and non-functioning rivets with an appropriate high strength bolt of the same or larger diameter as the original rivet.
- ◆ Repair or replace bent, corroded, cracked, fatigued, damaged or structurally deficient steel Superstructure and Substructure elements.
- ◆ Repair or replace unsound, delaminated, Spalled, cracked and structurally deficient concrete Superstructure and Substructure elements.
- ◆ Inspect and investigate all Truss elements as well as all Superstructure and Substructure elements that appear loose, damaged and/or resonate when load is applied.
- ◆ Perform all steel repairs so that each individual element, as well as the entire structure, is structurally adequate to support vehicular and other design loads.
- ◆ Remove all deficient concrete and repair it with a sound, durable, well-bonded repair that is structurally adequate to support vehicular and other design loads. In addition, the repaired concrete work shall match the finish and color of the adjacent concrete surfaces.

❖ **Bridge Bearings:**

- ◆ Replace deteriorated Bearings and associated components with replacement Bearings that adequately support all of the load conditions and combinations that it might experience, in compliance with the requirements of the Reference Documents noted in Section F.2 of this Chapter.
- ◆ Employ a Professional Engineer licensed by the State of Indiana to prepare jacking, removal and installation procedures and documents for all Bearing removal, replacement and resetting work.
- ◆ Replace Bearings and associated components in part or in whole that are unsafe or have the potential to be unsafe, or have deteriorated to the

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condition where maintenance and repair will not restore the intent of the original design function.

- ◆ Clean, lubricate, realign and repair Bearings in accordance with the manufacturer's specifications or the original design specifications.
 - ◆ Clean all Bearings and associated components that are rusted or become covered with winter abrasives, dirt or Debris.
 - ◆ Repair all pads that are damaged, warped, distressed, bulging, crushed, cracked, split or torn.
 - ◆ Repair all Anchor Bolts and associated components that become damaged or missing.
 - ◆ Repair all concrete pedestals and Bearing seat areas that become cracked, damaged, deteriorated, or unsound.
- ❖ **Bridge Painting:**
- ◆ Clean, prepare and coat all steel surfaces of Bridge structures and railings in accordance with the requirements of the SSPC and the INDOT Standard Specifications, where the coating system is found to be deteriorated, broken, peeling, cracking, damaged, and/or the steel shows signs of corrosion or rust.
 - ◆ Test, remove and properly contain all existing paint that has or is thought to have lead present within its composition, in compliance with the requirements of the Reference Documents noted in Section F.2 of this Chapter.
 - ◆ Apply paint to all new steel Bridge members or elements in accordance with the requirements of the SSPC and the INDOT Standard Specifications.
- ❖ **Bridge and Structure Cleaning:**
- ◆ Clean the following surfaces and elements of all dirt, Debris and deleterious material, and wash to remove chemicals and winter abrasives at the frequency stated in Table F.3.3.2 of this Chapter:
 - Decks, Shoulders, curbs, railings, Bridge Joints, Parapets and gutter lines.
 - Truss members to a minimum height of 10 feet above the Deck surface, including the bottom chord.
 - All drainage structures, including Scuppers, Deck drains, expansion joint troughs, Abutment seat troughs, and drain piping.
 - Approaches to the Bridges and all associated Bridge elements for a distance of not less than 30 feet, as measured from the Abutment joints including the Wingwalls, Parapets and guardrail.
 - Pier and Abutment seats and caps, especially those beneath Bridge Deck expansion joints.
 - Abutment stemwalls and Backwalls.
 - ◆ Schedule Bridge and structure cleaning at times when the temperatures

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are to be above 40 degrees Fahrenheit for a minimum of 24 consecutive hours before and after cleaning.

- ◆ Remove all fire hazards beneath Bridges and structures.
- ◆ Perform all cleaning work without damage to property, or injury or undue delay to ITR users.

❖ Bridge Waterway Protection:

- ◆ Maintain the waterways and banks at Bridges at stream and river crossings on the ITR free of all logs and other Debris that may impede passage and/or reduce the functionality of the protection system.
- ◆ Repair and/or replace Dolphins, pilings, Fender Systems and their associated components that are unable to or have the potential to be unable to resist waterway vessel impacts.
- ◆ Employ a Professional Engineer licensed in the State of Indiana to prepare designs and documents for the replacement of all Bridge waterway protection systems.
- ◆ Maintain, repair or replace all Dolphins, Pilings, Fender Systems and their associated components that are loose, unattached, rotted, damaged and/or missing.
- ◆ Repair and replace Scoured and/or eroded materials at the Bridge Piers, shore, bank and watercourse with riprap and other materials that are appropriate and in conformance with the requirements of the Reference Documents noted in Section F.2 of this Chapter.

❖ Retaining Structures:

- ◆ Maintain and repair retaining structures and associated components that are unsafe or have the potential to become unsafe for ITR users.
- ◆ Remove accumulations of Debris behind and around retaining structures so that Debris does not prevent the retaining structure and its drainage from functioning as designed. Dispose of Debris in a manner consistent with applicable Law.
- ◆ Replace retaining structures or their components where maintenance and repair will not restore the original function of the structure.
- ◆ Repair, reinforce and replace all portions of retaining structures that indicate evidence of movement, deflection or settlement. The Concessionaire shall employ a geotechnical engineer in consultation with a Professional Engineer to determine the extent of the situation and to prepare the appropriate work details and documents.
- ◆ Consult with the original design company for all MSE walls damaged, deficient or not properly functioning, and replace all portions and components of the wall system with parts and materials as recommended by INDOT.

❖ Tunnels:

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- ◆ Make repairs to all deteriorated, damaged, delaminated and unsound portions of the Tunnels so that the Tunnels are structurally adequate to support vehicular and other design loads.
 - ◆ Supply and maintain adequate lighting and ventilation to the Tunnels at all times.
 - ◆ Remove all deficient concrete and perform a sound, durable, well-bonded repair that is structurally adequate to support vehicular and other design loads. In addition, the repaired concrete work shall match the finish and color of the adjacent concrete surfaces.
- ❖ **Structure Accessories:**
- ◆ Repair or replace bent, corroded, cracked, fatigued, damaged or structurally deficient steel inspection walkways and their components.
 - ◆ Repair or replace all damaged, settled or deficient slopewall paving.
 - ◆ Repair or replace all unsound, deteriorated or damaged Bridge sidewalks, curbs, or safety walkways.
- ❖ **Bridge Inspections**
- ◆ Perform all inspections required by Title 23 Code of Federal Regulations, as well as those required by INDOT at frequencies no less than those stated in Table F.3.3.2 of this Chapter.
 - ◆ Employ qualified Professional Engineers that are licensed by the State of Indiana to perform all of the inspections, condition assessments, repair recommendations and reports and filings required by Law.
 - ◆ Perform all local inspections methods and procedures in compliance with the requirements of the NBIS.
 - ◆ Develop, update and maintain a Bridge management, inspection and condition data base which shall include photographs, test results, and field notes which shall also identify and prioritize all required repairs.
 - ◆ Perform Bridge capacity and load analyses as necessary when deficient Bridge members and elements are discovered.
 - ◆ Ensure that all structures are properly inventoried with INDOT, and that yearly updated Inventory Inspection Forms and Reports are correctly coded into the state's inventory system.
 - ◆ Schedule and organize all required inspections, including but not limited to, vehicle rental, testing equipment, outside testing services, lane closures, and securing rights-of-entry from property owners.
 - ◆ Perform all underwater inspections with certified divers who have been trained to identify problems and who are under the supervision of a certified Bridge inspector.
 - ◆ Notify the IFA immediately when inspections determine that the Bridge or its major components are at the risk of a localized or large scale structural failure.

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F.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall complete the maintenance, repair or replacement work to Bridges and structures, and their components within the maximum time duration set forth in Table F.3.3.1:

TABLE F.3.3.1.

Bridge or Structure Feature	Maximum Time Duration
<u>Bridge Decks & Wearing Surfaces:</u>	
- Traveled Lanes	2 Hours
- Remainder of Deck Area	5 Days
<u>Bridge Railings and Parapets:</u>	
- Temporary	2 Hours
- Permanent	2 Month
Bridge Joints:	5 Days
<u>Bridge Superstructure and Substructure Elements:</u>	
- Structural Damage	1 Hour
- Non-Structural Deterioration	3 Months
Bridge Bearings:	48 Hours
<u>Bridge Painting:</u>	
- Directly Exposed to Weather	3 Weeks
- Protected from Direct Weather	3 Months
Bridge Waterway Protection:	5 Days
<u>Retaining Structures:</u>	
- Instability or Structural Damage	24 Hours
- Non- Structural Damage	3 Months
Tunnels:	24 Hours
Structure Accessories:	7 Days

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The Concessions shall complete the maintenance set forth in Table F.3.3.2 according to the minimum frequency of occurrence provided therein:

TABLE F.3.3.2

Activity to be Performed	Minimum Frequency of Occurrence
<u>Bridge and Structure Cleaning:</u> - Bridges - Overhead and Bridge Mounted Sign Structures - Retaining Walls & Other Structures	Once Yearly, when no further Winter chemicals will be applied, but no later than May 31st.
<u>Inspections & Reports:</u> - All Bridge Structures - Filing of INDOT Inventory/ Appraisal Forms - Fracture Critical Structures & Members - Underwater Inspection	Once Every 2 Years Once Every 2 Years Once Yearly Once Every 5 Years

The Concessionaire shall, from the time a deficiency is detected by discovery or report:

- ❖ Immediately dispatch a Professional Engineer licensed by the State of Indiana to inspect, conduct testing, analyze, prepare condition reports and prepare repair/replacement recommendations.
- ❖ Immediately notify the IFA if the inspection performed by the Professional Engineer determines that the Bridge, structure or its components are at risk of a localized or large scale structural failure.
- ❖ If a Bridge, structure or its components are at risk of failure:
 - ◆ Immediately commence repairs as instructed by the Professional Engineer licensed by the State of Indiana, except where the damage will require complete reconstruction, and;
 - ◆ Complete repairs within three (3) months or within a time frame as determined by the IFA.
- ❖ Immediately establish and provide traffic control whenever a Bridge or structure is unsafe or has the potential to become unsafe for ITR users.
- ❖ Properly dispose of all temporary work and replace with permanent work within one (1) month after installation.

The Concessionaire shall also lubricate all required Bearings once annually in accordance with the Bearings' original design and manufacturer's specifications.

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F.3.4. Acceptance Criteria

Bridge and structure maintenance shall be in accordance with the IFA guidelines for OPI as outlined in the 2005 Annual Report and shall be deemed acceptable by the IFA when the following standards are met or exceeded:

❖ Bridge Decks and Wearing Surfaces:

- ◆ The concrete finish of the Decks and/or Wearing Surfaces shall provide a safe driving surface and shall be within the requirements of the Reference Documents noted in Section F.2 of this Chapter.
- ◆ Repair areas shall match the existing Deck profile, cross-slope, color and finish.
- ◆ Repair areas and adjacent areas shall be structurally sound, uniform in shape, durable and bonded to the supporting elements and substrate.
- ◆ Repair and replacement materials shall be compatible to the remaining materials, and new materials shall be in full compliance with the requirements of this Chapter and the Reference Documents noted in Section F.2 of this Chapter.
- ◆ Repair and replacement areas shall be structurally adequate and maintain the structural integrity of the Deck.
- ◆ All cracks 1/16" or larger shall be sealed to a minimum depth of 1/2".
- ◆ The Decks and Wearing Surfaces shall be clean and free of all dirt. Debris and foreign materials that may reduce the safety of ITR users and impede drainage.
- ◆ The Decks and Wearing Surfaces shall be replaced in whole when the required and proposed repair areas, account for more than 30% of the entire Deck area.

❖ Bridge Railings and Parapets:

- ◆ The railings and Parapets shall be properly attached and meet all of the requirements of the Reference Documents noted in Section F.2 of this Chapter.
- ◆ The railings and Parapets shall be properly aligned and free of all damage, defects and deterioration.
- ◆ Temporary barriers or railings shall be installed only for the duration required to complete the permanent repair or replacement.

❖ Bridge Joints:

- ◆ The Bridge Joints shall be properly installed and function as designed to withstand the movements of the Bridge and structure.
- ◆ The Bridge Joints shall be free of all leaks, defects, damage and deterioration.
- ◆ The Bridge Joints shall provide a smooth and safe transition for ITR users.

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- ◆ The Bridge Joint Armor plates shall be securely attached to the substrate, shall not be misaligned, and shall not be damaged or deteriorated.
- ❖ **Bridge Superstructure and Substructure Elements:**
 - ◆ Existing and repaired or replaced elements shall be structurally adequate shall and maintain the structural integrity of the structure.
 - ◆ Repair areas shall match the adjacent surface color and finish.
 - ◆ All waste materials shall have been removed from the work site and the areas shall be left in a clean and tidy condition.
 - ◆ Repair areas and adjacent areas shall be structurally sound, uniform in shape, durable and bonded to the supporting elements and substrate.
 - ◆ All structural cracks shall be filled and sealed with the appropriate materials and methods as determined by the Professional Engineer and in conformance with the Reference Documents noted in Section F.2 of this Chapter.
 - ◆ The steel elements and connections shall be functioning properly, free of all cracks, corrosion, deteriorated paint, damage and defects.
- ❖ **Bridge Bearings:**
 - ◆ All Bearings constructed with elastomeric or other pads shall be properly aligned and free of all bulging, warping, cracks, splits, tears and distress.
 - ◆ All Bearings shall function as designed, and shall be capable of supporting the applied loads in a manner that does not cause the Bearing to compromise its structural integrity or that of the structure or Bridge as a whole.
 - ◆ All Bearings shall be clean, properly aligned and free of all damage, deterioration deficiencies, and missing components.
 - ◆ Bearings that require lubrication shall be maintained as required by the original specifications and the manufacturer's recommendations.
 - ◆ The concrete pedestals and bearing seats shall be clean and free of all deterioration, damage and deficiencies that might compromise the Bearings.
- ❖ **Bridge Painting:**
 - ◆ All steel and metal surfaces of the Bridge, structure, or its components that require paint shall be prepared and coated to a minimum level of SSPC SP6.
 - ◆ All Bridges, structures and their components shall be free from deficiencies in the paint surface and shall be free from corrosion, rust, staining, decolorized blotches, chalking, peeling, and cracked and chipped paint.
 - ◆ The paint systems utilized shall be in full conformance of the requirements of this Chapter and the Reference Documents noted in

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Section F.2 of this Chapter.

- ◆ Existing paint that is thought, or is known, to contain lead shall be tested and removed in a manner that conforms to all Laws.
- ❖ **Bridge and Structure Cleaning:**
 - ◆ All Bridge and structure surfaces shall be free from dirt, Debris, foreign materials and winter abrasives.
 - ◆ All fire hazards beneath or adjacent to Bridges and structures shall be removed, the area shall be cleaned, and the site left in a neat and tidy manner.
- ❖ **Bridge Waterway Protection:**
 - ◆ Watercourse, shores and banks shall be free from erosion, slumping and Scour.
 - ◆ Dolphins, pilings and Fender Systems shall function as designed and the systems shall be free of all defects, deficiencies, damage, and Debris interferences.
 - ◆ Piers within the waterway shall be supported by firm, solid and well compacted materials and no Scour or material loss shall have occurred.
 - ◆ Loose, corroded, deteriorated, rotted, and missing components of the waterway protection system shall be repaired and replaced with materials that complement the environment and shall be in conformance with the requirements of the Reference Documents noted in Section F.2 of this Chapter.
- ❖ **Retaining Structures:**
 - ◆ The earth retained by the structure shall be present without deformations, cracks, erosion, or slumps, and is in a stable state.
 - ◆ Drainage for the retaining structures shall be present and functioning as originally designed.
 - ◆ Vegetation that will or might reasonably be expected to exert stresses on the retaining structure shall be removed.
 - ◆ All vertical faces of the retaining structures shall be plumb, structurally stable, and shall not indicate Signs of distress or movements.
 - ◆ Repairs and replacement of portions or components of MSE walls are made with materials and procedures in consultation and approval of the original design company.
- ❖ **Tunnels:**
 - ◆ Tunnels shall be free of all deterioration, damage and deficiencies that might reasonably be expected to compromise their structural integrity.
 - ◆ Tunnels shall be properly lit and ventilated.
 - ◆ All attached utilities and other facilities shall be securely attached to the

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Tunnel structure.

❖ **Structure Accessories:**

- ◆ The inspection or service walkways, access platforms, ladders and other similar accessories shall be free from damage, deficiencies, deterioration and missing components.
- ◆ The Bridge slopewalls shall be stable, free from damage, deterioration, settlement and other deficiencies.

❖ **Bridge Inspections:**

- ◆ Bridge and structure inspections shall be performed in accordance with the requirements of Table F.3.3.2 of this Chapter, Volume II - Operations and Procedures Manual, Chapter J, "Annual State of the ITR Corridor and Capital Improvement Program Reports", and all required documentation and reports have been filed with the appropriate agency.
- ◆ The qualifications of the engineers conducting the inspections shall conform to the requirements of this Chapter, Volume II - Operations and Procedures Manual, Chapter J, "Annual State of the ITR and Capital Improvement Program Reports", and the Reference Documents noted in Section F.2 of this Chapter.

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CHAPTER G: THIRD PARTY DAMAGES & EMERGENCY MAINTENANCE

G.1. Definitions

Animal Damage: Damage done to any part of the ITR by the actions of animal pests including, but not limited to, squirrels, skunks, mice and rats, as well as incidental damage resulting from vehicle interactions or Collisions with animals.

Atmospheric Damage: Damage done to any part of the ITR by the action of the atmosphere or climate, including, but not limited to, rain, wind, snow, ice, storms, lightning strikes, freeze/thaw temperature cycles and chemical or pollutant degradation.

Bridge: A structure consisting of single or multiple spans more than 20 feet in length that provides a means of transit for vehicles and/or pedestrians above the land, water surface, roadway, railroad or other obstruction.

Collision: An incident involving the impact of a vehicle with another vehicle or with some component of the ITR. Vehicles that can cause collision damage include highway traffic, aircraft, off-road vehicles, railroad cars and locomotives, utility or railroad service vehicles, construction equipment.

Earthquake: A seismological event or earth tremor described, reported, or classified by the USGS as an earthquake.

Emergency Maintenance: Time-critical repair work performed on an unplanned basis and intended to restore operations and mitigate damage done to the ITR by Collision, Vandalism, Earthquake or an atmospheric event. Emergency maintenance and repairs may be a temporary measure, using the staff and materials available immediately following the incident.

Graffiti: Painted Vandalism of buildings, walls, Signs and other objects that has been placed on a surface without the property owner's consent.

NOAA Weather Radio: Local broadcast radio which issues bulletins and alerts regarding severe weather conditions or forecasts. The Concessionaire shall subscribe to NOAA Weather Radio and monitor this station on a 24 hour-a-day basis.

Ramp: The portion of the traveled way that provides access between the Mainline and the local street network, extending from Shoulder line to Shoulder line or from curb line to curb line.

Sign: A lettered board, message or other display which includes all regulatory, warning, guide or informational, advisory, construction and maintenance, route markers and all special or other messages/displays.

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Third Party Damage Repair: The repair work to restore any damaged feature located on the ITR to undo or mitigate the effects of (among other things) an intentional destructive human act (Vandalism or Graffiti), Collision, animal pests and atmospheric events.

Vandalism: An intentional, destructive human act that damages or weakens any part of the ITR or causes harm, peril, or inconvenience to ITR users. Acts of Vandalism include, but are not limited to, arson, Graffiti, breakage, theft, placing obstructions in the traveled way and fence cutting.

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G.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "Standard Specifications", INDOT.
- ❖ "Supplemental Specifications and Recurring Special Provisions", INDOT.
- ❖ "Standard Drawings", INDOT.
- ❖ "Indiana Manual on Uniform Traffic Control Devices" (MUTCD), INDOT.
- ❖ "NOAA Weather Radio (NWR) Brochure", NOAA.
- ❖ "Guide Design Specifications for Bridge Temporary Works", AASHTO.
- ❖ "Work Zone Safety Manual", (WZSM).

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G.3. Policy for Performing Third Party Damage and Emergency Maintenance Work

G.3.1. Objective

The objective of third party damage and Emergency Maintenance is to restore the elements of the ITR that are damaged by unforeseen accidents, events and incidents to a safe, operable, useful condition while maintaining orderly traffic flows.

An effective response to incidents of third parties damages to the ITR requires:

- ❖ Immediate attention to incidents that are potentially life threatening or pose a threat to the ITR or ITR users.
- ❖ Cooperation with all responsible police, fire and agency officials.
- ❖ Performing damage assessments using qualified personnel and taking all necessary steps to safeguard life and property.

Information regarding the Concessionaire's required response to emergency incidents is addressed by the requirements of Volume II - Operations and Procedures Manual, Chapter I, "Emergency Management and Operations Plan".

G.3.2. Responsibility of Concessionaire

G.3.2.1. Maintenance and Repair Requirements

Maintenance and repair of damage done by third parties to the ITR, as well as maintenance and damage repair following severe weather, animals, or emergency events, are the responsibility of the Concessionaire.

The Concessionaire shall be responsible for assessing the damage to the ITR as a result of the incidents.

The Concessionaire shall be responsible for completing all of the necessary repair/replacement work within the time frames established in other Chapters for the particular elements damaged.

G.3.2.2. Incident Response Requirement

The Concessionaire shall be responsible for responding to, without limitation, notifications of Collision, Vandalism, Animal Damage, natural disaster, severe weather and Earthquake as required by Volume II - Operations and Procedures Manual, Chapter I, "Emergency Management and Operations Plan", and shall fully

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restore the damaged elements of the ITR to their condition as they existed before the event. The Concessionaire's responsibilities shall encompass many roles during an event and include, but are limited to, the following:

- ❖ Dispatching qualified staff and emergency response equipment to sites where a Collision, disabled or inoperable vehicle natural disaster, fatality, personal injury, or property damage has been reported.
- ❖ Communicating and cooperating with the Indiana State Police (ISP), local city and county police and fire departments, local emergency medical personnel and utilities, both with their offices and with their on-site crews.
- ❖ Facilitating access to the crash site by fire, police and emergency medical personnel and equipment, and assisting in moving involved vehicles from the traveled way accident.
- ❖ Establishing, maintaining, and providing all required traffic control such as lane use restrictions, lane closures, Ramp closures, plaza closures, and Bridge closures as appropriate given the apparent blockage of the roadway, visible structural damage, or similar hazards.
- ❖ Conducting immediate inspections, repair/replacement maintenance and integrity assurances of any damaged structural members using a Professional Engineer licensed by the State of Indiana, and promptly mobilizing any inspection and testing equipment required for thorough inspections.
- ❖ Maintaining and policing on-going lane use restrictions, lane or Ramp closures, weight restrictions and Bridge closures based on the inspection findings.
- ❖ Responding to notifications by governmental authorities that ITR traffic needs to be temporarily halted or redirected whenever an emergency incident occurs within or adjacent to the ITR which might reasonably be expected to pose a hazard to users of the ITR.

G.3.2.3. Management and Coordination

The Concessionaire shall be responsible for all management and coordination associated with the repairing damage caused by the incidents discussed in this Chapter. The Concessionaire shall conduct all inspections, file documents with the IFA as required by the IFA and applicable Law, and assist any independent inspections conducted on behalf of the IFA. The Concessionaire shall not be required to block traffic or otherwise hamper ITR operations in order to accommodate third party insurance claims adjusters.

The Concessionaire shall be responsible for determinations of repair needs and performing ITR element maintenance or repairs as specified elsewhere in Volume I - Maintenance Manual.

The Concessionaire shall be responsible for monitoring the local NOAA Weather

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Radio station and/or online national and local weather channels at all times, and acting upon all bulletins and alerts regarding severe weather conditions that are forecast.

G.3.2.4. Report Documentation

The Concessionaire shall document, record and file a report in a separate log whenever third party damages occur on the ITR. The reports shall include the following minimum information, so that an accurate evaluation of the situation may be made whenever required:

Outline - Third Party Damage Report

- 1) General Discussion
 - a) Date of occurrence
 - b) Discussion of occurrence
 - c) Impact on travel
 - d) Estimated cost of repairs
- 2) Supporting Information
 - a) Damaged elements(s) or segment(s) of the ITR
 - b) Nature of damage
 - c) Condition of remaining elements(s)
 - d) Weather Conditions
 - e) Highway conditions
 - f) Start and end locations of incident
 - g) Witness interviews
 - h) Photographs
- 3) Third Party Information (as available)
 - a) Names and addresses
 - b) Insurance information
 - c) Copies of any reports filed

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G.3.3. Performance Time Frames

The Concessionaire, from the time an incident or incident-related deficiency is or reasonably should be detected or reported, shall respond and complete the repair or replacement to restore the damaged ITR component to its original condition or to a better condition within the maximum time duration set forth below:

Event	Maximum Time Duration
Vehicle Incidents	15 minutes (Response) (Repair/Replacement work per requirements of the applicable Chapter)
<u>Material Spills:</u> - Non-Hazardous - Hazardous	15 minutes (Response) Immediate (Response)
<u>Vandalism Incidents:</u> - Graffiti Removal - All Other	24 Hours 24 Hours
Atmospheric Damage	30 minutes (Response) (Repair/Replacement work shall be made per requirements of the applicable Chapter)
<u>Animal Incidents:</u> - Damage - Removal of carcasses	24 Hours 8 Hours

The Concessionaire's response time and the scale of mobilization in reaction to each detected or reported incident shall be appropriate to the seriousness of the event and shall be addressed and coordinated with the requirements set forth by the IFA.

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G.3.4. Acceptance Criteria

Third Party Damage Repairs and Emergency Maintenance shall be deemed acceptable by the IFA when the following standards are met:

- ❖ The Concessionaire shall be responsive to reported incidents along the ITR in conformance with the time frames specified.
- ❖ The Concessionaire shall perform all necessary inspections and evaluations following an event, and shall make all repairs required to restore all affected components to a safe and functioning condition in conformance to the relevant Chapters of Volume I - Maintenance Manual.
- ❖ The Concessionaire shall protect traffic and the event site as deemed necessary, and maintain Traffic Control as appropriate during any incident site cleanup, inspection, repair, testing and shoring.
- ❖ The Concessionaire shall manage each incident as outlined herein, and maintain contact in order to coordinate forces and consult on work tasks with INDOT, the Indiana State Police, and other public agencies and authorities as appropriate.
- ❖ The Concessionaire shall manage incidents of minor Vandalism, Graffiti, animal and pest control, and similar nuisances in the manner and within the Time Frames specified.

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CHAPTER H: ROADWAY SAFETY FEATURES & SYSTEMS MAINTENANCE

H.1. Definitions

Barrier Walls: All concrete wall elements used as a protective barrier for vehicular or pedestrian traffic. Examples include Median barrier walls, permanent or temporary roadside concrete barrier, ground mounted barrier walls, and Parapets and barriers attached to retaining walls and MSE retaining walls.

Bridge: A structure consisting of single or multiple spans more than 20 feet in length that provides a means of transit for vehicles and/or pedestrians above the land, water surface, roadway, railroad or other obstruction.

Collision: An incident involving the impact of a vehicle with another vehicle or with some component of the ITR. Vehicles that can cause collision damage include highway traffic, aircraft, off-road vehicles, railroad cars and locomotives, utility or railroad service vehicles, construction equipment.

Debris: Litter, rubbish, vegetation, rocks, dead animals, spilled materials, brush or other items which are not part of or which impede drainage.

Guardrail Systems: All plate-like beam rails, including all associated terminal sections and hardware, used to protect traffic from slopes or obstacles near the traveled way or to protect elements from traffic.

Impact Attenuators: Protective systems that prevent errant vehicles from impacting hazards by either decelerating the vehicle to a stop after a frontal impact or by redirecting it away from the hazard after a side impact, accomplished by the use of either energy absorbing or energy transferring devices.

Light Curtain: A device that emits a light field between two poles, that maps the shape of a vehicle as the light pattern is interrupted.

Litter: Trash, Debris, waste, refuse, accident and construction residue.

Median: The portion of the ITR forming the separation of the traveled ways for traffic in opposite directions.

Parapet: A wall-like element of reinforced concrete integrally and structurally connected to the deck portion of a Bridge to serve as a protective barrier for vehicular or pedestrian traffic.

Spalls: Defects in which the concrete surface has detached or popped-out from the surface, leaving a hole or scalloped-out area.

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Toll Booth: A physical enclosure that includes protective cover and safe refuge for toll collectors toll-lane payment, processing equipment, communications and emergency response alarms.

Toll Plaza: A facility within which toll payments are collected from vehicles. The Toll Plaza includes, but is not limited to, the toll canopies, the Toll Booths, service buildings and vehicle lanes.

Toll Plaza Crash Protection Systems: Crash protection devices located at each of the Toll Plaza collection lanes that are intended to protect the toll attendant, the Toll Booth, and Toll Plaza hardware from the effects of vehicular impact. Existing Toll Plaza crash protection systems consist of raised concrete islands featuring ramped concrete noses, square concrete bollards with amber lamps, heavy concrete planter boxes, and 4-foot high concrete walls on the "traffic arrival" side in front of each booth. In addition, most lanes also have a freestanding concrete planter box located on the "traffic departure" side to offer protection for the Toll Plaza gate, Light Curtain and signal lamp fixture.

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H.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "Roadside Design Guide", AASHTO.
- ❖ "Standard Specifications", INDOT.
- ❖ "Supplemental Specifications and Recurring Special Provisions", INDOT.
- ❖ "Standard Drawings", INDOT.
- ❖ "A Guide to Standardized Highway Barrier Hardware", AASHTO.
- ❖ "A Policy on Geometric Design of Highways and Streets", AASHTO.
- ❖ "Indiana Design Manuals", INDOT.
- ❖ "Consultant Services Bulletin, Design and Construction Memos", INDOT.
- ❖ "2005 Annual Report", INDOT, Toll Road District.
- ❖ Maintenance Quality Survey Manual & OPI Measures for the ITR (Draft - 11-1-05).

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H.3. Policy for Performing Roadside Safety Systems Maintenance Work

H.3.1. Objective

The objective of roadway safety features and systems is to: preserve in working order or restore to working order all features and systems installed to enhance the safety of motorists, pedestrians and workers should a vehicle leave the traveled way, and protect the integrity of the ITR from damage by Collisions. These features and systems include Guardrails Systems, Impact Attenuators, Barrier Walls, and the Toll Plaza Crash Protection Systems.

H.3.2. Responsibility of Concessionaire

In order to meet the requirements of this Chapter, the Concessionaire shall ensure to the greatest extent reasonably possible that all roadway safety features and systems function properly for the safety of the ITR users, traffic, pedestrians and workers while protecting the structural integrity of the ITR from Collision. The Concessionaire shall perform its obligations in accordance with this Chapter in a manner that maintains and/or improves the condition and functionality of the roadway safety features and systems.

The Concessionaire shall perform roadside safety features and systems maintenance, inspection and work activities at a frequency that is compliant with all Laws, and the requirements specified within this Chapter.

All materials and construction requirements for roadway safety features and systems work performed by the Concessionaire shall conform to the applicable requirements of the INDOT Standard Specifications and the Reference Documents noted in Section H.2 of this Chapter.

Once a particular maintenance repair has been started, the work shall continue during consecutive working days as weather permits until a thorough, complete and workmanlike repair has been achieved. The Concessionaire shall establish and maintain traffic control and protection during this time.

Parapets, railings and other systems attached to the Bridge structures are addressed in Volume I - Maintenance Manual, Chapter F, "Bridge and Structure Maintenance".

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Work on roadway safety features and systems on the ITR that shall be performed by the Concessionaire includes the following:

- ❖ Repair or replace all damaged, deteriorated or deficient portions of the Guardrail Systems, Impact Attenuators, Barrier Walls and Toll Plaza Crash Protection Systems that create or might reasonably be expected to create an unsafe condition for ITR users and the public.
- ❖ Maintain all of the Roadway Safety Features and Systems so that they are: functioning as intended and designed, are free from Debris, securely fastened to their foundations, are structurally sound, and are clearly and highly visible.
- ❖ Align and position all of the roadway safety features and systems as safety devices.
- ❖ Maintain all posts and vertical components in a plumb, aligned and straight position.
- ❖ Apply preservatives to all timber elements as necessary to maintain rot-free and structurally sound components.
- ❖ Replace all timber and steel components if elements are rotted, broken, settled or damaged.
- ❖ Repair or replace plate-like beam Guardrail Systems that are bent, broken, cracked, rusted or damaged with materials and finishes that meet or exceed the components that they replaced.
- ❖ Repair damaged, compromised, ineffective or non-functioning Impact Attenuators with parts and components in consultation with the original manufacturer if commercially practicable. If not commercially practicable, replace such Impact Attenuators.
- ❖ Alleviate any and all impediments to the drainage flow caused or created by the presence of the roadway safety features and systems, including cleaning drainage holes in the bases of the Barrier Walls.

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H.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall complete the repair or replacement work to the roadway safety feature and systems and their components within the maximum time duration set forth below:

Roadway Safety Feature or System	Maximum Time Duration
<u>Guardrail System:</u>	
- Damage to Structural Integrity	24 Hours
- Non-Structural Damage	30 Days
<u>Barrier Wall:</u>	
- Damage to Structural Integrity or Stability	24 Hours
- Non-Structural Damage	45 Days
Impact Attenuators	8 Hours
<u>Toll Plaza Crash Protection Devices:</u>	
- Damage to Structural Integrity	12 Hours
- Non-Structural Damage	30 Days

The Concessionaire shall:

- ❖ Clean all drainage holes in the barrier wall bases at least twice annually.
- ❖ Immediately establish and provide temporary barricades and traffic control whenever a Roadway Safety Feature or System is unsafe or has the potential to become unsafe for ITR users.
- ❖ Remove all Litter and Debris in and around the Impact Attenuators at least three times annually, or at a greater frequency as conditions and locations dictate.

H.3.4. Acceptance Criteria

Roadway Safety Features and Systems shall be deemed acceptable by the IFA when the following standards are met or exceeded:

- ❖ **Guardrail Systems:**
 - ◆ The guardrail shall be installed in compliance with the Reference Documents noted in Section H.2 of this Chapter and the system shall be within 3/4-inch of plumb and grade.

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- ◆ The surface materials shall be smooth, undamaged and free of defects.
 - ◆ The rails and terminal elements shall not be warped or otherwise deformed.
 - ◆ The posts shall be installed square to the rail.
 - ◆ The work site shall be left in a clean condition.
 - ◆ The system shall be maintained in accordance with the IFA guidelines for OPI as outlined in the 2005 Annual Report.
- ❖ **Impact Attenuators:**
- ◆ The system shall be free of obstructions and shall be capable of functioning as designed and intended.
 - ◆ The system components shall be free of damage and/or shall have been repaired with equal or comparable parts in consultation with the original manufacturer.
- ❖ **Barrier Walls:**
- ◆ Barrier Walls shall be properly aligned horizontally and vertically so as to conform to the roadway profiles, alignment and geometry.
 - ◆ The barrier wall shall be free from defects and damage and shall be capable of functioning as intended.
- ❖ **Toll Plaza Crash Protection Systems:**
- ◆ Protection System shall be free from all damage and deficiencies, and all cosmetic defects shall have been removed or repaired.
 - ◆ The protection system shall be structurally sound and capable of functioning as designed.

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CHAPTER I: SIGNS AND SIGN SYSTEMS MAINTENANCE

I.1. Definitions

Asphalt: A brown to black solid bituminous material, soluble in gasoline or naphtha.

Bridge: A structure consisting of single or multiple spans more than 20 feet in length that provides a means of transit for vehicles and/or pedestrians above the land, water surface, roadway, railroad or other obstruction.

Collision: An incident involving the impact of a vehicle with another vehicle or with some component of the ITR. Vehicles that can cause collision damage include highway traffic, aircraft, off-road vehicles, railroad cars and locomotives, utility or railroad service vehicles, construction equipment.

Damaged Sign:

- ❖ A sign that is not flat (planar) and properly oriented to the traveling public or other intended audience,
- ❖ A sign that has either 4 square inches or 1 % (whichever is greater) of the Sign Panel face area containing deficiencies, or
- ❖ A sign that is damaged or contains a message to the traveling public or other audience that is unclear, improper or confusing.

Debris: Litter, rubbish, vegetation, rocks, dead animals, spilled materials, brush or other items which are not part of or which impede drainage.

Ditch: A trough-shaped excavation made to collect and transport water: includes unpaved and paved ditches. Unpaved Ditches are protected from erosion by Turf or grasses. Paved Ditches are protected from erosion by concrete or Asphalt.

Drain: An aperture through a wall, curb or Bridge deck to provide egress for water that would otherwise be trapped on the roadway.

Dynamic Message Signs (DMS): Signs which are capable of displaying a visual message by means of light bulbs and plastic tabs.

Earthquake: A seismological event or earth tremor described, reported, or classified by the USGS as an earthquake.

Emergency Maintenance: Time-critical repair work performed on an unplanned basis and intended to restore operations and mitigate damage done to the ITR by Collision, Vandalism, Earthquake or an atmospheric event. Emergency maintenance and repairs may be a temporary measure, using the staff and materials available immediately following the incident.

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Graffiti: Painted Vandalism of buildings, walls, signs and other objects that has been placed on a surface without the property owner's consent.

Guide Sign: A Sign that does not contain regulatory information, traffic Laws or warnings. Examples include Signs that show route designations, destinations, distance to exits, services or other geographical, recreational or cultural information.

Landscaping: All vegetation, including Turf and grasses, trees, intentional plantings, as well as incidental items including block walls, planter boxes, planting beds, lawn edging, street furniture and irrigation sprinkler systems.

Overhead Sign: An overhead Sign support structure with the horizontal member either supported at both ends or cantilevered over the traveled lanes.

Parapet: A wall-like member integrally connected to the fascia edge of a Deck to serve as a protective barrier for vehicular or pedestrian traffic.

Ponding: An undesirable condition in which standing or slow draining water is trapped on the roadway surface or in Ditches.

Regulatory Sign: A Sign that gives notice to road users of traffic Laws. Examples include STOP, SPEED LIMIT 45 MPH and LOAD LIMIT Signs.

Retro-reflectivity: A property of a Sign Panel surface which causes a specified portion of the light coming from a point source to be returned directly back to the origin.

Sign: A lettered board, message or other display which includes all regulatory, warning, guide or informational, advisory, construction and maintenance, route markers and all special or other messages/displays.

Sign Panel: The layer of the Sign which contains the message, and which is applied to the aluminum, wood or steel Sign.

Sign System: All Signs and sign systems components including regulatory, warning, guide or informational, advisory, construction and maintenance, overhead and Bridge mounted Signs.

Turf: Surface earth ground cover containing a dense growth of grass and matted roots.

Vandalism: An intentional, destructive human act that damages or weakens any part of the ITR or causes harm, peril, or inconvenience to ITR users. Acts of Vandalism include, but are not limited to, arson, Graffiti, breakage, theft, placing obstructions in the traveled way and fence cutting.

Warning Sign: A Sign that gives notice to road users of a potentially hazardous situation that might not be readily apparent. Examples include STOP AHEAD and LOW CLEARANCE Signs.

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Work Zone Sign: A Sign that gives notice to road users of construction and maintenance activities. Work Zone Signs are required in advance of the site and must be erected through the work zone. Examples include CONSTRUCTIONS SPEEL LIMIT 30 MPH and FLAGGER Signs.

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I.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "Manual on Uniform Traffic Control Devices (MUTCD)", FHWA.
- ❖ "Indiana Supplement to the National Manual on Uniform Traffic Control Devices", INDOT.
- ❖ "Sign Design Guide", INDOT.
- ❖ "Standard Highway Signs", FHWA and INDOT.
- ❖ "Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals", AASHTO.
- ❖ "Standard Drawings", INDOT.
- ❖ "Indiana Design Manuals", INDOT.
- ❖ "Standard Specifications", INDOT.
- ❖ "Supplemental Specifications and Recurring Special Provisions", INDOT.
- ❖ "Bridge Inspector's Training Manual", FHWA.
- ❖ "Approved List of Materials", INDOT.
- ❖ "Consultant Services Bulletin, Design and Construction Memos", INDOT.
- ❖ "2005 Annual Report", INDOT, Toll Road Division.
- ❖ Maintenance Quality Survey Manual & OPI Measures for the ITR (Draft - 11-1-05).

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I.3. Policy for Performing Sign Systems Maintenance

I.3.1. Objective

The objective of Sign and Sign System maintenance is to ensure to the greatest extent reasonably possible that all regulatory, warning, guide, informational, advisory and work zone (construction and maintenance) signage and their components are properly maintained so as to regulate and facilitate the safe and orderly movement of traffic.

Highway Signs are grouped into four general classifications: Regulatory, Warning, Guide, and Work Zone (Maintenance and Construction). Designated shapes and colors are used to differentiate between the different Sign classifications. Regulatory and Warning Signs shall be reflectorized and/or illuminated to show the same shape and color by day and night.

Signs and Sign Systems require:

- ❖ Selection of the Sign System for a particular situation,
- ❖ Correct location of the Sign System, and
- ❖ Ongoing maintenance so that the Sign and its supports are in good condition.

I.3.2. Responsibilities of Concessionaire

In order to meet the requirements of this Chapter, the Concessionaire shall maintain practices and inspection survey intervals with the objective that all Signs and Sign Systems will clearly display the appropriate messages for the safe and orderly movement of traffic.

All materials and construction requirements for Sign and Sign System maintenance performed by the Concessionaire shall conform to the applicable requirements of the INDOT Standard Specifications and the Reference Documents noted in Section I.2 of this Chapter.

Each Sign face shall be kept visible and legible under both day and night conditions.

The Concessionaire shall make routine Sign inspections part of its daily activities, and all Concessionaire staff who travel the ITR for any reason shall be instructed to report any damaged or obscured Signs to the Concessionaire.

Maintenance on Sign Systems on the ITR that shall be performed by the Concessionaire includes the following:

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- ❖ Repair or install new Signs and Sign Systems and their components.
- ❖ Maintain a stock of Sign Panels, supports and other Sign System components for use in place of damage.
- ❖ Clear obstructed Signs.
- ❖ Clean Sign Systems and their components.
- ❖ Inspect the Sign Systems.
- ❖ Reset/repair Signs and Sign Systems that are accidentally knocked or blown down.
- ❖ Relocate Signs and Sign Systems that need to be removed and/or reinstalled due to changing needs or conditions.
- ❖ Replace or relocate Signs and Sign Systems as required by Law.
- ❖ Ensure that all Signs and Sign Systems are legible, adequately reflectorized, erect and correctly located in accordance with the Reference Documents noted in Section I.2 of this Chapter.
- ❖ Obtain prior approval from the IFA for all re-ordering and design of guide and information Signs.
- ❖ Remove and store all illegal or unauthorized Signs on the ITR, as discovered by the Concessionaire or as directed by the IFA.

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I.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall complete the cleaning, resetting, and replacement of missing, repair, or relocation work to the Signs and Sign System and its components within the maximum time duration set forth below:

Sign & Sign System Classification/Type	Maximum Time Duration
Regulatory	24 Hours
Warning	24 Hours
Guide	2 Days
<u>Work Zone:</u>	
- Construction	2 Hours
- Maintenance	30 Minutes
Dynamic Message Signs	2 Hours
All Other Signs	3 Days

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The Concessionaire shall, from the time a deficiency is detected by discovery or report:

- ❖ Make temporary repairs to all Regulatory Signs or Warning Signs determined to be a Damaged Sign, or to replace missing; and to immediately initiate installation of temporary Signage.
- ❖ Touch-up or re-paint all painted Sign System components when the surface is discolored or damaged within seven (7) days; and re-paint all components once every five (5) years.
- ❖ Relocate Signs and Sign Systems required to be removed and reinstalled due to changing needs or conditions within seven (7) days.
- ❖ Make all replacements and/or repairs to Signs and Sign System lighting, including burnt-out bulbs, within twelve (12) hours.

The Concessionaire shall also:

- ❖ Replace or install new Regulatory Signs or Warning Signs within forty-eight (48) hours from receiving direction from the IFA.
- ❖ Perform inspections on all overhead (full and cantilever) and Bridge mounted Sign structures, in accordance with the requirements of INDOT, at a interval no greater than once every year, and submit a written report to INDOT. The inspection procedures shall be in conformance with the requirements of the National Bridge Inspection Standards (NBIS).
- ❖ Order within 48 hours, replace or install within 24 hours of delivery new Sign Systems upon receipt of notification from the IFA or upon local, State or Federal mandate.

I.3.4. Acceptance Criteria

Signs and Sign Systems shall be maintained in accordance with IFA guidelines for OPI as outlined in the 2005 Annual Report:

- ❖ Supports shall be plumb and level;
 - ❖ Design, type classification and installation shall be in accordance with the requirements of the Reference Documents noted in Section I.2 of this Chapter;
 - ❖ Concrete bases and foundations shall be the proper and correct distance out of the ground;
 - ❖ Steel supports shall be properly coated and protected by the galvanizing process, when required, as described in the INDOT and ASTM Specifications;
 - ❖ The site adjacent to the Signs and Sign System shall be left clean and tidy after all work is completed;
 - ❖ Sign Panels shall contain the correct color, spelling or symbols required for its classification and application; and
 - ❖ Supports shall have a complete coverage of paint that is free of cracking, peeling and flaking, when the support requires paint to be present.
- ❖ Sheeting Material:

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- ♦ Lettering and symbols shall be of the correct size, clear and legible, and of the required Retro-reflectivity in accordance with local, State and Federal guidelines.
- ♦ Sheeting shall be applied free of blistering, delaminations, peeling or chipping, with no discoloration or fading.
- ❖ Sign Panel Backing:
 - ♦ Wood Panels shall be straight and smooth with no warping, bending, twisting, or splitting, and are properly sealed to prevent swelling.
 - ♦ Aluminum Panels shall be straight with no warping, bending, or twisting, and are not torn or deformed at connections.

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CHAPTER J: LIGHTING AND ELECTRICAL SYSTEM MAINTENANCE

J.1. Definitions

Conduit or Duct: An enclosed tubular way for protecting wires and cables.

Electrical Systems: Systems, elements and components that are contained in facilities, and which supply, distribute and function by the use of electricity. These systems include, but are not limited to: substations, meters, wiring, service panels, individual circuits, generators, transformers, lighting, motor control units, back-up generators and systems and emergency lighting.

Luminaire: A complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply.

Parapet: A wall-like member integrally connected to the fascia edge of a Deck to serve as a protective barrier for vehicular or pedestrian traffic.

Sign: A lettered board, message or other display which includes all regulatory, warning, guide or informational, advisory, construction and maintenance, route markers and all special or other messages/displays.

Sign Lighting: An engineered lighting system that makes a sign uniformly visible to road users, whether by day or night. Signs on the ITR have external illumination, in which a light pattern is cast upon the Sign Panel by lamps.

Sign Panel: The layer of the Sign which contains the message, and which is applied to the aluminum, wood or steel Sign.

Toll Booth: A physical enclosure that includes protective cover and safe refuge for toll collectors toll-lane payment, processing equipment, communications and emergency response alarms.

Toll Plaza: A facility within which toll payments are collected from vehicles. The Toll Plaza includes, but is not limited to, the toll canopies, the Toll Booths, service buildings and vehicle lanes.

Travel Plaza: A facility that provides restaurant services, refueling services, limited shopping, public restrooms, RV dump station, pet walk, rest area, personal vehicle parking and RV and truck parking adjacent to the roadway that can only be accessed from the roadway.

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J.2. References

All stated references shall be the most current version or the document known to have succeeded or replaced the original stated herein:

- ❖ "Roadway Lighting Handbook -Implementation Package 78-15", FHWA.
- ❖ "An Informational Guide to Roadway Lighting", AASHTO.
- ❖ "Design Guide for Roadway Lighting Maintenance", IESNA.
- ❖ "National Electric Code", NFPA.
- ❖ "Title 33 Code of Federal Regulations - Part 118", U.S. Government Printing Office.
- ❖ "Standard Specifications", INDOT.
- ❖ "Supplemental Specifications and Recurring Special Provisions", INDOT.
- ❖ "Standard Drawings", INDOT.
- ❖ "ANSI Catalog of American National Standards", ANSI.
- ❖ "Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems", IEEE.
- ❖ "Roadside Design Guide", AASHTO.
- ❖ "Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals", AASHTO.
- ❖ "Approved Materials List", INDOT.
- ❖ "Indiana Design Manuals", INDOT.
- ❖ Consultant Services Bulletins, Design and Construction Memos, INDOT.

J.3. Policy for Maintenance of Lighting and Electrical Systems

J.3.1. Objective

The objective of lighting and Electrical Systems maintenance is to ensure to the greatest extent reasonably possible that all elements and components of lighting and Electrical Systems including, but not limited to, roadway and interchange Luminaries, underpass lighting, Sign Lighting, navigation and aircraft warning beacons, Travel Plaza lighting, Toll Plaza lighting, administrative and maintenance facilities lighting, grounds illumination, highway Electrical Systems including power, communication, signaling wiring, and surveillance cameras and wiring are properly maintained and serviced so as to continuously function at superior reliability, and to reduce potential hazards to the safe and orderly movement of traffic.

J.3.2. Responsibility of Concessionaire

In order to meet the requirements of this Chapter, the Concessionaire shall use its commercial best efforts to maintain all roadway interchanges, Bridges and underpass lighting, warning lights, Toll Plaza and Travel Plaza lighting, administrative and maintenance facilities lighting, and other critical illumination systems as fully operational during low ambient light conditions. The Concessionaire shall ensure to the greatest extent reasonably possible that all cameras, communications, power cabling, related electrical panels and wiring and other critical highway electrical devices shall remain functioning at all times for the safe and orderly movement of traffic.

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The Concessionaire shall conduct nighttime inspections of all ITR lighting and Electrical Systems and shall repair all defects and deficiencies noted in such inspections. The patrols shall evaluate all locations in the lighting system, including underpass fixtures and temporary lighting installations. The patrols shall be arranged so that all locations are inspected in compliance with the required Performance Time Frames.

The Concessionaire shall implement a cleaning and maintenance schedule for the Luminaries and fixtures. In this schedule, the Luminaire lenses and housings shall be cleaned of dust and grime build-up as recommended by the manufacturer's specifications, and as required by the conditions.

General work on lighting and Electrical Systems on the ITR that shall be performed by the Concessionaire includes the following:

- ❖ Coordinating with all electrical utilities and equipment vendors for prompt response and repair of electrical service, connections, outages, and other difficulties with lighting and Electrical Systems.
- ❖ Maintain an inventory and history record of all lighting and Electrical Systems.
- ❖ Roadway and Interchange Lighting and Sign Illumination:
 - ◆ Perform nighttime patrols and inspections for each lighting system to detect deficiencies or defects.
 - ◆ Inspect, maintain, and repair or replace defective, malfunctioning and deficient lighting controllers.
 - ◆ Inspect all light pole units, mast arms and foundations and repair all damage or deficiencies.
 - ◆ Repair all Luminaries and related damages and deficiencies.
 - ◆ Conduct a re-lamping and cleaning program to maintain the efficiency and continual operation of the lighting systems.
 - ◆ Replace and/or repair all lighting systems components that are excessively corroded, repairing foundation cracks or Spalls, replacing missing hardware and hand-hole covers.

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- ◆ Rewire or relocate lighting and Electrical Systems and components as required by changing needs, altered conditions, and as required by Law.
- ❖ **Aircraft Warning Beacons:**
 - ◆ Inspect the aircraft warning beacons, and repair or replace all damage or deficiencies.
 - ◆ Coordinate with the Federal Aviation Administration (FAA) on outages and repair work.
 - ◆ Restore all outages of the aircraft warning beacons system within the performance time frames.
- ❖ **Navigational Warning Lights:**
 - ◆ Inspect the navigational warning lights, and repair or replace all damage or deficiencies.
 - ◆ Coordinate with the Army Corp of Engineers and the United States Coast Guard on all outages and repair work.
 - ◆ Restore all outages of the navigational warning light system within the performance time frames.
- ❖ **Cables, Conduits, and Unit Ducts:**
 - ◆ Maintain all cables, conduits and unit ducts free of all defects and damage, and repair or replace all breaks of these lines within the performance time frames. Maintain all cables, conduits and unit ducts as operational and functional at all times.
 - ◆ Use temporary cabling only to restore service until a permanent repair to the defects and deficiencies can be completed. Any temporary aerial cabling shall be installed and maintained at a minimum height of twenty-five (25) feet above ground level.
 - ◆ Perform all re-cabling and Conduit or Duct repair for all permanent repairs of defects or deficiencies. Cables shall be replaced with new copper cable meeting all applicable Laws.
 - ◆ Perform all direct bury cable repairs in accordance with all applicable Laws.
- ❖ **Closed Circuit Television (CCTV) Systems:**
 - ◆ Inspect all components at a frequency so as to repair and replace all noted damage or deficiencies within the Performance Time Frames specified.
 - ◆ Replace the CCTV cameras with new cameras every eight (8) years.

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J.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall have completed the maintenance, replacement or repair work to restore the functionality or operation of a deficient Lighting and Electrical Systems or component within the maximum time duration set forth in Table J.3.3.1:

TABLE J.3.3.1

Lighting and Electrical System	Maximum Time Duration
<u>Roadway& Interchange Lighting & Sign Illumination:</u> <ul style="list-style-type: none">- Lighting Controller- Light Pole Units, Mast Arms, and Foundations- Luminaries- Sign Illumination	4 Hours 10 Days 7 Days 12 Hours
<u>Aircraft Warning Beacons:</u> <ul style="list-style-type: none">- Service Response- Service Restoration- Permanent Repair	1 Hour 4 Hours 7 Days
<u>Navigational Warning Lights:</u> <ul style="list-style-type: none">- Service Response- Service Restoration- Permanent Repair	1 Hour 4 Hours 7 Days
<u>Cables, Conduits and Unit Ducts:</u> <ul style="list-style-type: none">- Temporary Cabling- Re-cabling and Conduit or Duct Repair- Direct Bury Cable Repair	4 Hours 21 Days 21 Days
<u>Closed Circuit Television (CCTV) Systems:</u> <ul style="list-style-type: none">- Control Cabinet damage repair/replacement- Control Cabinet power supply interruption- Camera non-operational	24 hours 4 hours 24 hours

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The Concessionaire shall complete the maintenance set forth in Table I.3.3.2 according to the minimum frequency of occurrence provided therein:

TABLE I.3.3.2

Report	Minimum Frequency of Occurrence
Inventory of Lighting and Electrical Systems	Once per year
Roadway & Interchange Lighting and Sign Illumination Nighttime Patrol	3 Months
Aircraft Warning Beacon Nighttime Inspection	3 Months
Navigational Warning Lights Nighttime Inspection	3 Months
Re-lamping (Group):	
- Mercury	Once every four (4) years
- High Pressure Sodium	Once every four (4) years
- Low Pressure Sodium	Once every three (3) years
- Fluorescent	Once every two (2) years
CCTV Camera Replacement	Once every eight (8) years

The Concessionaire shall, from the time a deficiency is detected by discovery or report:

- ❖ Immediately initiate temporary repairs to all damaged or deficient lighting and electrical components in order to provide continual service.
- ❖ Immediately initiate temporary repairs to all damaged or deficient navigation or aircraft warning beacons in order to restore service in compliance with applicable Laws.
- ❖ Complete a permanent repair of deficient lighting, electrical or communication cabling mounted on or within Bridge Parapets, or beam fascias within twenty-one (21) days.
- ❖ Notify the electrical supply utility company of an outage or low-voltage complaint within fifteen (15) minutes of discovery, and re-contact the utility company every one (1) hour if service has not been restored.
- ❖ Provide and maintain back-up power supply for all essential Electrical Systems. All essential Electrical Systems shall include, but not be limited, to aircraft warning beacons, navigational warning beacons, Toll Booth and plaza warning and lighting systems, and computers and critical elements of the TCS.

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J.3.4. Acceptance Criteria

I/TR lighting and Electrical Systems shall be deemed acceptable by the IFA when the following standards are met or exceeded:

- ❖ Inventory databases shall be maintained and shall include performance history records for all lighting and Electrical Systems.
- ❖ The work shall conform to all Laws and the work shall be performed by certified and/or licensed professionals.
- ❖ Light standards, camera mounts, and other supports shall be plumb and level.
- ❖ Design and installation of replacement components shall conform to the requirements of the Reference Documents noted in Section J.2 of this Chapter.
- ❖ Work sites shall be left clean and tidy after all repairs are completed.
- ❖ Roadway lighting and Sign illumination:
 - ◆ Nighttime patrols and inspections for each lighting system and its controllers shall be completed within the performance time frames specified.
 - ◆ Light pole unit, mast arm, and foundation maintenance, repair work and replacement work shall be completed within the performance time frames specified; and the components shall be free of defects and deficiencies.
 - ◆ Replacement lamps shall be the correct type and wattage for the installation.
 - ◆ All luminaries generally shall be free of burnt-out bulbs, defects, damage and deficiencies; and all components generally shall be operating and functioning as intended.
 - ◆ A re-lamping and cleaning program shall be established and implemented so as to maintain the efficiency and continual operation of the lighting systems.
 - ◆ Lighting systems and their components shall be free of foundation problems, missing hand-hole covers and all other deficiencies that are unsafe or have the potential to become unsafe.
 - ◆ Sites adjacent to outdoor controllers shall be maintained free of obstructions.
- ❖ Aircraft Warning Beacons:
 - ◆ Aircraft warning beacons shall be operational, functioning as intended, and all maintenance, and repairs are completed.
 - ◆ Outages and repairs shall be coordinated with the Federal Aviation Administration as specified.
 - ◆ Aircraft warning beacons service shall be restored within the performance time frames for service restoration.
- ❖ Navigational Warning Lights:
 - ◆ Navigational warning lights shall be operational, functioning as intended, and all maintenance, and repairs shall be completed.

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- ♦ Outages and repairs shall be coordinated with the Army Corps of Engineers and the United States Coast Guard as specified.
- ♦ Navigational warning lights service has been restored within the performance time frames for service restoration.
- ❖ **Cables, Conduits, and Unit Ducts:**
 - ♦ Temporary cabling shall be installed maintaining a minimum height of twenty-five (25) feet above ground level, and shall be promptly removed as permanent repairs to cabling are complete.
 - ♦ All cables, conduits and unit ducts shall be free from all defects, damage and breaks; and service shall be continually provided.
 - ♦ Permanent re-cabling and Conduit or Duct repairs shall be completed and all work shall meet the requirements stated in the Reference Documents noted in Section J.2 of this Chapter.
 - ♦ Direct bury cable repairs shall be performed in accordance with all applicable Laws, and the site shall be restored and left clean.
 - ♦ Electrical conduit, signal cabling, unit duct, and other wiring systems shall be properly buried and secured to supports and Bridge fascias, as appropriate for the installation.
- ❖ **Closed Circuit Television (CCTV) Systems:**
 - ♦ CCTV components shall be fully operational, functioning as intended, and all maintenance and repairs shall be completed.
 - ♦ CCTV cameras shall be replaced within the performance time frames specified.

CHAPTER K: TOLL BOOTH AND PLAZA MAINTENANCE

K.1. Definitions

Barrier System: TCS from MP 0 to MP 24, consisting of correct change lanes and attended lanes for patrons without correct change.

Collision: An incident involving the impact of a vehicle with another vehicle or with some component of the ITR. Vehicles that can cause collision damage include highway traffic, aircraft, off-road vehicles, railroad cars and locomotives, utility or railroad service vehicles, construction equipment.

Earthquake: A seismological event or earth tremor described, reported, or classified by the USGS as an earthquake.

Emergency Maintenance: Time-critical repair work performed on an unplanned basis and intended to restore operations and mitigate damage done to the ITR by Collision, Vandalism, Earthquake or an atmospheric event. Emergency maintenance and repairs may be a temporary measure, using the staff and materials available immediately following the incident.

Graffiti: Painted Vandalism of buildings, walls, Signs and other objects that has been placed on a surface without the property owner's consent.

Toll Booth: A physical enclosure that includes protective cover and safe refuge for toll collectors toll-lane payment, processing equipment, communications and emergency response alarms.

Toll Collection System (TCS): The electrical and electronic equipment and computer information management system utilized to record and verify the revenue and vehicle classification.

Toll Plaza: A facility within which toll payments are collected from vehicles. The Toll Plaza includes, but is not limited to, the toll canopies, the Toll Booths, service buildings and vehicle lanes.

Toll Plaza Access/Service Tunnels: The lighted, ventilated, drained and secured passageways which permit direct, underground access for toll collection attendants, at some locations, to travel between the Service Building and the Toll Booths. The Tunnels also provide a collection point for tolls in the correct change lanes in the Barrier System (MP 0 to MP 24). These Tunnels also house all electrical, communications, signaling and camera wiring between the Toll Booths and the Service Building, as well as other returns, plumbing, HVAC equipment and satellite circuit panels. They also provide maintenance personnel access to service the equipment.

Uninterruptible Power Supply (UPS): Power supplies that operate in parallel with the electric utility sources and supply their load without interruption when and if the utility source fails. Such power supplies shall be utilized to meet the operating needs of the computers and critical elements of the TCS.

Vandalism: An intentional, destructive human act that damages or weakens any part of the ITR or causes harm, peril, or inconvenience to ITR users. Acts of Vandalism include, but are not limited to, arson, Graffiti, breakage, theft, placing obstructions in the traveled way and fence cutting.

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K.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "International Building Code", ICC.
- ❖ "Indiana Supplement to International Building Code, 675", IAC 22-23.
- ❖ "Manual on Uniform Traffic Control Devices (MUTCD)", FHWA.
- ❖ "Indiana Supplement to the National Manual on Uniform Traffic Control Devices", INDOT.
- ❖ "National Fire Codes", NFPA.
- ❖ "National Electrical Code", NFPA.
- ❖ "International Mechanical Code", IMC.
- ❖ "Indiana Amendments to International Mechanical Code".
- ❖ "Americans with Disabilities Act", U.S. Department of Justice.
- ❖ "Uniform Plumbing Code"
- ❖ "Indiana Plumbing Code"
- ❖ National Standards, Specifications and Laws as applicable, from the following organizations:
 - ◆ National Electrical Manufacturers Association (NEMA)
 - ◆ American National Standards Institute (ANSI)
 - ◆ American Society for Testing and Materials (ASTM)
 - ◆ Federal Communications Commission (FCC)
- ❖ Original Equipment Manufacturer's (OEM) Specifications, Maintenance Manuals, Handbooks and Procedures Guides as applicable for all installed equipment, systems and components.

K.3. Policy for Performing Toll Plaza Maintenance

K.3.1. Objective

The objective of Toll Booth and Toll Plaza maintenance is to ensure to the greatest extent reasonably possible that all elements, components and systems are maintained in such a manner that they remain safe, functional, and continually operational in support of the ITR toll collection activities, without posing hazards or undue delays to ITR users.

K.3.2. Responsibility of Concessionaire

In order to meet the requirements of this Chapter, the Concessionaire shall ensure to the greatest extent reasonably possible that all Toll Booth and Toll Plaza components, elements, systems and appurtenances are continually operational, secure, clean, sound, and in all ways safe and suitable for use. The Concessionaire shall perform its obligations in accordance with this Chapter in a manner that maintains and/or improves the condition and functionality of the Toll Booths and Toll Plazas.

All equipment and resources required in supporting the operation of the Toll Booths and Toll Plazas shall be provided by the Concessionaire. All maintenance shall be scheduled, staged and preplanned so as not to adversely impact traffic movement or safety or the accuracy and validity of the toll collection procedures, or cause undue exposure of ITR employees to traffic.

All materials and construction requirements for Toll Booth and Toll Plaza maintenance performed by the Concessionaire shall conform to the appropriate and applicable requirements of the INDOT Standard Specifications and the Reference Documents noted in Section K.2 of this Chapter.

Once a particular maintenance repair has been started, the maintenance shall continue during consecutive working days as weather permits until a thorough, complete and workmanlike repair has been achieved. The Concessionaire shall establish and maintain all required traffic control and protection.

Maintenance on Toll Booth and Toll Plaza elements, components, systems and appurtenances on the ITR that shall be performed by the Concessionaire includes the following:

- ❖ **General:**
 - ◆ Maintain an inventory and history record of all Toll Booth and Toll Plaza equipment, elements, components, systems, and appurtenances.
 - ◆ Maintenance shall be performed only by qualified, certified and/or licensed personnel.
 - ◆ Maintenance of the Toll Plaza approach and departure lanes are included

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within Volume I Maintenance Manual, Chapter B, "Roadway Maintenance".

- ❖ **Toll Booth and Toll Plaza Signage:**
 - ◆ The maintenance of the Toll Booth and Toll Plaza signage shall be included within Volume I - Maintenance Manual, Chapter I "Sign and Sign System Maintenance", with the exception of the following:
 - Maintain all toll rate signage as current, updated with changes in rate schedules, and well placed to inform ITR users of the applicable tolls.
 - Maintain the Toll Booth toll payment message process Signs as well illuminated, functioning properly, clean, legible, and free of all defects.
- ❖ **Toll Booth Gates:**
 - ◆ Maintain all vehicle stop/go gates free of defects, damage and malfunctions that could reasonably be expected to create or have the potential to create an unsafe condition.
 - ◆ Maintain all lane open/closed gates free of damage and defects.
- ❖ **Toll Booth and Toll Plaza Lighting:**
 - ◆ The maintenance of the Toll Booth and Toll Plaza lighting shall be included within Volume I - Maintenance Manual, Chapter J, "Lighting and Electrical System Maintenance", but shall also include the following:
 - Provide proper illumination for all Toll Plaza and Toll Booth lighting.
 - Maintain lane status, driver stop/go lights over the lanes on the canopy, and the lane opened/closed lighting reasonably free of defects, burnt-out bulbs and damage.
- ❖ **Toll Booth and Toll Plaza Collection Equipment:**
 - ◆ Maintain all toll collection equipment as properly functioning and reasonably free of defects and damages.
- ❖ **Toll Plaza Canopies:**
 - ◆ Maintain the Toll Canopies reasonably free of defective roofing, deficient drainage, loose or missing bolts, cracked welds, corrosion, loss of paint, deformation, loss of section, eccentricity or rotation about an axis, or other indications of weakened support.
- ❖ **Toll Booth Units:**
 - ◆ Repair all windows that leak, have a poor wind seal, and are scratched and clouded offering poor visibility.
 - ◆ Repair or replace all booth doors that do not close properly, do not seat on the weather-seal, or that have broken locks.
 - ◆ Repair all booth floors that are unsound, that are missing the rubber mat flooring, that have defective floor hatches (which open directly over the access Tunnels) or are otherwise unsafe.
 - ◆ Repair all communications equipment, including the intercom and the emergency signal device to the control tower at the administration

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- ♦ building.
- ♦ Maintain as operational all heating, ventilation and air conditioning equipment.
- ❖ TCS and UPS:
 - ♦ Maintain as operational the TCS and the UPS with no periods of "down-time" or malfunctions.
 - ♦ Perform maintenance and "back-ups" of the TCS.

K.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall complete the maintenance, repair or replacement work to Toll Booth and Plaza systems, elements, components or appurtenances within the maximum time duration set forth in Table K.3.3.1:

TABLE K.3.3.1

Toll Booth and/or Plaza Component, Element or System	Maximum Time Duration
Toll Booth and Plaza Signage	4 Hours
Toll Booth Gates	24 Hours
Toll Booth and Plaza Lighting	4 Hours
Toll Plaza Collection Equipment	2 Hours
Toll Plaza Canopies	10 Days
Toll Booth Units	5 Days
TCS and UPS	Immediate

The Concessionaire shall complete the maintenance, set forth in Table K.3.3.2, according to the minimum frequency of occurrence provided therein:

TABLE K.3.3.2

Maintenance to be Performed	Minimum Frequency of Occurrence
<u>Toll Booth Cleaning:</u>	
- Cleaning Booth Signs and Windows	3 Times per Week
- Emptying of Litter Receptacles	Once Daily

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K.3.4. Acceptance Criteria

Toll Plaza and Toll Booth maintenance work shall be deemed acceptable by the IFA when the following standards are met or exceeded:

- ❖ **General:**
 - ♦ The Toll Booths and the areas surrounding the Toll Plaza shall be clean, tidy and neat in appearance.
- ❖ **Toll Booth and Plaza Signage:**
 - ♦ The toll rate signage shall be current and updated with changes in rate schedule.
 - ♦ The Toll Booth toll payment message process Signs shall be functioning properly, clean, legible, and free of all material defects.
- ❖ **Toll Booth Gates:**
 - ♦ The Toll Booth stop/go gates shall be functioning properly, shall be free of all defects and damage, and shall not present an unsafe condition.
 - ♦ The Toll Booth lane open/closed gates shall be free of material damage and defects.
- ❖ **Toll Booth and Plaza Lighting:**
 - ♦ Toll Plaza and Toll Booth lighting shall provide the proper illumination; function as intended; be free of material damage and defects, and shall not create an unsafe condition.
 - ♦ The lane status, driver stop/go lights, and the lane opened/closed lighting shall function properly, and shall be free of material defects, burnt-out bulbs and damage.
- ❖ **Toll Booth and Plaza Collection Equipment:**
 - ♦ All toll collection equipment, components, elements, and systems shall be properly functioning and free of material defects and damage.
- ❖ **Toll Plaza Canopies:**
 - ♦ The canopies shall be free of defective roofing, deficient drainage, loose or missing bolts, cracked welds, loss of paint and section, deformation, eccentricity or rotation about an axis, and other indications of weakened support.
- ❖ **Toll Booth Units:**
 - ♦ All windows shall be free of leaks, free of poor wind seals and shall provide good visibility.
 - ♦ All booth doors shall close properly, shall have proper weather-seal, and shall have properly functioning locks.
 - ♦ All booth floors shall be sound, have a rubber mat flooring present, have no defective floor hatches, and shall be otherwise safe.
 - ♦ All communications equipment, including the intercom and the emergency signal device to control at the administration building shall be in proper working order, and functioning as intended.
 - ♦ All heating, ventilation and air conditioning equipment shall be properly

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- ❖ operating.
TCS and UPS:
 - ◆ The TCS and the UPS shall be in proper working order and operating as intended.
 - ◆ Maintenance and "back-ups" of the TCS shall be performed on a regular basis.

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CHAPTER L: FACILITY MAINTENANCE

L.1. Definitions

Electrical Systems: Systems, elements and components that are contained in facilities, and which supply, distribute and function by the use of electricity. These systems include, but are not limited to: substations, meters, wiring, service panels, individual circuits, generators, transformers, lighting, motor control units, back-up generators and systems and emergency lighting.

Facility: The ITR buildings such as administration buildings, maintenance and storage buildings, service buildings at Travel Plazas and Toll Plazas, Wastewater Treatment Plants (WWTP) and Water Treatment Plants (WTP), and other miscellaneous buildings that contain administrative, support and logistical services; as well as the equipment, components elements and systems that are housed within in each such location.

Mechanical Systems: Systems, elements and components that are contained in facilities, and which supply and distribute ventilation and climate control. These systems include, but are not limited to, HVAC systems and components, thermostats, boilers, combustion dampers, heat exchangers, furnaces, air handling units, fresh air intakes, ductwork, return fans, zone dampers, exhaust fans, chillers/condensers and pumps.

Preventative Maintenance: Services required to maintain a Facility and its components, equipment and systems at the original design standards throughout their intended life span, including periodic and scheduled inspections, adjustment, calibration, cleaning, replacement of parts and minor repairs to restore equipment to normal function.

Security Systems: Systems, elements and components which promote safety and security of the people and facilities from outside parties. These systems include, but are not limited to, alarms, cameras, monitor stations, intercoms and radios and access control.

Travel Plaza: A facility that provides restaurant services, refueling services, limited shopping, public restrooms, RV dump station, pet walk, rest area, personal vehicle parking and RV and truck parking adjacent to the roadway that can only be accessed from the roadway.

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Toll Booth: A physical enclosure that includes protective cover and safe refuge for toll collectors toll-lane payment, processing equipment, communications and emergency response alarms.

Toll Plaza: A facility within which toll payments are collected from vehicles. The Toll Plaza includes, but is not limited to, the toll canopies, the Toll Booths, service buildings and vehicle lanes.

Uninterruptible Power Supply (UPS): Power supplies that operate in parallel with the electric utility sources and supply their load without interruption when and if the utility source fails. Such power supplies shall be utilized to meet the operating needs of the computers and critical elements of the TCS.

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L.2. References

All stated references shall be the most current version, or the document known to have succeeded or replaced the original stated herein:

- ❖ "International Building Code", ICC.
- ❖ "Indiana Supplement to International Building Code, 675", IAC 22-2.3.
- ❖ "National Fire Codes", NFPA.
- ❖ "National Electrical Code", NFPA.
- ❖ "Indiana Plumbing Code".
- ❖ "International Mechanical Code".
- ❖ "International Mechanical Code", IMC.
- ❖ "Indiana Amendments to International Mechanical Code".
- ❖ "Boiler and Unfired Pressure Vessel Code", ASME.
- ❖ "Americans with Disabilities Act (ADA)", U.S. Department of Justice.
- ❖ "Occupational Health and Safety Act (OSHA) Guidelines".
- ❖ "OSHA Publications List via Catalog or Website, OSHA, (Website: <http://www.osha.gov/pls/publications/pubindex.list>)".
- ❖ Standards, Specifications and Laws as applicable, from the following organizations:
 - ◆ National Electrical Manufacturers Association, (NEMA)
 - ◆ American Waterworks Association, (AWWA)
 - ◆ American National Standards Institute, (ANSI)
 - ◆ American Society for Testing and Materials, (ASTM)
 - ◆ Federal Communications Commission, (FCC)
 - ◆ Underwriters Laboratory, (UL)
- ❖ Original Equipment Manufacturer's (OEM) specifications, Maintenance Manuals, Handbooks and Procedures Guides as applicable for all installed equipment, systems and components.

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L.3. Policy for Performing Facility Maintenance Work

L.3.1. Objective

The objective of Facility maintenance is to ensure to the greatest extent reasonably possible that all Facilities and the components, elements and systems located within such Facilities are properly maintained in such a manner that they remain safe, habitable, and continually operational in their functions of supporting the ITR.

L.3.2. Responsibility of Concessionaire

In order to meet the requirements of this Chapter, the Concessionaire shall ensure to the greatest extent reasonably possible that all Facilities as well as their components, elements and systems remain continually operational, secure, clean, sound and safe and suitable for use. The Concessionaire shall perform its obligations in accordance with this Chapter in a manner that maintains and/or improves the condition and functionality of the Facilities.

The Concessionaire shall incorporate sound and established Facility maintenance practices and perform Preventative Maintenance strategies.

The Concessionaire shall perform Facility maintenance and inspection activities at a frequency that is compliant with all Laws and the requirements specified within this Chapter.

The Concessionaire shall engage qualified and bonded and/or licensed personnel to service, operate, inspect, and repair the systems within the Facilities.

All materials and construction requirements for Facilities maintenance performed by the Concessionaire shall conform to the applicable requirements of the INDOT Standard Specifications and the Reference Documents noted in Section L.2 of this Chapter.

Once a particular maintenance repair has been started, the maintenance shall continue during consecutive working days as weather permits until a thorough, complete and workmanlike repair has been achieved.

Maintenance on the Facilities, and the elements, components, systems and appurtenances housed within each ITR Facility that shall be performed by the Concessionaire includes, but is not limited to, the following:

- ❖ General:
 - ♦ Maintain an inventory and historical record of all Facility equipment, elements, components, systems, and appurtenances.

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- ♦ Perform maintenance with only licensed and/or well trained personnel.
- ♦ Coordinate with all utilities and services including, but not limited to, electric, gas, fuel, telephone, sewer, sanitary and water.
- ♦ Leave maintenance areas in a manner that presents a clean appearance.
- ❖ **Building Exteriors:**
 - ♦ **Exterior Doors:** Maintain all doors free of leaks, drafts and voids, maintain all hinges, closers, locksets, and other hardware or components operate as intended, and secure all door frames and panels.
 - ♦ **Exterior Walls:** Maintain the Facility exteriors so as to preserve the integrity of the exterior building envelopes, maintain the safety of the Facility and its occupants and visitors, and maintain a positive image of the ITR within the surrounding community.
 - ♦ **Exterior Walls:** Maintain the walls as free of corrosion, Spalls, cracks, misalignment, rust, peeling, blistering, and other such defects and deficiencies, and secure all bolts, clips, rivets, nails, and other fasteners.
 - ♦ **Exterior Walls:** Maintain the masonry wall facades free of cracks, broken masonry units, open mortar joints, efflorescence, and deterioration and correct all suspected moisture infiltration.
 - ♦ **Flag Pole:** Maintain the flag pole free of rust, corrosion, deterioration, and provide for its security.
 - ♦ **Foundations:** Inspect and repair all foundations if settlement, deflection, expansion, or contraction conditions is found. In addition, maintain all visible surfaces free of cracks, seepage, scaling, spalling, corrosion, deterioration, and efflorescence.
 - ♦ **Garage Doors:** Maintain all door panels free of defects and deficiencies, secure and set frames and panels and operate springs, cables, door openers and other hardware as intended.
 - ♦ **Gutters:** Maintain all gutters and Downspouts free of leaks, obstructions, rust and corrosion.
 - ♦ **Roofing:** Maintain roofing free of all surface bare spots, blistering, splits, cracks, ridging, loose laps and seams, punctures, missing fasteners and general deterioration.
 - ♦ **Roofing:** Maintain all flashing, counter flashing, copings, seals, roof penetration points, and Parapet wall roofing terminations free of leaks, cracks, punctures and deterioration.
 - ♦ **Roofing:** Maintain roofing Drains so that they remain free of P onding, staining and Debris collection.
 - ♦ **Roofing:** Maintain roof ventilation systems so that they provide continual airflow, prevent condensation and prevent icing at the eaves and roof edges.
 - ♦ **Windows:** Maintain all windows free of breaks, leaks, voids and non-operational components.
 - ♦ **Signs:** Maintain all Signs and Sign components free of rust, corrosion and deterioration, and provide for their security.

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- ❖ **Building Interiors:**
 - ◆ **Ceilings:** Attach and secure the drywall ceilings, suspended ceilings, and other types of ceilings and maintain them free of all cracks, water damages, and other deficiencies.
 - ◆ **Interior Doors:** Secure and properly set all doors frames and panels and operate all hinges, closers, locksets, and other hardware and components as intended.
 - ◆ **Interior Floors:** Maintain all floor coverings as clean, free of trip and slip hazards, and replace or repair when worn.
 - ◆ **Interior Windows:** Maintain all windows free of breaks and non-operational components.
 - ◆ **Walls and Partitions:** Maintain all walls free of cracks, penetrations, water damage, faded or damaged coverings, and all other damage that might be either aesthetic or structural.
- ❖ **Mechanical Systems:**
 - ◆ **HVAC Controls:** Inspect, test, maintain, repair and replace as required all thermostats, valves, flaps, diffusers and control units and the climate, distribution and operation of all HVAC systems.
 - ◆ **HVAC Distribution System:** Inspect and test all of the HVAC distribution elements, components and systems, including ductwork, grills, vents, dampers, fans, exhaust systems and maintain them free of rust, corrosion, damage and defects.
 - ◆ **HVAC Heating/Cooling Units:** Inspect and test all heating and cooling units, components, elements, systems and their appurtenances, including furnaces, air conditioners, air handlers, point of source heaters or cooling units, coils, boilers, condensers and maintain them free of damage, deterioration and non-functional items so that they conform to all applicable Laws. Maintain such systems as fully operational at all times.
 - ◆ **Plumbing Fixtures:** Maintain all plumbing fixtures, including sinks, toilets, showers, spigots, Drains, faucets and drinking fountains so that they are free of leaks, are clean, remain unclogged, and are free of damage and defects that affect their function and operation.
 - ◆ **Plumbing Hot Water Heaters:** Maintain all hot water heaters free of leaks, corrosion, malfunctions and defects that would impair or interrupt the intended service.
 - ◆ **Plumbing Pumping Systems:** Maintain all ejector, sewage, sump, water, portable, submersible and all other pumps within the Facilities so that they are fully capable of operating as intended when required.
 - ◆ **Plumbing Supply Lines:** Maintain all supply and pipelines including anti-siphon devices free of leaks, damage, corrosion and deterioration and secure them. Maintain backflow preventers on all lines that allow a hose hookup.
- ❖ **Electrical Systems:**
 - ◆ **Electrical Supply and Distribution:** Maintain all wiring, raceways, unit

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substations, panel boards, circuits, receptacles and switches and other items that distribute or supply electricity to systems or items within the Facilities. Maintain the same as to be applicable with all Laws, free of "short", loose connections, defects and damage. Clearly identify and mark the same and secure as required to prevent unwarranted entry, and properly attach and secure at all times.

- ◆ **Electrical Lighting:** Provide all lighting with the proper illumination for the function intended, secure it in its place, maintain it so that it conforms to all applicable Laws and is free of burnt-out or malfunctioning bulbs, is free of broken, damaged or defective reflectors, fixtures, or lenses and is free of loose and faulty wiring.
- ◆ **Electrical Motor Control Units:** Provide the proper volts and amperage to and from the motor control units, supply the equipment in the correct order and manner, free of defects and deficiencies, and provide full operating capacity when required.
- ❖ **Facility Services:**
 - ◆ **Housekeeping:** Clean all areas and rooms of each Facility no less often than daily to remove trash, sanitize and disinfect bathrooms and locker rooms; and restock bathroom amenities.
 - ◆ **Pest Control:** Perform, monitor and maintain pest control if and when required, dispose of the remains of the traps and locate and correct the source of the problem.
- ❖ **Life Safety:**
 - ◆ **Communication Systems:** Maintain, repair, test, inspect and replace all telephones, intercoms, radios systems, mobile communication base stations, and all other communication systems that are housed or originate in a Facility so that they remain in full and continual operation.
 - ◆ **Fire Suppression and Precaution Systems:** Change and replace all fire alarms, sprinkler systems, heat sensors, smoke detectors, carbon dioxide detectors, fire extinguishers, call buttons, exit Signs, emergency lighting, and all other fire suppression and precaution items on a pre-determined schedule. Conform such schedule to all applicable Laws, free of defects, deficiencies and malfunctions.
 - ◆ **Medical Prevention and Attention Stations:** Inspect, replenish, update and locate all medical prevention and attention stations at all times. These items include, but are not limited to, first-aid kits, emergency contact signage, eye wash stations and safety showers.
 - ◆ **Security Systems:** Maintain, inspect, test, repair and replace all systems that provide for the safety of the Concessionaire's staff, the public, equipment and Facilities so as to provide full and continual operation. These Security Systems include, but are not limited to, cameras, monitoring stations, access control, surveillance and alarms.
- ❖ **Emergency Power Supply System:**
 - ◆ The Concessionaire shall inspect, test, maintain, repair and if required

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replace or supplement, the generator so that if a power interruption does occur, the TCS and other critical operations shall continue to operate and function.

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L.3.3. Performance Time Frames

The Concessionaire, from the time a deficiency is or reasonably should be detected or reported, shall complete the maintenance, repair or replacement work to the Facility and/or its systems, equipment, elements, components or appurtenances within the maximum time duration set forth below:

Facility Component, Element or System	Maximum Time Duration
<u>Building Exterior:</u>	
- Exterior Doors	1 Day
- Exterior Walls	4 Weeks
- Flag Pole	7 Days
- Foundations	7 Days
- Garage Doors	2 Days
- Gutters	4 Weeks
- Roofing	7 Days
- Signs	4 Weeks
- Windows	7 Days
<u>Building Interiors:</u>	
- Ceilings	4 Weeks
- Interior Doors	2 Weeks
- Interior Floors	3 Weeks
- Interior Windows	1 Week
- Walls and Partitions	4 Weeks
<u>Mechanical Systems:</u>	
- HVAC	8 Hours
- Plumbing	12 Hours
Electrical Systems	8 Hours
<u>Life Safety:</u>	
Communication Systems	1 Hour
Fire Suppression and Precaution	4 Hours
Medical Prevention and Attention	8 Hours
Security Systems	1 Hour
Emergency Power Supply System	Immediate

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L.3.4. Acceptance Criteria

Facility maintenance work shall be deemed acceptable by the IFA when the following standards are met or exceeded:

- ❖ **General:**
 - ◆ The work areas inside and outside of the Facilities shall be clean, tidy and neat in appearance.
- ❖ **Building Exteriors:**
 - ◆ **Exterior Doors:** All exterior doors shall be free of leaks, drafts, voids; all hinges, closers, locksets, and other hardware or components shall operate as intended; and all door frames and panels shall be secure and properly set.
 - ◆ **Exterior Walls:** All exterior walls shall be structurally sound; shall not present any safety hazards; shall be free of corrosion, Spalls, cracks, misalignment, rust, peeling, blistering, and other defects and deficiencies; all bolts, clips, rivets, nails, and fasteners shall be secure; and all masonry wall facades shall be free of cracks, broken masonry units, open mortar joints, efflorescence, and deterioration.
 - ◆ **Flag Pole:** The flag pole shall be free of rust, corrosion, deterioration, and shall be secure.
 - ◆ **Foundations:** The foundations shall be free of all settlement, deflection, expansion, or contraction conditions; and all cracks, seepage, scaling, spalling, corrosion, deterioration, and efflorescence shall be repaired.
 - ◆ **Garage Doors:** All door panels shall be free of defects and deficiencies; frames and panels shall be secure and properly set; and springs, cables, door openers and other hardware shall operate as intended: All gutters and Downspouts shall be free of leaks, obstructions, rust and corrosion, and shall function as intended.
 - ◆ **Roofing:** All roofing shall be free of all bare spots, blistering, splits, cracks, ridging, loose laps and seams, punctures, missing fasteners; all flashing, counter flashing, copings, seals, roof penetration points, and Parapet wall roofing terminations shall be free of leaks, cracks, punctures and deterioration; the roofing drains adequately so that it remains free of Ponding, staining and Debris collection; and the roof ventilation shall provide continual airflow, prevent condensation and prevent icing at the eaves and roof edges.
 - ◆ **Windows:** All windows shall be free of breaks, leaks, voids and non-operational components.
 - ◆ **Signs:** All Signs shall be free of rust, corrosion, deterioration, and shall be well secured.
- ❖ **Building Interiors:**
 - ◆ **Ceilings:** All ceilings shall be firmly attached and secure; and shall remain free of cracks, water damages and other deficiencies.

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- ♦ Interior Doors: All doors frames and panels shall be secure and properly set, and all hinges, closers, locksets, and other hardware or components shall operate as intended.
- ♦ Interior Floors: All floor coverings shall be clean, free of trip and slip hazards, and replaced or repaired when worn.
- ♦ Interior Windows: All windows shall be free of breaks and non-operational components.
- ♦ Walls and Partitions: All walls shall be free of cracks, penetrations, water damage, faded or damaged coverings, and all other aesthetic and structural damage.
- ❖ Mechanical Systems:
 - ♦ HVAC Controls: All thermostats, valves, flaps, diffusers, control units shall be inspected, tested, maintained, repaired and replaced so as to provide the proper climate, distribution and operation.
 - ♦ HVAC Distribution System: All HVAC distribution elements, components and systems shall be inspected and tested; shall be free of rust, corrosion, damage, or defects; shall be replaced or repaired as required; the system shall provide distribution of the supply and return; and all systems shall be fully and continually operational.
 - ♦ HVAC Heating/Cooling Units: All heating and cooling units, components, elements, systems and their appurtenances, shall be inspected and tested; shall be free of damage, deterioration and non-functional items; shall conform to all applicable Laws; shall be clean; and shall be fully and continually operational.
 - ♦ Plumbing Fixtures: All plumbing fixtures shall be free of leaks, shall be clean, unclogged, and shall be free of damage and defects that affect their function and operation.
 - ♦ Plumbing Hot Water Heaters: All hot water heaters shall be free of leaks, corrosion, malfunctions and defects.
 - ♦ Plumbing Pumping Systems: All pumps and pumping systems shall function and operate as intended.
 - ♦ Plumbing Supply Lines: All supply and pipelines shall be free of leaks, damage, corrosion and deterioration; and shall be well secured.
- ❖ Electrical Systems:
 - ♦ Electrical Supply and Distribution: All electrical supply and distribution items conform to all applicable Laws: shall be free of "shorts", loose connections, defects and damage; shall be clearly identified and marked; and shall be secured to prevent unwarranted entry.
 - ♦ Electrical Lighting: All lighting shall provide the proper illumination; fixtures shall be secure; conform to all applicable Laws: shall be free of burnt-out or malfunctioning bulbs; shall be free of broken, damaged or defective reflectors, fixtures, or lenses; and shall be free of loose and faulty wiring.
 - ♦ Electrical Motor Control Units: All Motor Control Units shall provide the

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proper power supply: shall convey the proper function commands to the equipment in the correct order and manner, shall be free of defects and deficiencies, and shall provide full operation.

- ❖ **Facility Services:**
 - ◆ **Grounds Maintenance:** All grounds around each facility shall be landscaped and clean; and snow and ice shall be properly removed.
 - ◆ **Housekeeping:** All portions, areas and rooms of each facility shall be cleaned, disinfected and restocked with supplies daily.
 - ◆ **Pest Control:** Pest control shall be performed, monitored and maintained when required; the remains of the traps shall be properly disposed; and the source of the problem shall be corrected.
- ❖ **Life Safety:**
 - ◆ **Communication Systems:** All communication systems shall be maintained, repaired, tested, inspected, and replaced so that they remain in full and continual operation.
 - ◆ **Fire Suppression and Precaution Systems:** All fire suppression and precaution systems shall be fully charged and replaced; shall conform to all applicable Laws; shall be free of defects, deficiencies and malfunctions; shall be inspected, tested, maintained, repaired and replaced so that they remain ready for proper operation when required.
 - ◆ **Medical Prevention and Attention Stations:** All medical prevention and attention stations shall be inspected, replenished, updated and clearly located.
 - ◆ **Security Systems:** All Security Systems shall be maintained, inspected tested, repaired and replaced to provide full and continual operation.
- ❖ **Emergency Power Supply System:**
 - ◆ The backup diesel fuel generators shall be inspected, tested, maintained and repaired so that if a power interruption does occur, the TCS and other critical operations will continue to operate and function.

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