

## **EXISTING ROADWAY CONDITION ASSESSMENT REPORT (ERCAR) SAMPLE OUTLINE**

The Existing Roadway Condition Assessment Report (ERCAR) should include the evaluation of all elements against Interstate RRR criteria. The evaluation/discussion for each section or element should identify the following:

- Existing value
- Method of measurement or collection of data
- Criteria the element was evaluated against
- Crash data analysis applicable to each element or section (include analysis of severity index of existing feature vs. proposed feature)
- Quantity to correct including cost
- Recommendation shall include impacts to ancillary elements: (i.e. permitting, utilities, lighting, etc.)

The following is a sample ERCAR outline that indicates the major components that should be evaluated. It is expected that the Design Consultant will modify the outline and associated report table of contents as appropriate for the project.

### **1.0 PROJECT DESCRIPTION**

- 1.1 Introduction
- 1.2 Project Location
  - Include Project Location Map
- 1.3 Project Scope
  - 1.3.1 Design Criteria
  - 1.3.2 Proposed Design
  - 1.3.3 Safety Improvement
  - 1.3.4 Permit Requirements
  - 1.3.5 Tentative Five-Year Work Program
    - List Turnpike projects scheduled in the Tentative Five-Year Work Program that are within or adjacent to the subject project corridor.

### **2.0 ROADWAY ELEMENTS**

- 2.1 Geometric Evaluation
  - Design speed & posted speed
  - Horizontal geometry
  - Horizontal stopping sight distance
  - Vertical geometry
  - Vertical stopping sight distance

- Pavement cross slope & superelevation
  - Shoulder cross slope and breakover
  - Evaluate existing median shoulder rocking and review of as-built plans
  - Evaluate existing superelevation transition rates
- Lane and shoulder widths
- Border width
- Median width
- Ramp terminals
  - Type (taper, parallel)
  - Length of acceleration/deceleration
  - Terminal spacing
- Intersection sight distance
- Approach slabs
  - General assessment of condition
  - Approach slab and/or roadway settlement
    - Vertical deflection without vertical curve
    - Rideability issues
      - Identify potential causes and corrective measures

## 2.2 Guardrail, Cable Barrier and Concrete Barrier Wall

- Condition, height & offset
- Need for rub-rail, offset block condition and type
- Side slopes behind barrier
  - Evaluate existing slope and height of drop-off
- Barrier length of need
- Dynamic deflection distance
- End terminals
- Barrier transitions
- Guardrail connections to barrier walls
- Maintenance access points
- Miscellaneous asphalt condition
- Preliminary analysis of full or partial replacement of guardrail
  - Percentage of each guardrail run with concerns versus sufficient guardrail that can remain

## 2.3 Curb, Gutter, Sidewalks, Curb Ramps, and Bicycle Facilities

- Condition & applicability
- ADA compliance

## 2.4 Side Slopes

- Condition
- Recoverability
- Protection or reconstruction requirements

## 2.5 Canal Hazard Protection

- Lakes, retention ponds and other water bodies

## 2.6 Median Crossovers

## 2.7 Crash Data Analysis

- Obtain the most current certified five (5) years of crash data by the State Safety Office (SSO) Crash Analysis Reporting (C.A.R.) Online.
- Conduct crash analysis and discussion of crash data that includes information of the following safety issues. Summarize the crash data in the attached Crash Data Table Templates and include in the Appendix.
  - Crashes by Frequency and Severity
  - Crashes by Lighting Condition
  - Crashes by Road Surface Condition
  - Crashes by Weather Condition
  - Crashes by First Harmful Event
- Provide a summary discussion of any fatalities (requires review of long form crash reports).
- Conduct a review of the most current High Crash Locations, Ramp and/or Segments. Identify (if any) the study locations that appear on the High Crash Locations List.
- The results of the crash analysis should culminate in a crash map(s) for the study location (per year of crash data when possible). Various formats can be used to provide a visual representation, such as cluster and heat maps.
- Identify and Mitigate Deficiencies
  - Identified crash safety issues.
  - Note potential safety, maintenance and any other deficiencies.
  - Identify potential impacts based on the recommended project improvements.
  - Some form of mitigation may be accomplished to lessen any adverse impacts that may result from the lower design criteria. Identify potential mitigation strategies and crash modification factors to address deficiencies.

## 2.8 Tolling Point Evaluation

- Evaluate toll avoidance maneuvers and identify solutions to prevent them.
- Evaluate the applicability of implementation of toll header curb.

## 2.9 Pavement Evaluation

- Summarize the pavement recommendations in the PSER.
- Evaluate any extenuating complications that could result with the pavement recommendations included in the PSER.

### 3.0 STRUCTURES

#### 3.1 Existing Bridges

- Indicate all existing bridges in the project limits.
- Bridge names should include both the feature carried and crossed by the bridge. Please do not use the terms “Underpass” and “Overpass” as their definitions are subject to interpretation.
- Provide the bridge numbers.
- Indicate the traffic direction.
- Provide a milepost location.
- Summarize and assess condition based on field observations and the latest inspection report. Include the date of the inspection reports used. Coordinate all recommended structures repairs with Turnpike Structure Maintenance Office and document in report.
- For projects with more than one bridge, present the data in tabular format.

#### 3.2 Bridge Shoulder Width

- Indicate the bridge shoulder widths for every Turnpike owned/maintained bridge in the project limits.
- Indicate the source of the data (existing plans, etc.).
- Compare the values to criteria values (give the criteria source).
- Indicate the disposition of the widths (OK, Design Variation required, Design Exception required).
- Evaluate and suggest corrective actions as applicable.
- For projects with more than one bridge, present the data in tabular format.

#### 3.3 Bridge Deck

- Indicate if the existing bridge deck is grooved or ungrooved.
- For projects with more than one bridge, present the data in tabular format.

#### 3.4 Expansion Joints

- Indicate the type and existing condition of the expansion joints for every Turnpike owned/maintained bridge in the project limits.
- Give source of condition (field visit, inspection reports, etc.).
- Coordinate with Turnpike Maintenance if joints require upgrades and document in the report.
- Indicate potential upgrades, as necessary.
- For projects with more than one bridge, present the data in tabular format.

### 3.5 Load Ratings

- Indicate the controlling rating for Turnpike owned/maintained bridge in the project limits.
- Indicate the year and design methodology used in the rating.
- Document locations where loads may change due to the project (ex: asphalt overlay, barrier retrofits, etc.). Typically, a new load rating is only required when the loads are changed.
- For projects with more than one bridge, present the data in tabular format.

### 3.6 Traffic Railings

- Indicate the existing condition (rail type and index number when available) for every Turnpike owned/maintained bridge in the project limits.
- Indicate the source of the data (existing plans, etc.).
- Indicate the disposition of the existing railing (OK, Grandfathered, Substandard, etc.) (give the criteria source)
- Indicate potential upgrades for substandard railings.
- Discuss potential factors to be considered (ex: deck strength, load rating, etc.).
- For projects with more than one bridge, present the data in tabular format.

### 3.7 Thrie-beam Connection

- Indicate the existing condition (connection type) for every Turnpike owned/maintained bridge in the project limits.
- Provide the existing condition data (wing length, structure type, etc.) required to select the appropriate scheme from the Standards.
- Indicate the required scheme number for potential upgrades.
- Identify any other issues (ex: utilities/pull boxes in the barrier that might conflict).
- For projects with more than one bridge, present the data in tabular format.

### 3.8 Minimum Vertical Clearance

- Provide the minimum vertical clearance (MVC) for every structure in the project limits – this includes mainline bridges, bridges over the mainline, and bridges over water.
- Indicate the source of the data (existing plans, as-builts, field measured, etc.).
- Compare the MVC values to criteria values (give the criteria source).
- Indicate the disposition of the MVC (OK, Design Variation required, Design Exception required).
- Suggest corrective actions as applicable (ex: mill and resurface under the bridge to restore vertical clearance to required value).
- For projects with more than one bridge, present the data in tabular format.

### 3.9 Horizontal Clearance/Pier Protection

- Provide the minimum horizontal clearance (MHC) for every structure in the project limits – this includes mainline bridges and bridges over the mainline.
- Indicate the existing pier protection features (type and index number when available).
- Indicate the source of the data (existing plans, as-builts, field measured, etc.).
- Compare the MHC values to criteria values (give the criteria source).
- Indicate the disposition of the MHC (OK, Design Variation required, Design Exception required).
- Evaluate the existing pier protection features per FDOT Structures Design Guidelines Chapter 2.6 and suggest corrective actions as applicable.
- For projects with more than one bridge, present the data in tabular format.
- This section of the report should address the MHC requirement as well as the Existing/Required protection systems for both the inside and outside lanes for each span separately.

### 3.10 Culverts & Farm Crossings

- Summarize and assess condition based on field observations and the latest inspection report. Include the date of the inspection report.
- Summarize field verification of condition.
- Provide MHC for all headwalls (can be presented in Bridge or Roadway Section of Report).
- Indicate the existing headwall protection (guardrail, traffic railing barrier, etc.).
- Identify culverts containing silt, which require action. Coordinate de-silting requirements/recommendations with Drainage.
- Indicate the source of the data (existing design plans, as-built documents, field measurements, etc.)
- For projects with more than one culvert, present the data in tabular format.

### 3.11 Sign Structures

- Indicate all existing overhead sign structures in the project limits.
- Provide the sign structure numbers.
- Provide a MP location.
- Summarize and assess condition based on field observations and the latest inspection report. Include the date of the inspection report.
- Indicate the year of design (provide source of data).
- Provide MHC and MVC for all sign structures. Verify if setback requirements are met with current protection. This information can be presented in the Bridge or Roadway Section of Report. (Setback is also required for bridge mounted sign structures.)
- Indicate the existing sign structure protection (guardrail, traffic railing barrier, etc.).
- Indicate the source of the data (existing design plans, as-built documents, field measurements, etc.)

- Indicate any existing overhead sign structures that may require evaluation per FDM 261.7 and the reason for the evaluation (Ex: recommendation to replace sign panel in Section 5.0 – Signing).
- Document the presence or lack of grout pads and indicate any existing structures that require anchor bolt evaluation based on FDOT Structures Manual, Volume 3, Section 5.16.3 if a grout pad is not recommended.
- For projects with more than one sign structure, present the data in tabular format.

### 3.12 Signal Structures

- Indicate all existing signal structures in the project limits.
- Provide the signal structure numbers.
- Provide a MP location.
- Summarize and assess condition based on field observations and the latest inspection report. Include the date of the inspection report.
- Indicate the year of design (provide source of data).
- Provide MHC and MVC for all signal structures. Verify if setback requirements are met with current protection. (This information can be presented in the Bridge or Roadway Section of Report)
- Indicate the existing signal structure protection (guardrail, traffic railing barrier, etc.).
- Indicate the source of the data (existing design plans, as-built documents, field measurements, etc.).
- Indicate any existing signal structures that may require evaluation per FDM 261.7 and the reason for the evaluation (Ex: recommendation to add backplates in Section 6.0 – Signalization).
- Document the presence or lack of grout pads and indicate any existing structures that require anchor bolt evaluation based on FDOT Structures Manual, Volume 3, Section 5.16.3 if a grout pad is not recommended.
- For projects with more than one signal structure, present the data in tabular format.

### 3.13 Lighting Structures

- High Mast Light Towers (HMLT):
  - Indicate all high mast lighting towers (HMLT) in project limits.
  - Provide the HMLT structure numbers.
  - Provide a MP location.
  - Summarize and assess condition.
  - Indicate the year of design (provide source of data.)
  - Provide MHC for all HMLT. Verify if setback requirements are met with current protection. (This information can be presented in the Bridge or Roadway Section of Report.)
  - Indicate the existing HMLT protection (guardrail, traffic railing barrier, etc.)
  - Indicate the source of the data (existing design plans, as-built documents, field measurements, etc.)
  - Document the presence or lack of grout pads and indicate any existing structures

that require anchor bolt evaluation based on FDOT Structures Manual, Volume 3, Section 5.16.3 if a grout pad is not recommended.

- Indicate any existing HMLT that may require evaluation per FDM 261.7 and the reason for the evaluation (Ex: recommendation to replace luminaires).
- For projects with more than one HMLT, present the data in tabular format.
- Conventional Lighting:
  - Indicate conventional lighting in project limits that will be modified/reused.
  - Provide a MP location.
  - Summarize and assess condition.
  - Indicate the year of design (provide source of data.)
  - Provide MHC for conventional lighting. Verify if setback requirements are met. (This information can be presented in the Bridge or Roadway Section of Report.)
  - Indicate the source of the data (existing design plans, as-built documents, field measurements, etc.)
  - Indicate any existing conventional lighting that may require evaluation per FDM 261.7 and the reason for the evaluation (Ex: recommendation to replace luminaires).
  - For projects with more than one conventional lighting structure, present the data in tabular format.

#### 3.14 Other

- Address any project-specific items/issues.

## 4.0 DRAINAGE

### 4.1 Cross Drains not covered under Section 3.10

- Review maintenance inspection reports for known issues.
- Discuss options considered for repair deficiencies.
- Provide recommendation for each deficient cross drain.

### 4.2 Drainage System

#### 4.2.1 End Treatments

- Provide a list of all end treatments within the project limits, include location.
- Identify all end treatments within the clear zone and whether they are protected by a barrier.
- Indicate distance from edge of travel lane to end treatment.
- Identify erosion around end treatments.
- Identify end treatments with missing object markers.
- Provide photographs of end treatments with deficiencies (except for missing object markers).

#### 4.2.2 Other Systems

- Provide a list of deficient structures, include location.
- Identify damaged structures.



- Identify possible damaged pipes from visual observation of the ground above (such as pipe settlement and joint failure) and pipes that need desilting.
- Identify missing grates.
- Identify structures within the clear zone and whether they are currently protected by a barrier.
  - Indicate the distance from the edge of travel lane.
  - If they are not protected, provide a recommendation if protection is warranted.
- Identify shoulder gutter with missing terminal inlets and indicate whether this is causing erosion of the embankment.
- In locations where erosion is noted, determine if shoulder gutter is necessary to mitigate the erosion. If shoulder gutter is already installed, provide gutter/spread calculations to verify that spread criteria is met.
- Identify erosion remediation and protection measures.
- Provide photographs of structures/pipes with deficiencies in addition to locations of erosion requiring repair.

#### 4.3 Proposed Drainage Improvements

- Recommend proposed drainage maintenance tasks to be coordinated with Turnpike Maintenance during ERCAR development.
- Recommend proposed drainage design.
- Provide cost estimate for drainage repairs.

## 5.0 SIGNING

### 5.1 Sign Assessment

### 5.2 Recommendations

- Cost estimate

Sign Inventory Photo Log – To be included in the Appendix (see attached Sign Inventory Photo Log Guidelines and Template).

## 6.0 SIGNALIZATION

### 6.1 Signalization Inventory

### 6.2 Signalization Evaluation

### 6.3 Recommendations

- Cost estimate

## 7.0 LIGHTING

### 7.1 General Description

- Describe the type, manufacturer make, model, and voltage of existing light fixtures and type of light poles. Describe general conditions of the existing light fixtures, pull boxes, load center equipment, lighting conductors and poles.
- Describe lighting system voltage and wiring, for both service and roadway lighting circuits.
- Photolog for lighting to include internal photos of the load centers, along with other photo assessments of all lighting facilities.

### 7.2 Horizontal Clearances for Light Poles

- Field verify that the existing conventional and high mast lighting meets current clearance requirements.
- Evaluate non-compliant lighting and provide recommendations for mitigation, including costs for implementation of recommendations.

### 7.3 Breakaway Requirements for Poles

- Field verify that the existing conventional lighting meets current breakaway requirements.
- Evaluate non-compliant lighting and provide recommendations for mitigation, including costs for implementation of recommendations.

### 7.4 Review of Existing Areas of Illumination

- Review the following areas within the project limits and note any observable deficiencies with the existing lighting layout:
  - Toll Plazas including associated parking lots
  - Service Plazas
  - Ramps/Interchanges
  - Transitions to adjoining roadways
- Review the roadway lighting within and adjacent to the project limits. Verify interchange lighting limits per TDH lighting guide drawings, as well as transitional lighting needs. Note any gaps in lighting where the gap is 0.5 miles or less between lighted areas. Evaluate non-compliant lighting and provide recommendations for mitigation, including costs for implementation of recommendations.
- Review underdeck lighting and evaluate daytime underdeck lighting needs. Evaluate non-compliant lighting and provide recommendations for mitigation, including costs for implementation of recommendations.

### 7.5 Potential Safety and/or Maintenance Items

- Review all fixtures and poles for potential safety and/or maintenance issues. The following are some of the conditions that Turnpike has observed:
  - Light poles that have been struck and damaged by vehicles
  - Light fixtures that are not functioning
  - Light fixtures that appear to be at the end of their useful life
  - Structural condition of pole bases and/or support of underdeck fixtures

- Load center equipment (including internal components)
- Conduit/conductor conditions (i.e. burned insulation, missing ground conductors, color code violations, etc.)

## 8.0 UTILITIES

Note: The Department's ITS is not considered a utility. All information regarding Department ITS facilities is to be included in Section 9.0 ITS.

### 8.1 Existing Utility Agency/Owner (UAO)

- Identify all UAOs within or adjacent to the project. Describe the type, size, material, and when applicable, the voltage of the UAO facility (Example: buried telephone duct bank; 13kV aerial electric; 10-inch DIP water main; etc.) and, where practical, identify the following:
  - The location of existing underground and aboveground UAO facilities.
  - The location and approximate dimensions of existing UAO easements.
  - Existing utility permits and permit conditions associated with each UAO's facilities. (Contact the FDOT permit office)
  - Proposed future UAO facility improvements.

### 8.2 Potential Impacts

- Identify potential project impacts to the UAO's existing facilities and request that the UAO respond whether the relocation is or may be eligible for reimbursement. If the UAO's relocation is or may be eligible for reimbursement the consultant should provide preliminary cost estimates to relocate UAO facilities that are or may be eligible for reimbursement and will be impacted by the proposed improvements and provide preliminary timeframes for the relocations.
- If Florida Gas Transmission Company (FGT) is within the limits of study:
  - Review the locations of existing gas mains and laterals and identify locations where FGT facilities may be impacted by proposed improvements (including earthwork, guardrail, signs, drainage modifications, etc.).
  - Identify future scope needs. Provide specific locations where utility SUE is needed to verify locations of FGT pipeline which may be impacted by the proposed improvements.

## 9.0 ITS

### 9.1 General Description

- Provide general visual inspection, device summary table, pictures and location information (in KMZ format) of the following ITS infrastructure. Summarize the existing ITS sub-system site information using the attached ITS Summary Table Template. Refer to the attached ITS Photo Log Sample for an example of the type of ITS infrastructure pictures that should be collected and included in the report.
  - Splice Vaults
  - Device Site
  - Power service points and power sources

- Perform general visual inspection of the following and identify any replacements/repairs/adjustments.
  - Fiber Infrastructure (fiber markers)
  - Pull boxes and junction boxes
  - Maintenance pads (or lack of) under ITS cabinet and around poles

## 9.2 Deficiencies

- Verify horizontal and vertical clearance requirements.
- Note potential safety, maintenance and any other deficiencies.
- Review as-built plans for ITS facilities in the project area and identify any over builds or additional devices added to each site.
- Include potential recommendations to address the deficiencies.
- Coordinate with the TMC to identify any CCTV coverage lapses within the project limits due to obstructions from landscaping, overgrown trees, signs and other factors.

## 9.3 Potential Impacts

- Identify potential impacts based on the recommended project improvements.
- Provide potential options for mitigating impacts to existing ITS system.
- Provide cost estimate to mitigate deficiencies and/or address project impacts.

# 10.0 ENVIRONMENTAL

Note: Environmental evaluation and analysis should only occur and be documented for those project areas where there are improvements recommended as part of the design elements identified above. An environmental evaluation should not be conducted for the entire project corridor. Listed species life history and detailed wetland/other surface water habitats descriptions are not to be included in ERCAR.

## 10.1 Existing Conditions

- Identify existing data used for areas impacted by recommended improvements.

## 10.2 Existing Permits

- Identify existing permits within the areas impacted by recommended improvements.
- Identify potential mitigation bank options for anticipated wetland and listed species impacts associated with recommended improvements.

## 10.3 Potential Natural Resource Impacts

- Identify potential environmental areas of concern (wetlands/other surface waters/listed species (including bats)) for each proposed recommended improvement and its impact to wetland, other surface water and/or listed species. If permitting is required, describe any projects schedule restrictions that may occur.
- Additional listed species surveys recommended during design.

## 10.4 Permit Requirements

- State permits anticipated based on the recommended improvements.
- Federal permits anticipated based on the recommended improvements.

- Local permits anticipated based on the recommended improvements.

## 11.0 SUMMARY OF RECOMMENDATIONS

- Summary of recommendations for:
  - Roadway improvements
  - Safety improvements
  - Application of Design Variation/Exception
  - Documentation to remain (based on justifications such as practical design, feasibility to construct, etc.)
- Summary of recommendations should be presented in tabular format with cross-references to applicable sections of the report where the recommendation is detailed. Make all recommendations as deemed necessary. Turnpike Management will make the final determination regarding implementation of recommendations.
- Include a tabular cost estimate for all applicable recommendations.

## APPENDICES

- Project location map
- Straight line diagrams
- Existing As-built plans
- Pavement condition evaluation report
- Field review photo log
- Cross slope analysis spreadsheet calculations
- FTE ramp diagrams
- Superelevation transition rate calculations
- Traffic information
- Equivalent Single Axle Loading Report
- Crash Data Tables
- Utility agencies documentation
- Sign Inventory Photo Log
- Environmental concerns map
- Recommended improvements concept plans
- Meeting minutes

Include applicable backup or supporting data