



TRANSPORTATION DATA QUALITY MANAGEMENT

Quality Assurance Review Handbook

Transportation Data & Analytics Office

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Purpose

The Transportation Data Quality Management (TDQM) team will perform Quality Assurance Reviews (QARs) with the office and field processes performed by the District. The QAR will examine the responsibilities related to the policies and procedures outlined in the next section to ensure the Florida Department of Transportation (FDOT) is maintaining the highest level of data quality for State and Federal reporting.

Controlling Documents

FDOT's overall mission is to ensure efficient, safe, and interconnected methods of mobility for those who choose to live, work, and visit Florida.

In recognition of that goal, Florida Legislature mandated Section 334.048(3), Florida Statutes, which states the Department's Central Office will monitor the seven District Offices, Turnpike Enterprise, and Central Office units. The monitoring will include assessing their performance and determining their compliance with all applicable laws, rules, policies, procedures, guidelines, and standards. Additionally, Section 20.23(3)(a), Florida Statutes, outlines FDOT's responsibility to establish a plan that clearly specifies which areas will be monitored, activities and criteria used to measure compliance, and a feedback process that assures that monitored findings are reported and inconsistencies are corrected.

- General Interest Roadway Data, Topic No. 525-020-310
- Transportation System Designations and Road Jurisdiction Transfers, Topic No. 525-020-010
- Urban Boundary and Functional Classification of Roadways, Topic No. 525-020-311
- Traffic Monitoring, Topic No. 525-030-150
- Quality Assurance Reporting, Topic No. 260-030-005
- Data Governance, Topic No. 001-325-064
- FHWA-FDOT Stewardship and Oversight Agreement, Procedure No. 700-000-005

Supporting Documents

This document will be the main reference used by the Central Office and District staff to guide the review of District data collection methods, processes, and requirements. RCI and HPMS data collected to the requirements listed in the RCI handbooks will be reviewed for scoring and compliance. The TDQM team will ensure fair practices are observed during QARs. District data is collected and reviewed according to the data collection guidelines outlined in the following documents:

Highway Performance Monitoring System (HPMS) Field Manual

The HPMS field manual provides the guidelines for collecting data and the requirements used in HPMS reporting. The Federal Highway Administration (FHWA) is required to review HPMS data in four components: program reviews of high priority subject areas, field inventory reviews, annual required reviews, and annual reporting.

Roadway Characteristics Inventory (RCI) Handbook

This resource covers the following:

- Describes how RCI supports the business data requirements and users of the system
- Documents the processes for establishing and managing the location of roadway assets and multimodal travel ways

- Describes how to collect data and the related features and characteristics of those roadway assets and multimodal travel ways
- Establishes data governance for RCI features and characteristics data collection
- Provides the data quality management processes that maintain the integrity of the data management system

Urban Boundary and Functional Classification Handbook

This handbook provides guidance for decennial urban boundary and annual functional classification designations, including the criteria and methods for classifying roadways.

Transportation Systems Designations and Road Jurisdiction Transfer Handbook

This handbook provides information on how to meet the procedural requirements for designations and road jurisdiction transfers.

Process

The QAR process is a joint endeavor led by the Transportation Data and Analytics (TDA) Office in Central Office with our District and Federal Highway Administration (FHWA) partners. The QAR involves a scheduled effort initiated by TDA to coordinate with District management and staff responsible for managing and performing the data collection processes outlined in the Controlling Documents section. The QAR is typically performed over five days and may include overnight travel to the District to verify data and information for roadway segments owned and/or reported on by FDOT. The success of the review is dependent on the staff's collaboration to validate data representing current field conditions, reviewing District data processes and tools, discovering opportunities of improvements, coordinating requirements, and identifying training opportunities. The value of the process is that it ensures that FDOT data systems are calibrated, quality assured, and maintain the high level of accuracy required to be provided to the Florida Transportation Commission, the Florida Legislature, the Federal Highway Administration, and the public.

QARs use a continuous improvement model to ensure the Department data programs are providing consistent and valid information for analysis, statistics, and reporting purposes. The process supports the data governance principles and initiatives of the Department to ensure that data is an asset. A report for each QAR will be developed in coordination with the District to identify that the appropriate measures of effectiveness, review items for compliance or non-compliance, and to document what corrective actions are needed.

The following critical processes will be part of the QAR:

- Roadway Characteristics Inventory Data Collection
- Highway Performance Management System Data Collection
- Transportation System Designation and Road Jurisdiction Transfer Coordination
- Traffic Monitoring
- MyFloridaLRS Package Process
- Straight Line Diagrams and Key Sheets

Participants

The participants listed here are expected to be present during the QAR to assist with review processes and ensure field visits are performed effectively and safely. As part of the FHWA Division responsibilities, per the FHWA/FDOT Stewardship agreement, FHWA staff may be present to monitor FDOT's quality assurance processes for Division reports.

- Transportation Data and Analytics Quality Management (TDQM) Team
- District Statistics Administrator (DSA) or Responsible District Management
- District RCI Coordinator
- District Data Collection Staff
- District Traffic Coordinator
- FHWA Division HPMS Liaisons
- Additional District Staff involved in RCI, Straight-line Diagram (SLD), HPMS, RCI/LRS Packages

Schedule

QAR cycles are performed in a biennial basis with four QARs to be held each year.

Year A: Districts 1, 2, 4, & Turnpike Enterprise

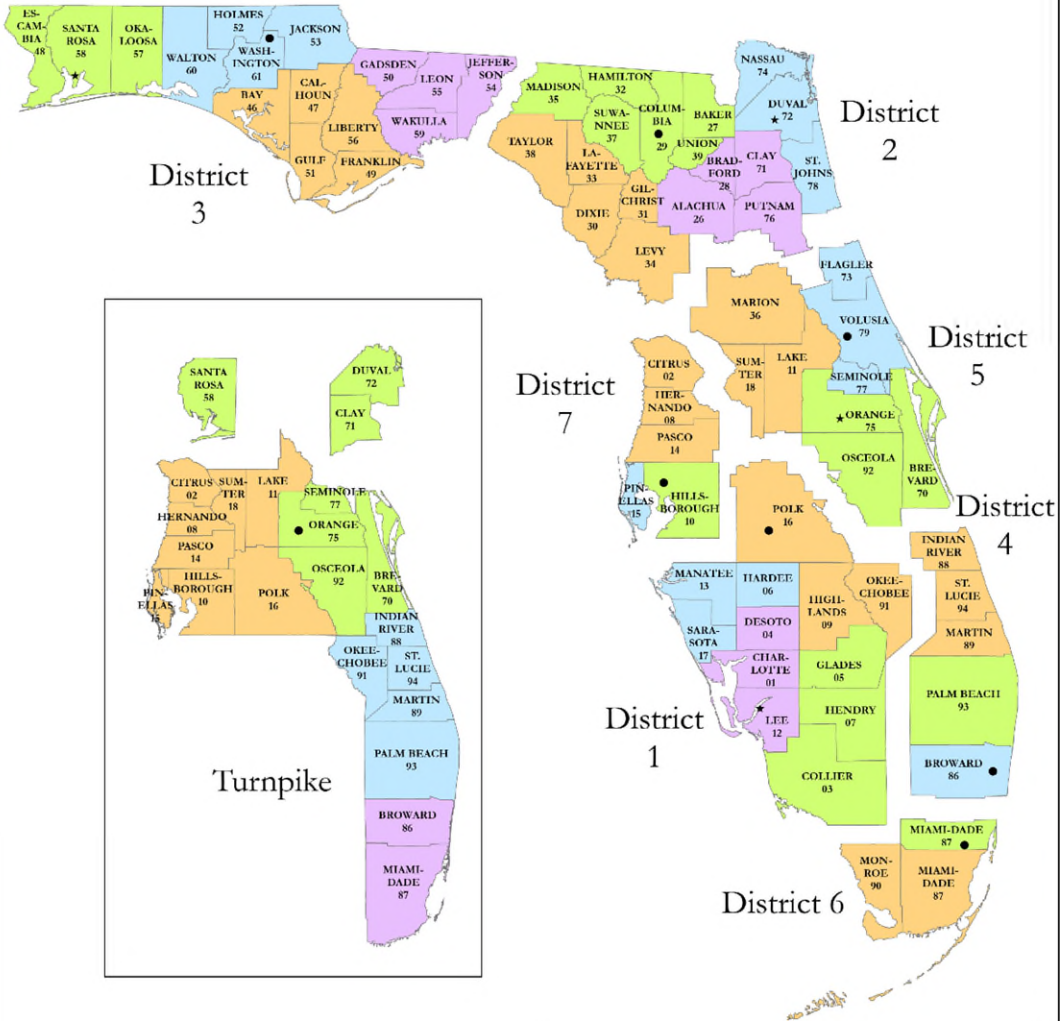
Year B: Districts 3, 5, 6, & 7

QARs are scheduled in advance for each calendar year and in coordination with TDA and the District offices primarily responsible for managing and collecting data related to RCI.

Cluster Map

Due to the size of the Districts, TDA has divided each one into manageable clusters used to restrict QARs to compact and efficient geographical areas. The clusters are rotated with each biennial QAR to ensure even sampling of roadways across the Districts. The map below shows the current District County Cluster Map with forecasted dates of review. In the event a field QAR cannot be conducted, due to natural disaster or other extenuating circumstances, an office QAR will be performed.

QAR Cluster Map



- Headquarters
- ★ Urban Office
- Cluster 1
- Cluster 2
- Cluster 3
- Cluster 4

2023: District 3 - Cluster 2 District 5 - Cluster 1 District 6 - Cluster 1 District 7 - Cluster 1	2024: District 1 - Cluster 4 District 2 - Cluster 2 District 4 - Cluster 1 Turnpike - Cluster 4
2025: District 3 - Cluster 3 District 5 - Cluster 2 District 6 - Cluster 2 District 7 - Cluster 2	2026: District 1 - Cluster 3 District 2 - Cluster 3 District 4 - Cluster 2 Turnpike - Cluster 2
2027: District 3 - Cluster 1 District 5 - Cluster 3 District 6 - Cluster 1 District 7 - Cluster 3	2028: District 1 - Cluster 1 District 2 - Cluster 4 District 4 - Cluster 3 Turnpike - Cluster 1
2029: District 3 - Cluster 4 District 5 - Cluster 1 District 6 - Cluster 2 District 7 - Cluster 1	2030: District 1 - Cluster 2 District 2 - Cluster 1 District 4 - Cluster 1 Turnpike - Cluster 3

QAR Activities

The activities listed in the table below outline the general schedule for a QAR. This schedule does not include travel for CO or District Staff which may need to be accounted for when determining the final schedule. The TDA TDQM team plan in advance for the costs of travel and will acquire the appropriate approvals before executing the review.

Timeline	Activity	Responsible
60 working days before QAR	TDA holds coordination meeting with District. TDA randomly selects roadways for review.	TDA & District
30 working days before QAR	District Receives 15 of each On/Off-System randomly selected Roadways to choose QAR sections/samples.	TDA
15 working days before QAR	TDA develops QAR agenda and provides to the District. District provides TDA with 10 sections and 2 Alternate Sections of each On/Off-System selected roadways for review. District provides the Route Plan to TDA.	TDA & District
Day 1 QAR	District Office Review	TDA & District
Day 2 QAR	Field Review	TDA & District
Day 3 QAR	Field Review	TDA & District
Day 4/5 QAR*	Field Review Closing Meeting	TDA & District
10 working days from the last Field Review Day	QAR Findings Meeting and Draft QAR Report provided by TDA.	TDA & District
10 working days from QAR Findings Meeting	District response to Draft QAR Report due to TDA.	District
10 working days from TDA receiving District Response	TDA Cost Center Manager provides Final QAR Report to District.	TDA
60 calendar days from Final QAR Report	Deadline for District to correct QAR inconsistencies	District

* Additional Field Review days may not be required.

Planning for the QAR

There are several activities that are performed to prepare for the QAR:

- **60 working days before QAR**
 - TDA holds coordination meeting with District.
 - Confirm the QAR dates and cluster for review
 - Travel Arrangements for Central Office
 - If travel is required for the District, hotel and travel arrangements will be coordinated
 - Meeting Space (If the QAR cluster is far from District main office, a space at an operations office will need to be reserved)
 - Main Vehicle & Attenuator Vehicle
 - FHWA Staff and Travel arrangements

- TDA randomly selects roadways for the QAR review.
 - Roadways must not be under construction and must be accessible
 - Roadways eligible for review include roadways that have not been part of a QAR or part of the last two QAR cycles
- The TDQM team creates a list of 15 RCI and 15 HPMS samples within the QAR cluster for the District to review.
 - Prepare roadway spreadsheet with chosen roadways
 - Email roadways to TDA staff to begin office review
 - Pull current Straight-Line Diagrams of roadways for office review
- **30 working days before QAR**
 - District receives from TDA a list of 15 randomly selected roadways that are On and Off System and selects reviewable roadway sections and HPMS samples. The TDA and District meets to review the list, finalize travel logistics, meeting rooms, staff, and resources for the QAR.
 - The TDA Data Quality Coordinator emails the responsible District RCI data collection management and staff an excel spreadsheet of the selected RCI/HPMS to choose QAR roadways
 - Turnpike Enterprise Roadway sections and samples will be all On-System Roadways
 - The District assists with the QAR by holding meeting space for the on-site meetings either in the headquarters or field operations offices
- **15 working days before QAR**
 - A point of contact from the District will email the TDA Data Quality Coordinator the finalized list of roadways chosen for the District QAR including 10 RCI Segments and 2 RCI Alternates and 10 HPMS Samples and 2 HPMS alternates.
 - The TDA Data Quality Coordinator will email the District and FHWA staff the detailed QAR Agenda.
 - The District is highly encouraged to coordinate participation from management, consultants, and staff to attend the QAR meetings or field review.
 - The District will also provide an expected QAR route plan and a list of any roadway closures or local road construction that may affect any roadways from the sample set.
 - The TDA Office TDQM Team finalizes its travel to the District cluster.

Executing the QAR

The QAR is conducted with the TDQM team and the District staff and is approximately a four-to-five-day process. FHWA staff may be in attendance throughout the QAR as part of the FDOT/FHWA stewardship agreement which will be identified in the QAR Planning process. It is expected for District staff to be present throughout the week to support the review, provide subject matter expertise, and to coordinate with other District staff. Travel days for TDA and District staff are not included in this schedule.

Day 1 QAR

The TDQM team performs an office process review with the District, interfaces with responsible staff designated to support the data collection processes listed in the controlling documents, reviews the

District Quality Control Plan, and plan and schedule activities during the field review. The team will conduct a review to capture the following information from the District.

- Can the District provide organizational information how the RCI program is managed and supported within the District?
- Can the District describe the roles and responsibilities of staff or consultants, organization, and the reporting structure to confirm the QAR correspondence reports.
- Does the District value the program data for District users in transportation planning, traffic operations, or work program project/financial planning?
- Can the District provide information on staff, contracts, and resources District has to support with RCI, HPMS, and Traffic data collection?
 - (If the Districts utilize contracts, the QAR will review the District contract materials)
- Does the District maintain a work plan to schedule and plan for RCI, HPMS, Traffic inventory, and RCI/LRS reconciliation?
- Can the District provide information on the data collection methods that are utilized to collect physical RCI data?
- Does the District perform any quality control practices verifying data is appropriately collected and entered into RCI and the LRS?
- Does the District maintain process to review and coordinate with local stakeholders on Functional Classification changes?
- Does the District maintain a process to coordinate with FDOT stakeholders when RCI roadway section changes occur? (Work Program, Programming requests, Realignments, inactivation, deletion, road jurisdiction transfers)
- Does the District require any needs to support data collection efforts?
- Can the District provide any suggestions to improve the RCI, HPMS, Traffic, or RCI/LRS reconciliation requirements?
- Can the team identify any District best practices or innovative methods that can be shared?

Days 2-5 QAR

The TDQM team and District staff performs the RCI and HPMS field review by visiting roadway sections and samples. The field review process allows the TDQM team to review the accuracy of RCI data and any data products (maps, SLDs) and compares them to current field conditions and review the last inventory date through RITA. The process provides an opportunity for the team and District to collaborate on data process improvements, data collection guidance, and to identify best practices. The QAR will be planned for a safe and efficient review to avoid congestion and risk to the traveling public and the review team. An appropriate number of attendees will be determined between the TDQM team and the District staff.

The District will be asked to support the TDQM team by providing:

- An efficient route plan to visit all the selected roadways and samples
- District meeting spaces for the QAR
- A person knowledgeable of the route plan and beginning and ending points of all sections and samples
- Attenuator vehicle with driver for use on heavy traffic roadways (optional)

The TDQM team will conduct a video log capture of the selected sections and samples to assist with the review process. This video log capture will be conducted by the TDQM team for inventory and non-inventory direction of the roadway sections and will be used to compare the location and mile point breaks in the RCI database. The TDQM team will review SLD and feature data along the roadway and will identify an area for field measurements for roadways.

Draft Report: 10 working days from last Field Review

The TDQM team will hold a meeting to present the findings, inconsistencies, and best practices from the field review and video data. Following this meeting TDA Management will provide the draft report of the findings to the District Statistics Administrator, RCI data coordinator, and any appropriate District Management

District Response: 10 working days from Draft Report

After receiving the report, the district will have 10 working days to review the findings and provide a response of agree/disagree with supporting explanation.

Final QAR Report: 10 working days from District Response

The TDQM team will review the district response and prepare the final report for Distribution to Central Office and District leadership. The TDA Cost-Center Manager will provide the Final QAR Report to the District Secretary and other District Management. The District is required to correct/follow-up on the inconsistencies from this report within 60 calendar days and notify TDQM team of completion.

QAR Corrections: 60 calendar days from FINAL QAR Report

The District will correct any inconsistencies stated in the Final QAR Report within 60 calendar days from the day of Final QAR Report.

QAR Scoring

The following matrices detail the activities and criteria used to measure compliance for the District during the QAR. Each measure will be reviewed, and a report detailing the areas of compliance and non-compliance will be sent out as stated in the section above.

There are two types of scores present in the QAR Measures Matrix below:

- Percentage: The District must meet or exceed the minimum percentage to achieve compliance for these measures. If the district earns a percentage that is less than the score required for compliance the district will be non-compliant for that measure.
- Y/N: The district can receive a rating of: Compliant (Y) or Non-Compliant (N). Any performance measures less than the Target will be considered non-compliant.

RCI Planning Data Measures			
Performance Measure	Details	Target	Office/Field Review
Reviewed roadway sections have a location extent accuracy of 100%	Verify the location of the beginning and ending milepoint extents of RCI roadway sections selected for the QAR roadways for accuracy.	100%	Field
Reviewed roadway sections selected for QAR review features and characteristics are at least 90% accurate	Verify selected sections in field for physical feature and characteristic accuracy. Features include: Through Lanes (F212), Intersections (F251), Auxiliary Lanes (F213), Medians (F215), Inside Shoulders (F219), Outside Shoulders (F214), Sidewalks (F216), and Bike Lanes (F216).	> 90%	Field
Reviewed roadways selected for QAR review meet all Inventory timeliness requirements (15/90)	Verify Inventory date information of the selected sections through RCI/RITA for compliance with the 5-year update requirements. Verify District monitors roadways that are unable to be inventoried on time.	100%	Office
District Quality Control Practices	Verify the District maintains a quality control plan which documents the organization and management of District RCI staff, RCI inventory work plans, data collection methods, RCI data quality control methods, data collection tools, consultant resources, and activities performed to coordinate District and Central Office stakeholders of RCI data changes. The documentation of the organization and activities are performed according to the District quality control plan.	Y/N	Office

HPMS Data Measures			
Performance Measure	Details	Target	Office/Field Review
Reviewed HPMS samples have a location extent accuracy of 100%	Verify the location of the beginning and ending milepoint extents of HPMS samples selected for the QAR roadways for accuracy.	100%	Field
Reviewed HPMS sample items, features, and characteristics are at least 90% accurate	Verify HPMS Samples have a 90% accuracy rate of expected physical features and characteristics. Features include: Intersections, Medians, Shoulders, Speed Limits, Aux Lanes, Widening Obstacles, and Through lanes.	>90%	Field
HPMS Samples inventory timeliness	Verify Inventory date information of the selected HPMS Samples through RCI/RITA for compliance with the 3-year update requirements. Verify District monitors HPMS samples that are unable to be inventoried on time.	100%	Office
District Quality Control Practices	Verify the District utilizes and maintains a quality control plan which documents the organization and management of District staff responsible for collecting HPMS data. Additional verifications include reviewing the District practices, HPMS sample work plans, documentation of data collection methods, data quality control methods, training performed, data tools and resources, and activities performed to coordinate District and Central Office stakeholders of HPMS data changes. The team will verify the practices are performed according to the District quality control plan.	Y/N	Office

Transportation System Designations and Road Jurisdiction Transfers			
Performance Measure	Details	Target	Office/Field Review
Reviewed roadway sections have designation and administrative data that are 100% accurate	<p>Verify selected roadway sections administrative feature and characteristic data for accuracy. Features include: Road Number (F111), Federal System (F112), AASHTO US Routes (F113), Local System (F114), Functional Classification (F121), Facility Classification (F122), Urban Classification (F124), Context Classification (F126), Roadway Realignment (F146), Section Status Exception (F140), and Stationing Exceptions (F141, F143).</p> <p>Field reviews will be performed to validate physical signage and office reviews will be performed to review plans or documents.</p>	100%	Field/Office
Roadway Functional Classification Reviews	Verify the District process to coordinate and review functional classification applications for federal-aid eligibility with local entities are compatible with procedures and handbooks.	Y/N	Office
Road Jurisdiction Transfers	Verify the District has a process to coordinate and review road jurisdiction transfers and is compatible with procedures and handbook guidance.	Y/N	Office
District Quality Control Practices	<p>Verify the District utilizes and maintains a quality control plan that documents the organization and management of District staff responsible for coordinating Transportation System Designations and Road Jurisdiction Transfers. Additional verifications include reviewing the data collection methods, District practices, data quality control methods, data tools and resources, and activities performed to coordinate District and Central Office stakeholders of data changes.</p> <p>The team will verify the practices are performed according to the District quality control plan.</p>	Y/N	Office

Traffic Data Measures			
Performance Measure	Details	Target	Office/Field Review
Review roadway sections and HPMS samples physical feature and characteristics which are at least 90% accurate	Verify sections and samples have a 90% accuracy rate of expected traffic monitoring features and characteristics. Features include: Traffic Station Number(F326) and Traffic Station Type (F326).	>90%	Field
Review roadway sections and HPMS samples have administrative feature and characteristics which are at least 90% accurate	Verify roadway sections and HPMS samples have a 90% accuracy rate of expected administrative features and characteristics. Features include: Traffic Flow Break Station (F330), AADT Date (F331), and AADT Type (F331).	100%	Office

MyFloridaLRS Packages			
Performance Measure	Details	Target	Office/Field Review
District Quality Control Practices	Verify the District utilizes and maintains a quality control plan that documents the organization and management of District staff responsible for submitting MyFloridaLRS Packages, District practices, data quality control methods, data tools and resources, training, and activities performed to coordinate District and Central Office stakeholders of RCI and LRS data changes. The team will verify the practices are performed according to the District quality control plan.	Y/N	Office

Straight Line Diagrams & Key Sheets			
Performance Measure	Details	Target	Office/Field Review
Accuracy of District On-System Roadway Section SLDs are at least 95% accurate	Verify 95% of District On-System roadway section features and characteristics represented on the SLD reflect the RCI database.	>95%	Field/Office
Timeliness of District On-System Roadway Section SLDs	Verify 100% District On-System roadway section SLDs selected for the QAR are updated within 120 days of any RCI data changes. Verify District monitors roadways that are unable to be inventoried on time.	100%	Office
Timeliness of District Roadway Section Key Sheets	Verify 100% District Key Sheets are updated within 120 days of any RCI data changes.	100%	Office
District Quality Control Practices	Verify the District utilizes and maintains a quality control plan which documents the organization and management of District staff responsible for developing, maintaining, and coordinating District SLDs. Additional verification includes reviewing the plan can identify District SLD users and Key Sheets, District practices, SLD data quality control methods, data tools and resources, and activities performed to coordinate District and Central Office stakeholders of SLD changes. The team will verify the practices are performed according to the District quality control plan.	Y/N	Office