



FEDERAL TRANSIT ADMINISTRATION

Transit Asset Management (TAM)

Condition Assessment & Guideway Performance Restriction Guidebooks

July/August 2016

Presenter: Maggie Schilling



U.S. Department of Transportation
Federal Transit Administration

Agenda

Webinar Purpose & NTD Data Requirements

Facility Condition Assessment Guidebook

Guideway Performance Restriction Calculation Guidebook

Webinar Purpose

- Introduce **FTA Facility Condition Assessment & Guideway Performance Restriction Calculation Guidebooks**
- Solicit & receive comments on Guidebooks to ensure direction is helpful and comprehensive
- Provide proposal for calculating performance measures for facilities & infrastructure

NTD Data Requirements: Facility & Infrastructure Condition

- MAP-21 created **new** requirement that facility & infrastructure conditions data be added to the National Transit Database (NTD) to:
 - Support requirements for Transit Asset Management (TAM) plans
 - Calculate State of Good Repair (SGR)-related measures
- Agencies must only conduct & report **condition assessments** for transit assets for which they have direct capital responsibility

Guidebooks: Table of Contents

- Background, scope, & purpose
- Reporting procedures, data requirements, & definitions
- Procedures for calculating condition assessments & guideway performance restrictions
- Appendices, glossary, references, & sample forms

Agenda

Webinar Purpose & NTD Data Requirements

Facility Condition Assessment Guidebook

Guideway Performance Restriction Calculation Guidebook

Classes of Facilities

- Administrative
- Maintenance
- Passenger
- Parking

Facility Details – Administrative & Maintenance

Administrative Facility

Offices for management/supporting activities for transit operations

Maintenance Facility

General Purpose

- Garage or building for routine maintenance/repairs

Heavy Maintenance

- Garage or building for engine/other major unit rebuilds

Agencies must report:

- Maintenance facilities by ownership
 - General purpose facilities by size
-

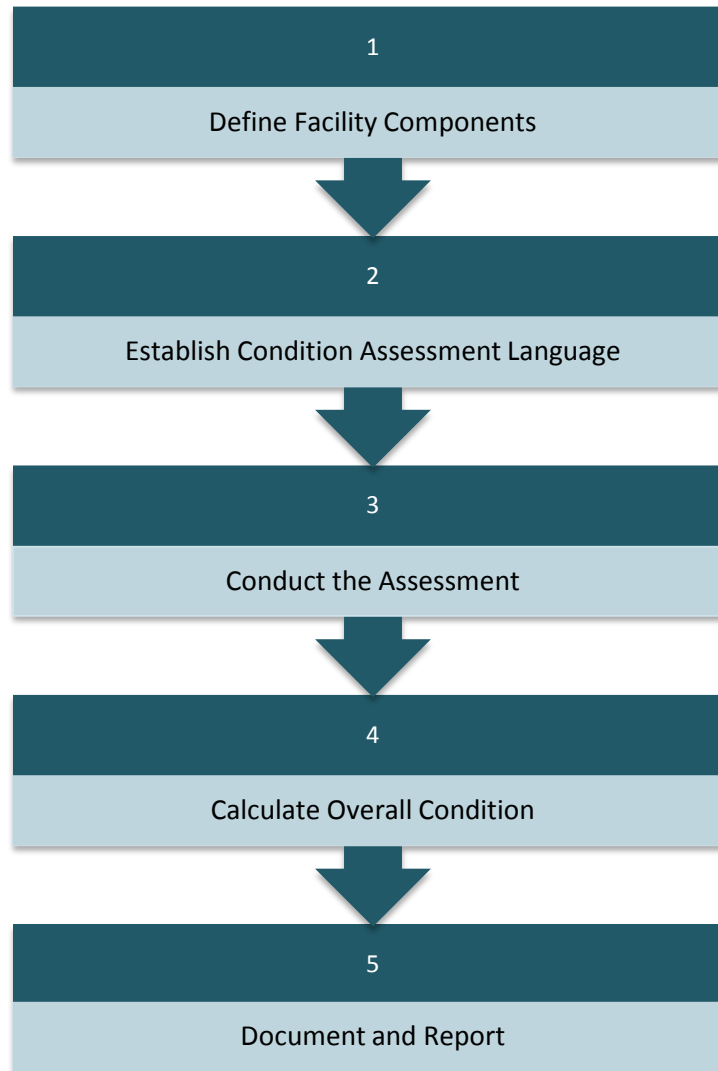
Facility Details – Passenger & Parking

Passenger & Parking Facilities*

- Rail passenger facilities
- Light rail, cable car, & streetcar passenger facilities that have platforms & serve track in a separate ROW
- Motorbus, rapid bus, commuter bus, & trolley bus passenger facilities in a separate ROW that have an enclosed structure for passengers
- Transportation, transit or transfer centers, park-&-ride facilities, & transit malls if they have an enclosed structure for passengers

**Collectively called “passenger facilities”*

Steps to Conducting & Reporting a Facility Condition Assessment



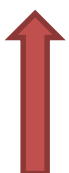
Pre-Condition Assessment Data Gathering Recommendations

Inspectors should gather & review the following:

- Agency inspection & maintenance procedures/schedules
- Inspection schedule/alignment with reporting schedule
- Data needs
- Warranty status & age of components
- Other background information

FTA Transit Economic Requirements Model (TERM) Scores

An asset is in **SGR** if it has a rating over 3 on the TERM scale.



Rating	Description	Condition
5	Excellent	New asset; no visible defects
4	Good	Some slightly defective/deteriorated component(s)
3	Adequate	Some moderately defective/deteriorated component(s)
2	Marginal	Increasing # of defective/deteriorated component(s) & maintenance needs
1	Poor	In need of immediate repair or replacement; may have critically damaged component(s)

Components, by Facility Type

Administrative or Maintenance

Substructure
Shell
Interiors
Elevators and Escalators
Plumbing
HVAC
Fire Protection
Electrical
Equipment
Site

Passenger

Substructure
Shell
Interiors
Elevators and Escalators
Plumbing
HVAC
Fire Protection
Electrical
Fare Collection
Site



Sub-Component Examples

Component: Substructure (admin/maintenance or passenger facility)

- **Sub-components**
 - Foundations: walls, columns, pilings, etc.
 - Basement: materials, insulation, slab, floor underpinnings

Component: Site (admin/maintenance or passenger facility)



- **Sub-components**
 - Roadways and associated signage, markings, & equipment
 - Site utilities, etc.

Component: Equipment (admin/maintenance facility)

- **Sub-components**
 - Equipment related to the function of the facility, including maintenance or vehicle service equipment
 - Includes only items valued above \$10,000 & related to facility function

Conducting a Component Condition Assessment: HVAC Systems

Component ratings should be based on rating descriptions in the Facility Condition Assessment Guidebook

Component	Rating	Description
F. HVAC <ul style="list-style-type: none"> Energy supply Heating / cooling generation and distribution systems Testing, balancing, controls and instrumentation Chimneys and vents  	5: Excellent	New construction, no visible defects or damage. Meets efficiency and capacity goals and maintains desired temperature and air quality throughout the facility.
	4: Good	Minor improvements needed, may be slightly outdated and less efficient and consistent. Minor deterioration or defect with no functional impact typically addressed through routine maintenance.
	3: Adequate	Repairs are needed; some deterioration exists, and maintenance needs are significant. With these, the system meets needs. Still within its useful life.
	2: Marginal	System has exceeded its useful life; fails to meet standards or needs. Components need extensive repair at a minimum. Currently does not appear to be any safety issue.
	1: Poor	System is well past its useful life and has critical defects affecting function; its issues are beyond repair and warrant detailed review.

Condition Rating Aggregation Approaches

Once you determine condition ratings for individual facility components, you must **aggregate results** to determine the condition of the facility. **There are three approaches:**

- Approach #1: Weighted Average Condition
- Approach #2: Median Value
- Approach #3: Other

Sample Administrative/Maintenance Facility Condition Assessment Form

4.3 Sample Administrative/Maintenance Facility Condition Assessment Form

Inspection Date:
Inspector Name:
Facility Name:
Address/Location:

ID	Component	Asset Quantity	Unit of Measure	Percent of Asset Quantity by Condition				
				5 Excellent	4 Good	3 Adequate	2 Marginal	1 Poor
A.	Roof							
B.	Shell							
C.	Interior							
D.	Conveyance							
E.	Plumbing							
F.	HVAC							
G.	Fire Protection							
H.	Electrical							
I.	Equipment							
J.	Site							

References for Facility Condition Assessments

- Standard Guide for Property Condition Assessment: Baseline Property Condition Assessment Process, Standard E2018-08. **ASTM International, 2008.**
- Standard Classification for Building Elements and Related Sitework—UNIFORMAT II, Standard E1557-09. **ASTM International, 2009.**
- Asset Inventory Module FY 2015 Reporting Manual. **FTA Office of Budget and Policy, 2015.**
- NTD Glossary. **FTA Office of Budget and Policy, 2015.**
- NTD Policy Manual. **FTA Office of Budget and Policy, 2015.**
- FTA. Quality Management System Guidelines. **FTA Report FTA-PA-27-51914-12.1.**

Agenda

Webinar Purpose & NTD Data Requirements

Facility Condition Assessment Guidebook

Guideway Performance Restriction Calculation Guidebook

Reporting Procedures

Applicability: Agencies operating rail fixed guideway

- Submit both monthly & annual reports

Primary measure: Average length of fixed guideway directional route mileage (DRM) under performance restriction

Data Requirements

Fixed Guideway

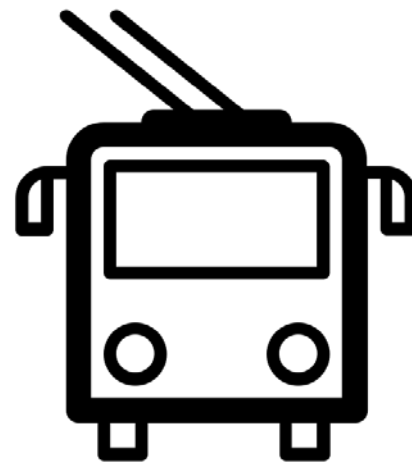
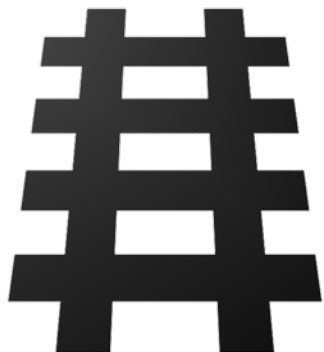
Track Miles

Planned Full Service Speed

Performance Restriction

Fixed Guideway (FG) Definition

- Fixed Guideway is a public transportation facility
 - Using and occupying a separate right-of-way for the exclusive use of public transportation;
 - Using rail;
 - Using a fixed catenary system;
 - For a passenger ferry system
 - For a bus rapid transit system



Track Miles Definition

- Total mileage in each direction that public transportation vehicles travel during revenue service
 - Specified for each combination of mode & service with fixed guideway
 - E.g. If you have one mile of fixed guideway track in which rail runs in two directions, then you have two track miles.

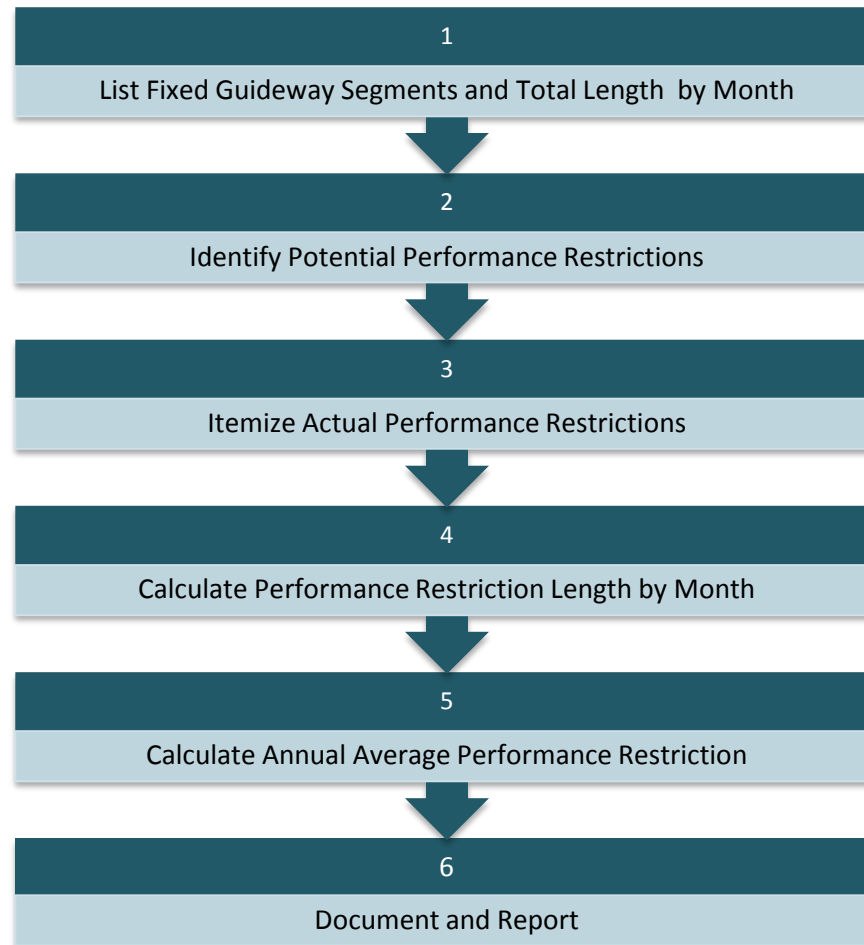
Full Service Speed Definition

- Regular service speed planned at the time of the FG segment's opening
 - Determining full service speed can be tricky
 - Maximum historically scheduled speed may be used when determination is not practical

Performance Restriction Definition

- When the maximum speed of vehicles on a FG segment is below the segment's full service speed
- Calculated at 9:00am local time on the first Wednesday of each month

Performance Restriction Calculation



I: List FG segments

List fixed guideway segments for each combination of mode and type of service.

Segment ID	Description	From	To	Track Miles	Full Service Speed (MPH)
1	Track 1 West Station	0.00	0.10	0.10	10
2	Track 1 West-Park	0.10	2.90	2.80	40
3	Track 1 Park Station	2.90	3.10	0.20	10
4	Track 1 Park-East Station	3.10	7.90	4.80	40
5	Track 1 East Station	7.90	8.00	0.10	10
6	Track 2 West Station	0.00	0.10	0.10	10
7	Track 2 West-Park	0.10	2.90	2.80	40
8	Track 2 Park Station	2.90	3.10	0.20	10
9	Track 2 Park-East Station	3.10	7.90	4.80	40
10	Track 2 East Station	7.90	8.00	0.10	10

2: Identify Potential Restrictions

- List all potential performance restrictions
- Suggest the collection of additional data beyond the minimum requirement

Performance Restriction Cause	From	To	Tracks	Performance Restriction Cause	Max Speed Under Performance Restriction (MPH)
Temporary speed restriction due to rail defects	0.00	0.35	1, 2	Temporary speed restriction due to rail defects	10 mph
ROW maintenance	2.75	2.90	1	ROW maintenance	20 mph
Temporary speed restriction due to improper elevation	4.00	5.08	2	Temporary speed restriction due to improper elevation	20 mph
East Station Improvement Project	7.67	8.00	1, 2	East Station Improvement Project	10 mph

3: Itemize Actual Restrictions

Segment ID	Description	From	To	Track Miles	Full Service Speed (MPH)	Performance Restriction (Y/N)	Performance Restriction Cause	Speed Restriction (MPH)
1	Track 1 West Station	0.00	0.10	0.10	10			
2.1	Track 1 West-Park A	0.10	0.35	0.25	40	Y	Temporary speed restriction due to rail defects	10
2.2	Track 1 West-Park B	0.35	2.75	2.40	40			
2.3	Track 1 West-Park C	2.75	2.90	0.15	40	Y	ROW maintenance	20
3	Track 1 Park Station	2.90	3.10	0.20	10			
4.1	Track 1 Park-East Station A	3.10	7.67	4.57	40			
4.2	Track 1 Park-East Station B	7.67	7.90	0.23	40	Y	East Station Improvement Project	10

4: Calculate Restriction Length by Month

Segment ID	Description	From	To	Track Miles	Performance Restriction Cause
2.1	Track 1 West-Park A	0.10	0.35	0.25	Temporary speed restriction due to rail defects
2.3	Track 1 West-Park C	2.75	2.90	0.15	ROW maintenance
4.2	Track 1 Park-East Station B	7.67	7.90	0.23	East Station Improvement Project
7.1	Track 2 West-Park A	0.10	0.35	0.25	Temporary speed restriction due to rail defects
9.2	Track 2 Park-East Station B	4.00	5.08	1.08	Temporary speed restriction due to improper elevation
9.4	Track 2 Park-East Station D	7.67	7.90	0.23	East Station Improvement Project
Total				2.19	

5: Calculate Annual Average Length

	Month												YTD AVG
	1	2	3	4	5	6	7	8	9	10	11	12	
Maintenance	0.15	2.05	2.45	1.78	1.50	0.57	1.50	1.05	1.25	0.40	0.15	0.15	1.08
Rail Defect	0.50	0.15	0.91	0.91	0.91	0.25	0.44	0.25	0.44	0.15	.050	.050	0.49
Signal, Controls Issue	0.00	0.50	0.53	0.53	0.53	0.11	0.11	0.00	0.20	0.20	0.00	0.00	0.23
Bridge Conditions	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.02	0.10	0.10	0.00	0.14
Track Geometry	1.08	0.25	0.00	0.00	0.00	0.75	0.70	0.75	0.75	0.25	0.08	0.08	0.39
Construction	0.46	0.00	0.00	0.00	0.00	1.20	1.20	3.00	2.00	0.00	0.00	0.46	0.69
Other	0.00	0.31	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
TOTAL Under Performance Restriction (miles)	2.19	3.26	4.20	3.53	2.94	3.38	4.45	5.55	4.66	1.10	0.83	1.19	3.11

Guidance on Special Cases

- Establishing Full Service Speed
- Identifying When Performance Restrictions Occur
- Measuring the Length of a Performance Restriction

Glossary and Sample Forms

Appendices to the guidebook include:

- Glossary of terms based on FTA's NTD Glossary
- Sample Performance Restriction Calculation Form, used in examples throughout the guidebook

Guidebooks – How to Provide Official Feedback

- <https://federalregister.gov/a/2016-17076>
- Federal Register Docket FTA-2016-0030
- Comments due by 9/26/2016