

Washington Metropolitan Area Transit Authority  
**Board Action/Information Summary**

Action  Information

MEAD Number:  
201173

Resolution:  
 Yes  No

**TITLE:**

7000-Series Railcars Safety Certification

**PRESENTATION SUMMARY:**

Overview of WMATA's 7000-series Safety and Security Certifications Program.

**PURPOSE:**

To brief the Board's Safety and Security Committee on the 7000-series railcars Safety and Security Certification Program, demonstrate compliance with all Federal Transit Administration (FTA) guidelines, and outline the rigorous safety testing being conducted on every new 7000-series railcar before it enters into passenger service.

**DESCRIPTION:**

Federal regulations, including FTA Circulars and Guidelines, require safety and security certification programs for new starts, major projects to extend, rehabilitate, or modify existing systems, and replace vehicles and equipment. It is also a requirement in full funding grant agreements.

The Tri-State Oversight Committee (TOC) requirements for safety and security certification establishes TOC's involvement in WMATA's Safety Certification Working Groups as well as requires that WMATA's process for certification be described in WMATA's System Safety Program Plan (SSPP).

WMATA's Safety and Security Certification Program (SSCP) complies with the requirements and is established by:

- Section 7 of WMATA's SSPP
- WMATA's Safety and Certification Program Plan
- Project specific certification plans, such as Kawasaki Safety and Security Certification Plan developed for the 7K railcars.

The Federal Transit Administration (FTA) Safety and Security Certification Management Guidelines recommend the completion of 10 steps as part of the certification process:

- Design Phase

- Identify Certifiable Elements
- Develop Safety and Security Design Plans
- Develop and complete design criteria conformance checklists
- Construction Phase
  - Performance construction specification conformance
- Testing Phase
  - Identify additional safety and security tests requirements
  - Monitor testing and validation
  - Monitor and verify integrated tests
- Activation Start-Up Phase
  - Manage open items in the Certification program
  - Verify Operational Readiness
  - Conduct final determination readiness and issue Safety and Security Certification

All certifiable items are being verified in accordance with the FTA's and WMATA's own requirements, as well as in accordance with the contractual requirements of the technical specifications.

### **Key Highlights:**

WMATA's certification program for the 7K series railcar procurement is compliant with existing FTA guidelines and is also industry leading as the first of its kind to apply the principles of Safety Management System.

All certifiable items are being verified in accordance with FTA's and WMATA's own requirements, and in accordance with and the constraints of the contractual requirements of the Technical Specification.

After discussion with TOC on December 5, 2014, an agreement was reached that allows us to proceed on schedule with certain modifications to reports and documentations to be more responsive to their needs. This included providing TOC with a copy of WMATA's 2011 Safety and Security Management Plan (SSMP) and reformatting the Safety Certifiable Items List (CIL) from a one page list with columns for each of the four rail cars to a one page CIL for list each of the four cars.

### **Background and History:**

The goal of safety and security certification is to ensure that Metrorail extensions, new and rehabilitated facilities and vehicles; and new and rehabilitated Metrobus facilities and equipment are operationally safe and secure for customers, employees, and the general public. FTA Circular 5800.1, Safety and Security Management Guidance for Major Capital Projects requires the development of an SSCP for major capital projects covered by 49 CFR Part 633.

WMATA is in compliance with all document requirements and TOC has now conditionally acknowledged that all of the required documents are in place.

**Discussion:**

Metro and the Tri-State Oversight Committee (TOC) met on Friday, December 5, 2014 to discuss the 7K safety certification process and concerns expressed by TOC at the November 20th Safety and Security Committee meeting. After discussion, an agreement was reached on certain modifications to reports and documentation that would be responsive to TOC requests. Below is a summary of the discussions and agreed-upon resolutions:

- Safety and Security Certification Plan (SSCP) - During the meeting, TOC clarified that Metro needed to complete a Safety and Security Management Plan (SSMP), not a Safety and Security Certification Plan (SSCP), as was originally stated in their November 5 and 26 letters. As required by FTA, WMATA had completed and submitted the SSMP in 2011. TOC agreed that the 2011 SSMP was satisfactory, but would like an opportunity to review it. Additionally it was determined that the SSCP prepared for Metro by Kawasaki under the 7K is sufficient, and WMATA will not be required to create a separate document.
- Safety Certifiable Items Lists (CILs) – WMATA originally planned to have one CIL document with a separate column for each of the four pilot rail cars. The TOC prefers a stand-alone CIL document for each of the four 7K cars. Accordingly, WMATA will prepare individual CIL documents for each of the four cars. SAFE staff and/or safety consultants will initial each of the safety certifiable items. The TOC has indicated satisfaction with this course of action.

**FUNDING IMPACT:**

There is no impact on funding; information item.

**TIMELINE:**

<b>Previous Actions</b>	<ul style="list-style-type: none"><li>• TOC raised concerns about WMATA's 7000-Series safety certifications during the November 20, 2014 Safety &amp; Security quarterly briefing.</li></ul>
<b>Anticipated actions after presentation</b>	<ul style="list-style-type: none"><li>• None</li></ul>

**RECOMMENDATION:**

Information item - no recommendation for action.

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Washington Metropolitan Area Transit Authority

# 7K Safety Certification Process

Moving Metro Forward **Safely**

Safety and Security Committee  
December 18, 2014



# Purpose

- Provide an overview of:
  - 7000 Series Safety Certification Process
  - Compliance with guidelines of the Federal Transit Administration (FTA)



# FTA Guidelines for Certification

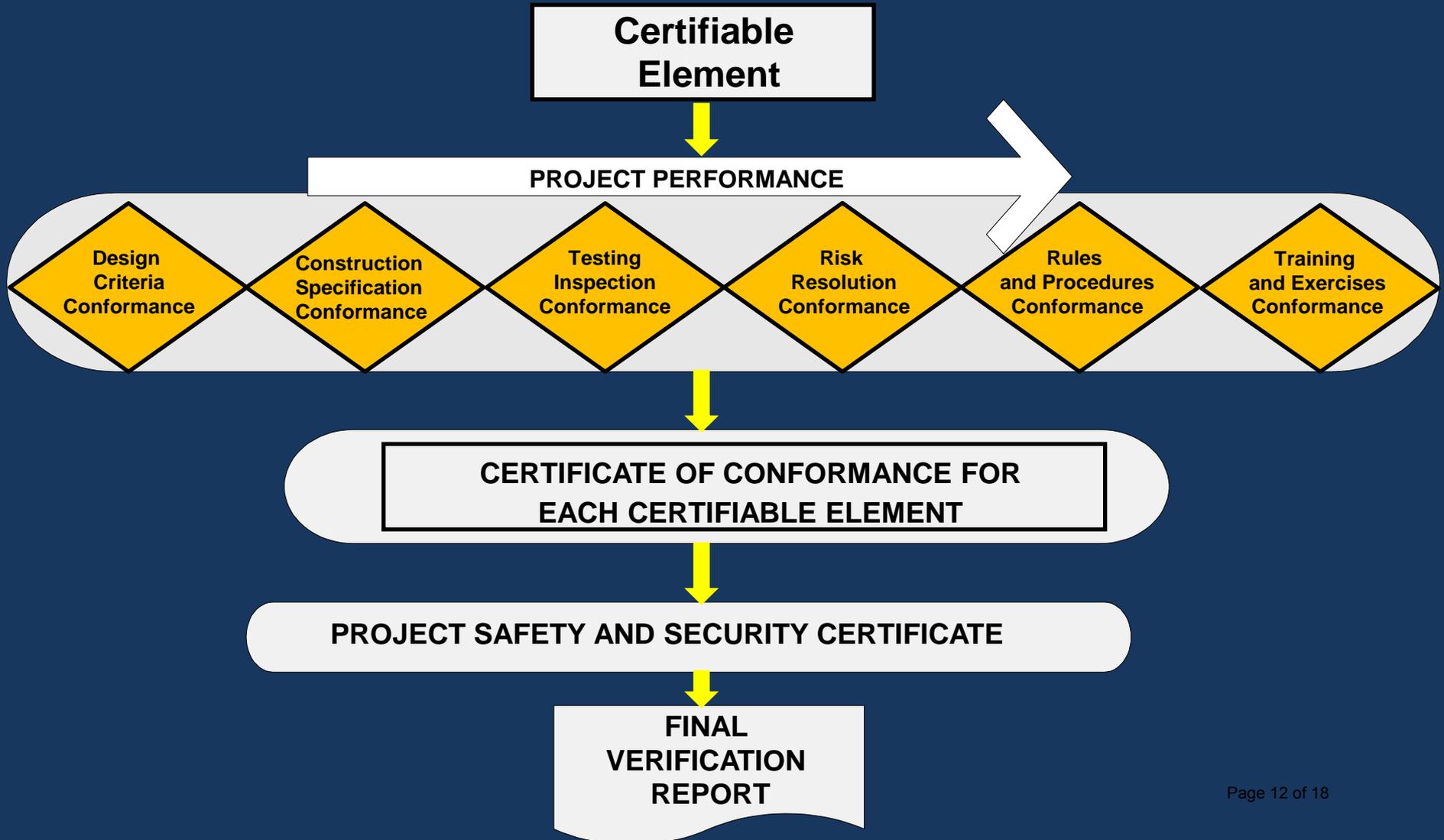
- FTA's "Handbook for Transit Safety and Security Certification" states:

*"The certification process can be tailored to suit the individual needs of transit projects...Differences in methodology may exist among transit agencies, as well as among projects within a single transit agency."*





# Safety-Critical Components and the Certification Process





# Safety Testing : 7000 Series Brakes

**Design Validation Reviews:** Brake part design reviews and mock-ups

**Design Qualifications Tests:** Extreme testing of brake parts

**First Article Inspections:** Inspection of first brake parts off production line

**Factory Acceptance Tests:** Factory testing of every brake before and after installation on every railcar

**On-Site Qualification Test:** On-site extreme testing of brakes on all pilot railcars

**Routine Acceptance Test:** Final test of brakes on every railcar before passenger service



# Safety Testing: Extreme Testing





# Safety Department's Oversight Role

- Design Phase**
  - 1. Identify Certifiable Elements
  - 2. Develop Safety and Security Design Criteria
  - 3. Complete design criteria conformance checklists
- Construction Phase**
  - 4. Perform construction specification conformance
- Testing Phase**
  - 5. Identify additional test requirements
  - 6. Monitor testing and validation
  - 7. Monitor and verify integrated tests
- Activation Start-up Phase**
  - 8. Manage open items in the Certification Program
  - 9. Verify Operational Readiness
  - 10. Final Safety and Security Certification issued



# Conclusion

**Safety** is the driving force behind the 7000 Series railcars – from conception to production, testing to operational readiness, and into daily operations.

