Section 305 Technical Subcommittee
Progress Report

Washington, DC                        February 24, 2017

Mario Bergeron – Chairman
Dale Engelhardt – Vice-Chairman

Washington, DC                        February 24, 2017
Presentation Summary

Purpose and Highlights Since Last Annual Meeting on 2/19/16

• PRIIA 305
• Technical SubCommittee Overview
• Vehicle Specification Timeline
• Specification Creation
• Specification Revision
• Technical Subcommittee Presentations
Next Generation Corridor Equipment Pool Committee

- Amtrak was required to establish the Next Generation Corridor Equipment Pool Committee, comprised of representatives of Amtrak, the Federal Railroad Administration, host freight railroad companies, passenger railroad equipment manufacturers, interested States and other passenger railroad operators.
- The Committee was formed to Design, develop specifications for, and procure standardized next-generation corridor equipment.
PRIIA 305 Technical SubCommittee

• Main purpose is to develop specifications as requested by the Executive Board.
• Comprised of representatives from Amtrak, FRA, States, and rail equipment manufacturers and suppliers.
  • Over 264 industry volunteer members. Open to anyone from companies/consultants involved in rail.
• Each Specification has a Leader to coordinate the creation process.
• Majority of spec writing done by members of the 6 permanent working groups on a volunteer basis with support from a technical writer.
Technical Subcommittee Overview

- **Meetings**
  - Subcommittee; Alternate Thursdays @ 3:00pm ET
  - Technical Working Groups; As Needed

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<th>Technical Subcommittee Overview</th>
<th>Name</th>
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<tr>
<td>Vehicle Track Interaction (VTI)</td>
<td>Brian Marquis</td>
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<tr>
<td>Structural</td>
<td>Anand Prabhakaran</td>
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<tr>
<td>Electrical</td>
<td>Tammy Krause</td>
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<td>Mechanical</td>
<td>Jeff Gordon</td>
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<td>Interiors</td>
<td>Andrew Wood</td>
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<td>Propulsion</td>
<td>Richard Stegner</td>
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<td>Diesel Exhaust Fluid (DEF)</td>
<td>Jennifer Bastian</td>
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<td>Digital Train Line (DTL)</td>
<td>Tammy Krause</td>
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<tr>
<td>Accessibility</td>
<td>Melissa Shurland</td>
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Overview (Cont’d)

Next-Generation Equipment Committee
Executive Board - Eric Curtit, Mario Bergeron

Support Services (AASHTO) – Steve Hewitt

Accessibility Policy Group

305 + 209 = 514 Capital Equipment Access Plan Subcommittee, Brian Beeler

Finance and Administrative Subcommittee – Ray Hessinger, Darrel Smith

Legislative Outreach Task Force
Co: Eric Curtit, MO DOT

Technical Subcommittee
Mario Bergeron, Dale Engelhardt

Accessibility Working Group
Co: Melissa Shurland, FRA

Diesel Exhaust Fluid Working Group
Co: Jennifer Bastian, IDOT

Document Control Management
Co: Tammy Krause, Amtrak

Digital Train Line Working Group
Co: Tammy Krause, Amtrak

Technical Subgroups (TSWG)

Specifications
- Single-level Cars
- Bi-Level Cars
- Diesel-Electric Locomotives
- Trainsets
- DMUs
- Dual-Mode Locomotives

Mechanical
Co: Jeff Gordon, FRA

Electrical
Co: Tammy Krause, Amtrak

VTI
Co: Brian Marquis, Volpe

Structural
Co: Anand Prabhakaran, Sharma & Associates

Interior
Co: Andrew Wood, Amtrak

Propulsion
Co: Richard Stegner, SNC-Lavalin Rail & Transit

264 Industry Participants

The NGEC will provide national leadership in standardization, acquisition, financing and management of passenger rail equipment.
Specification Creation Process

Executive Board (EB)
- Determines need for specification
- Requests and approves Requirements document

Technical Subcommittee (TSC)
- Specification Leader works with EB on Requirements Document
- Approves timelines

Technical Working Groups (TWG)
- Permanent Technical Working Groups create initial draft specification. 3-4 months

Draft Public Comment
- Specs. Posted
- Industry comments to TWG
- Comments posted

Face to Face Meeting to
- Discuss comments received
- Incorporate accepted comments
- Vote to accept specs. as revised

Executive Board (EB)
- Requests Review Panel to review specifications to assure compliance with requirements document

Review Panel
- Reviews specifications to assure compliance with requirements document
- Recommends Executive Board Approval

Specifications Posted
- Approves Specification

Executive Board
- NGEC
- TSC
- Tech. Working Groups

Next Generation Equipment Committee (NGEC)
The NGEC will provide national leadership in standardization, acquisition, financing and management of passenger rail equipment.
Vehicle Specs: Timeline

- Bi-Level:
  - IR - 8/31/10
  - Rev C4 – 8/2/16

- Locomotive:
  - IR – 3/16/11
  - Rev A.1 – 12/9/14

- Single Level:
  - IR – 2/15/11
  - Rev A – 11/13/12

- Trainset:
  - IR – 8/2/11
  - Rev A – 12/10/13

- DMU:
  - IR – 9/4/12

- Dual Mode Locomotive
  - IR – 2/2/16
Current Status of Revisions

• The Bi-level specification is currently on revision C4 and the TWGs processed a total of 243 DCRs to date.
• The Locomotive specification is on revision A1 and so far the TWGs have processed 56 DCRs. At present an additional 14 are being addressed and the specification will be updated to version A2.
• The TSC just began the undertaking of evaluating the 243 changes made to the bi-level specification to determine which of these changes will apply to the single level, MU and trainset specs. A DCR will be created for every proposed change and for each specification.
# Locomotive Specification Structure

The Locomotive chapters are the same as the cars where they can be.

| Chapter                                                                 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Specification Summary                                                   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| References and Glossary                                                |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Project Management                                                      |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Locomotive Carbody                                                       |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Running Gear                                                            |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Couplers and Draft Gear                                                |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Brakes                                                                 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Engineers Cab                                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Locomotive Propulsion System                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| AC Power Dist., Comm and MU                                            |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Lighting System                                                        |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Locomotive to Train Communication                                      |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Head End Power System                                                  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Battery System                                                         |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Sanding System                                                         |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Engineers Cab Controls                                                |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Fuel System                                                            |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Materials and Workmanship                                             |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Test Requirements                                                      |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Tools, Consumables and Spare Parts                                    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Shipping Preparations                                                 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Training and Documentation                                            |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Customer Variables                                                    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Safety Accessories                                                     |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Environmental Characteristics                                          |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

Items in Bold are similar between car and locomotives.
Car Specification Structure

All of the chapters for the car specifications have the same titles and where possible the actual chapters are the same.

1. Specification Summary
2. References and Glossary
3. Project Management
4. Carbody
5. Trucks
6. Couplers and Draft Gear
7. Brakes
8. Door Systems
9. Interior
10. HVAC System
11. Lighting System
12. Communications System
13. Electrical System
14. Food Service
15. Water and Waste System
16. Cab and Train Controls
17. Emergency Equipment
18. Materials and Workmanship
19. Test Requirements
20. Tools, Consumables and Spare Parts
21. Shipping Preparations
22. Training and Documentation
23. Customer Variables

Items in Bold are similar between equipment types.
After the specifications are completed and issued as version IR (Initial Release) the process of updating and revising the specification becomes an issue. This has led us to develop a complete and thorough process for managing change control.

**Document Change Request Form (DCR)**
- This is the basis for all changes.
- Changes can be proposed by anyone using a DCR.
- Evaluated by the TWG responsible for the section affected.
- Approved by the TWG.
- Approved by the Technical Subcommittee during the regular phone conference and sent to Executive Board for review / approval.
Review Panel evaluates proposed change to verify compliance with requirements document.
Executive Board approves.

This process can take months because typically the DCRs are processed and a specification is revised after several DCRs have been received.

There is an Urgent DCR process to address issues that may come up during a procurement. This pushes a DCR through the system in less than two weeks.

Sometimes a DCR requires that the Requirements Document be updated before approval.
Technical SubCommittee Presentations

Update on NGEC Accessibility Working Group
  – Melissa Shurland – FRA

Passenger ECP Brake Equipment
  – Paul Jamieson, PE

Update on the AAR Committee
  – Jeff Gordon - FRA

Electronic Systems for Trains of the Future
  – Dale Engelhardt - Amtrak