



# Railroad Safety Advisory Committee

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## Engineering Task Force Update

to

## The 46<sup>th</sup> Railroad Safety Advisory Committee Meeting

April 26, 2012  
Washington, DC

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# Outline

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- Background
- ETF Task 1 - Tier I (Conventional) Update
- ETF Task 2 – Tier III (High Speed) Status
- Meeting Schedule
- Long Term Activities and Vision

# Background

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- Engineering Task Force Established by Passenger Safety Working Group, August 12, 2009
    - Developed Technical Criteria and Procedures for the Crashworthiness of Alternatively-designed Tier I Equipment
  - ETF Re-tasked by PSWG, July 28, 2010
    - May Address Any Type of Equipment
    - May Address Any Safety Features of the Equipment
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# Tier I Criteria Update

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- Final report posted on FRA website  
October 28, 2011
  - First petition for waiver currently under  
Safety Board review (Denton County, TX)
  - Criteria has also been applied, in part, on  
Amtrak's new ACS-64 locomotives
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# Tier I Alternate Compliance



STADLER GTW DMU  
for  
DENTON COUNTY, TEXAS

# ETF Task 2

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- Objective: Develop engineering requirements for assuring the safety of equipment to be used in High Speed Rail (Tier III) service
  - Purpose: Identify to the rail industry the safety requirements for passenger equipment intended for operation up to 220 mph.
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# ETF Task 2 - Status

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- Consensus reached on all 21 Items and Tier III definition
  - Task Groups (brake systems & vehicle track interaction) to brief full ETF at Summer meeting
  - Next meeting scheduled for June 27-28
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# Task Group Update

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- **Brake Systems**
    - Created matrix to compare US requirements and current HSR practice
    - 9 categories identified for straw man text, to be presented to full ETF in June
  - **Vehicle Track Interaction**
    - Agreed on simulation parameters for track class 1 thru 5
    - Awaiting industry response
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# Consensus Items:

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1. Collision with Conventional Equipment
  2. Occupied Volume Integrity
  3. Colliding Equipment Override
  4. Connected Equipment Override
  5. Fluid Entry Inhibition
  6. End Structure Integrity of Cab End
  7. End Structure Integrity of Non Cab End
  8. Roof Integrity
  9. Side Structure Integrity
  10. Truck Attachment
  11. Interior Fixture Attachment
  12. Seat Fixture Strength (Passenger and Engineer):
  13. Interoperability / Compatibility
  14. Fire Safety
  15. Emergency Evacuation
  16. Forward Facing Cab Glazing
  17. Side Facing Cab Glazing
  18. Emergency Lighting
  19. Luggage Racks
  20. Side Facing Windows – Non Cab
  21. Passenger Occupied Lead Car
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# Definition of Tier III

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## High-Speed Rail Operation (Tier III Operation):

- Trainsets operate at maximum speeds above 125 mph up to 220 mph.
  - Exclusive right-of-way required above 125 mph.
  - No intermixing with freight or non-Tier III passenger operations (Tier I or Tier II) at speeds above 125 mph.
  - No grade crossings when operating above 125 mph.
  - Trainsets are compatible from a crashworthiness standpoint with Tier I and Tier II equipment at speeds of 125 mph and below.
  - Trainsets can safely operate in a Tier I environment.
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# ETF 2 Schedule



- Meeting #1—October 20 and 21, 2010 in Cambridge, MA
  - Discussions of scenarios, structural crashworthiness, occupant protection, and glazing
- Meeting #2—January 11 and 12, 2011 in Orlando, FL
  - Consensus on scope of scenarios, structural crashworthiness, occupant protection, and glazing
- Meeting #3—February 14 and 15, 2011 in Washington
  - Consensus on some structural crashworthiness requirements
- Meeting #4—March 30 and 31, 2011 in Washington
  - Consensus on most structural crashworthiness requirements
- Meeting #5— June 16 and 17, 2011 in Cambridge
  - Consensus on most crashworthiness, occupant protection, and glazing requirements
- Meeting #6 – October 6 and 7, 2011 in New Orleans
  - Consensus on Crashworthiness, Occupant Protection, Glazing, Fire Safety and E-Prep Requirements – Task Groups formed (VTI and Brake Systems)
- Meeting #7 – June 27 and 28, 2012, in Los Angeles
- Meeting #8 – TBD at June meeting



# Long Term Activities

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- Role out Passenger Equipment “Vision & Regulatory Plan” to industry
  - Formalize ETF consensus and accomplishments, to date
  - Establish framework for Tier III operations and address interoperability issues
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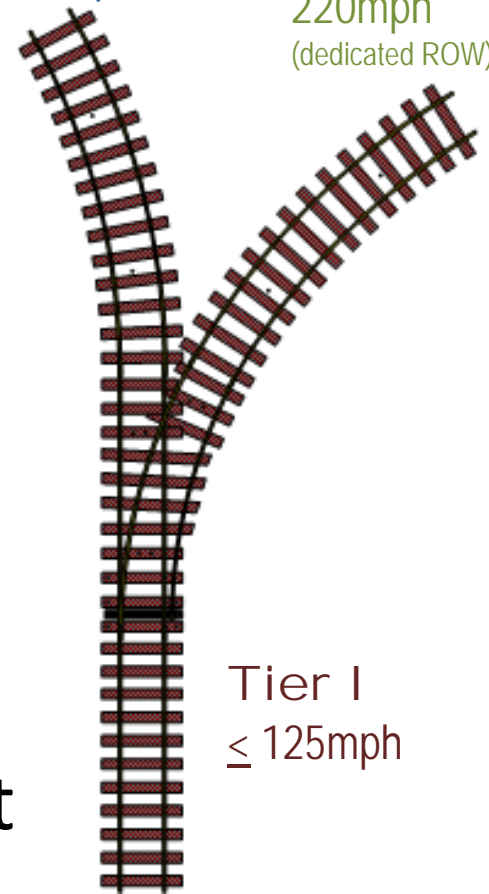
# Long Term “Plan & Vision”

- Codify Alternative Crashworthiness Requirements
- Formalize requirements for Tier III equipment and operations
- **Goal:** Create a foundation for a three “tier” operating environment

Tier II  
Up to 160mph  
(NEC)

Tier III  
220mph  
(dedicated ROW)

Tier I  
≤ 125mph





# Approach

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- Separate rulemaking into three strategic phases:
    - Phase 1
      - Codify alternative crashworthiness requirements for trainsets (Tier I & III)
      - Define Tier III equipment and formalize consensus items
      - Revise Tier II maximum allowable speed (160mph)
    - Phase 2
      - Further refine Tier III requirements for protracted items (fire safety, VTI)
    - Phase 3
      - Revise alternative crashworthiness requirements for single vehicle use
      - Establish operational requirements for Tier III operations (EPREP, ITM)
      - Revise alternative crashworthiness requirements for Tier II trainsets
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