U.S. Department of Transportation
Federal Railroad Administration

Office of Railroad Development

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Office of Research and Development

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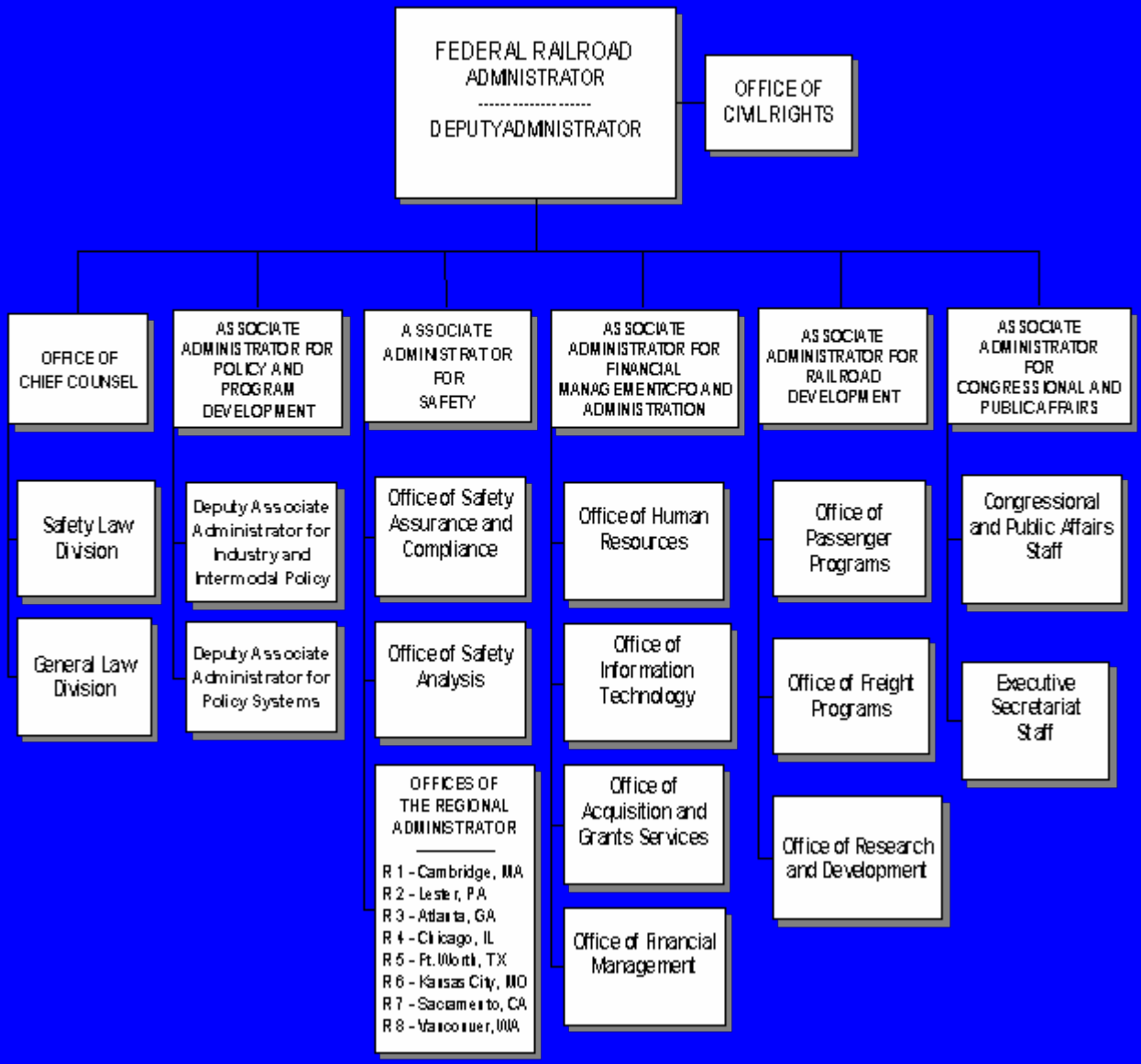
FEDERAL RAILROAD ADMINISTRATION



FRA Office of Railroad Development

PROGRAM AREA	FY 2005 Appropriation* ($000)	FY 2006 President's Request ($000)
Amtrak	1,217,000	360,000**
Railroad Research and Development	36,025	46,325
Next Generation High-Speed Rail	19,650	0
Rail-Highway Crossing Hazard Elimination-Section 1103(c)	5,250	5,250
Alaska Railroad Rehabilitation	25,000	0
TOTAL	$1,302,925*	$411,575

•Does not include overall .8% rescission. **Funding to be made available to the STB to respond to possible cessation of commuter rail operations by Amtrak.

FRA Action Plan for Addressing Critical Railroad Safety Issues

- Target the most frequent, highest risk causes of accidents
- Focus FRA's oversight and inspection resources
- Accelerate research efforts that have the potential to mitigate the largest risks

Action Plan Initiatives

- Reducing human factor-caused train accidents
- Acting to address the serious problem of fatigue among railroad operating employees
- Improving track safety
- Enhancing hazardous materials safety and emergency preparedness
- Better focusing FRA's resources on areas of greatest safety concern
- Improving highway-rail grade crossing safety

Train Accident Cause Categories

- Human Factor 38.4%
- Track 33.9%
- Equipment 12.9%
- Miscellaneous 12.9%
- Signal 1.9%

2000-2004 excludes highway-rail grade crossing accidents

The FRA R&D Program

Eleven Program Areas:

1. Railroad System Issues (safety, security, environment)
2. Human Factors
3. Rolling Stock
4. Track and Structures
5. Vehicle/Track Interaction
6. Signals & Train Control
7. Grade Crossings
8. HAZMAT Transport
9. Occupant Protection
10. NDGPS
11. R&D Facilities and Test Equipment

Railroad Research & Development

PROGRAM AREA	FY 2005 Appropriation* ($000)	FY 2006 President's Request ($000)
Railroad Systems Issues	3,025	2,952
Human Factors	3,450	3,366
Rolling Stock & Components	2,530	2,469
Track & Structures-(Includes $250 for WVU)	3,700	3,366
Marshall University/University of Nebraska**	2,000	
Track & Train Interaction	3,200	3,124
Train Control	900	880
Grade Crossing	1,900	1,854
Hazardous Materials	975	952
Train Occupant Protection	6,200	6,050
R&D Facilities & Test Equipment	1,345	1,312
NDGPS	6,800	20,000
TOTAL	$36,025	$46,325

•Does not include overall .8% rescission

** Earmark

RD&T Program Overview

Current Top 5 RD&T Priorities:

- Promote safety by working toward the elimination of rail-related fatalities, injuries, and incidents.
- Promote an accessible, reliable rail transportation system that meets the needs of freight customers and rail passengers
- Support a rail transportation system that sustains America's economic growth
- Support the secure movement of people and goods on the Nation's rail transportation network
- Protect and enhance communities and the natural environment affected by rail transportation

RD&T Program Overview

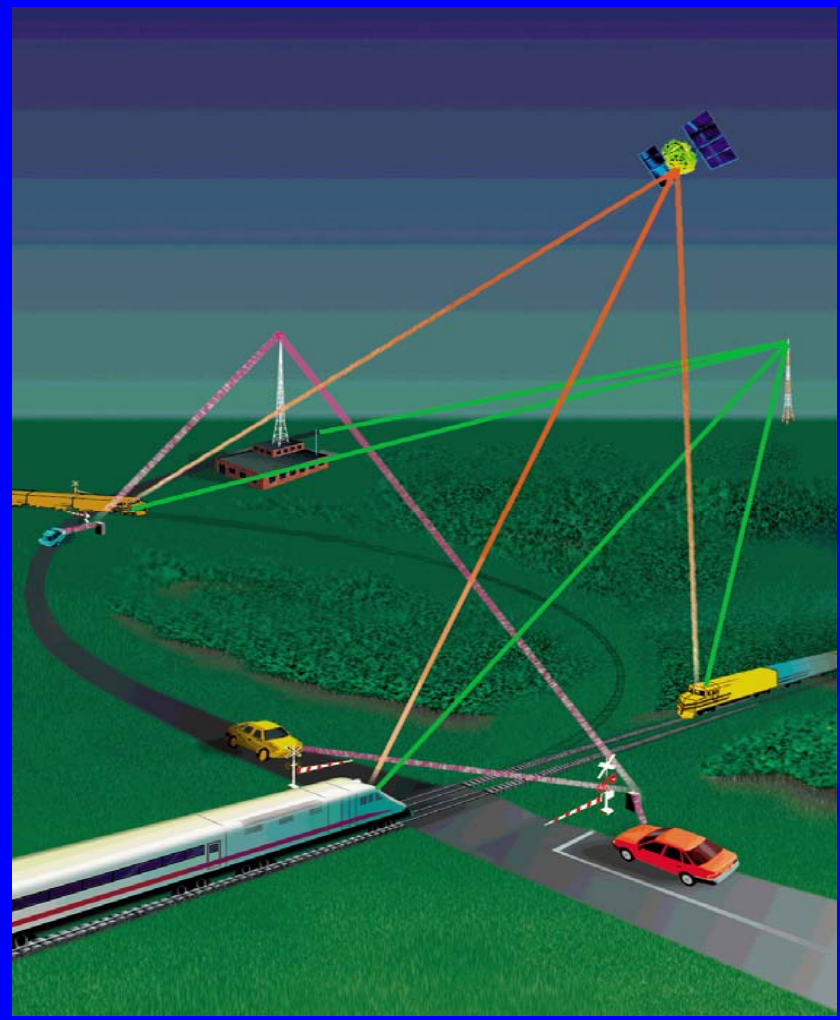
Longer-Term Priorities (5-10 Years):

- Cost-effective technologies for implementing Positive Train Control and other intelligent rail systems.
- Advances in vehicle/track interaction technologies to enable deployment of high speed intercity rail transportation.

Intelligent Railroad Systems

Principal Intelligent Railroad Systems

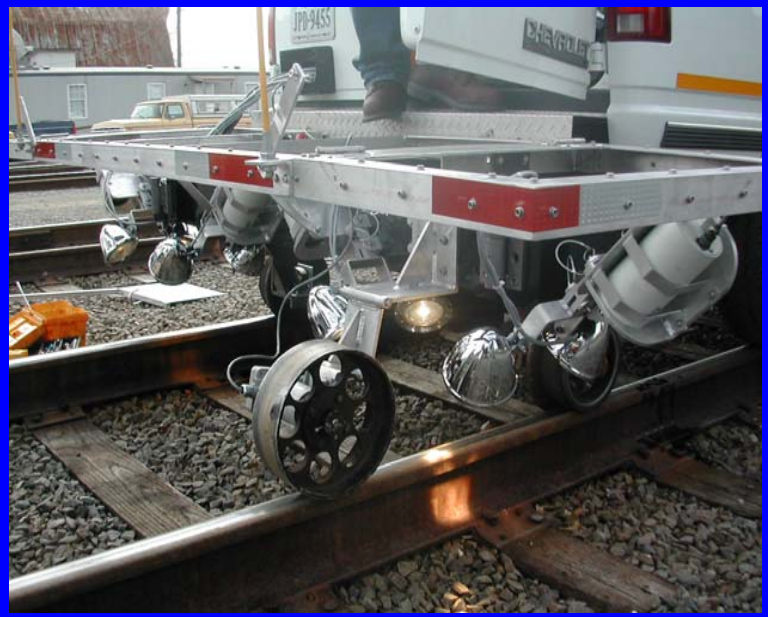
- Digital data communications
- Positive Train Control
- Nationwide DGPS
- Electronically-controlled pneumatic brakes
- Automatic equipment identification
- Intelligent grade crossings

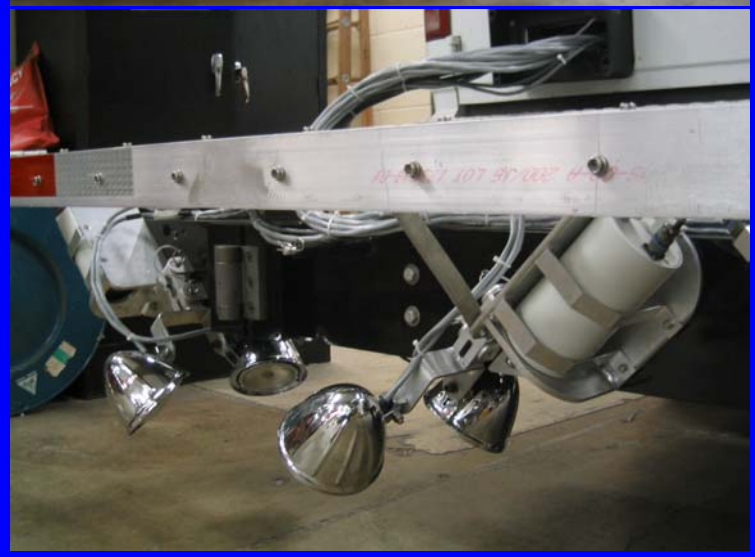


Transportation Technology Center
near Pueblo, CO

Track R&D – Rail Integrity

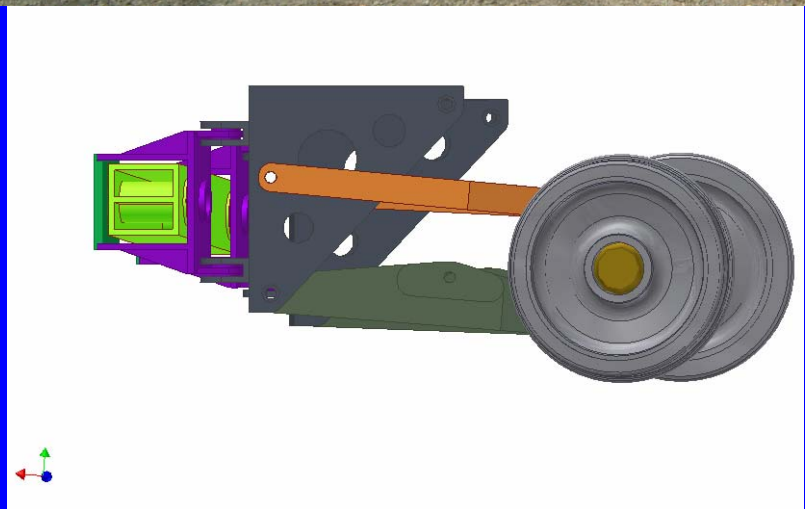
Complete Joint Bar Inspection System

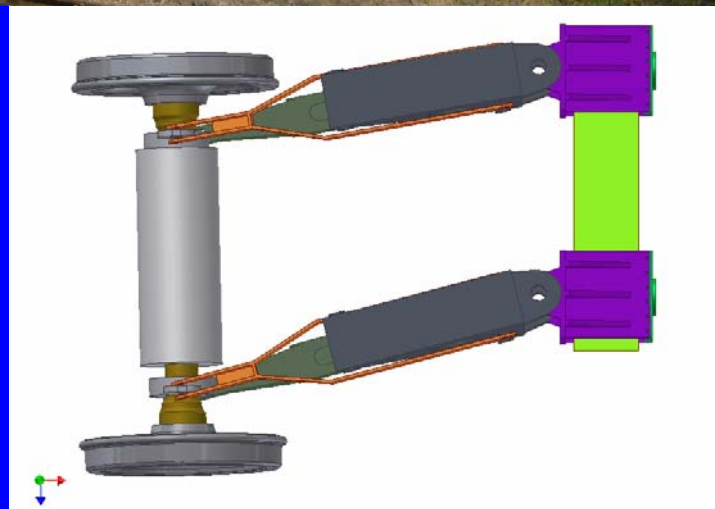




Track R&D – Ties and Wide Gauge

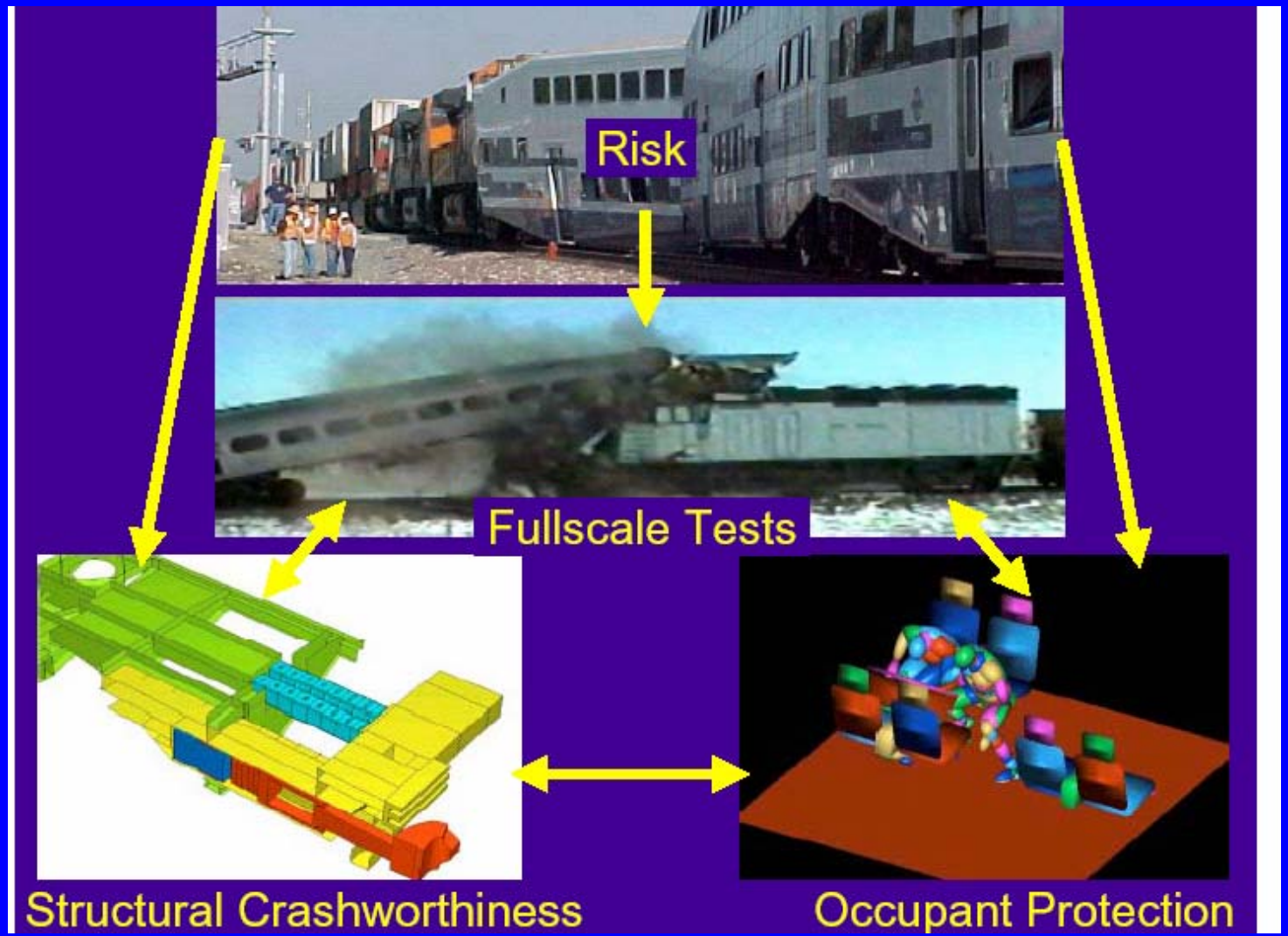
The New FRA DGRMS Vehicle T-18





Human Factors Research Program
Close Call Confidential Reporting System

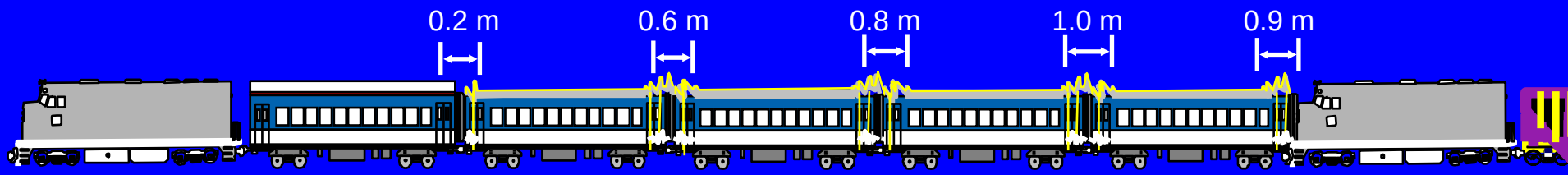
Train Occupant Protection - Passenger



Train Occupant Protection - Passenger

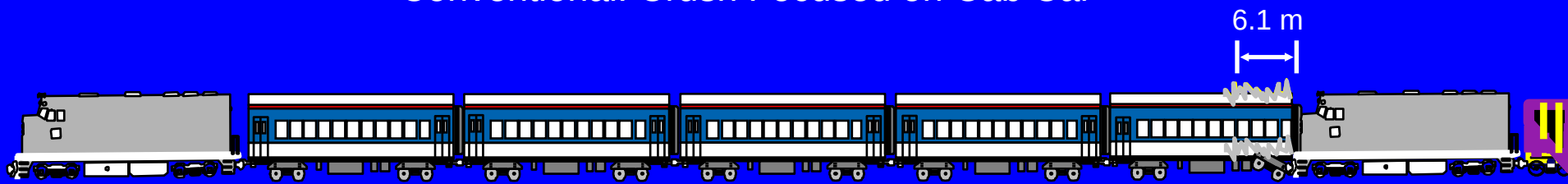
Expected Crush Distribution for Train-to-Train Test with Conventional and CEM Equipment

Crash Energy Management: Crush Distributed Among Cab and Coach Cars



Colliding Locomotive and Cab Car

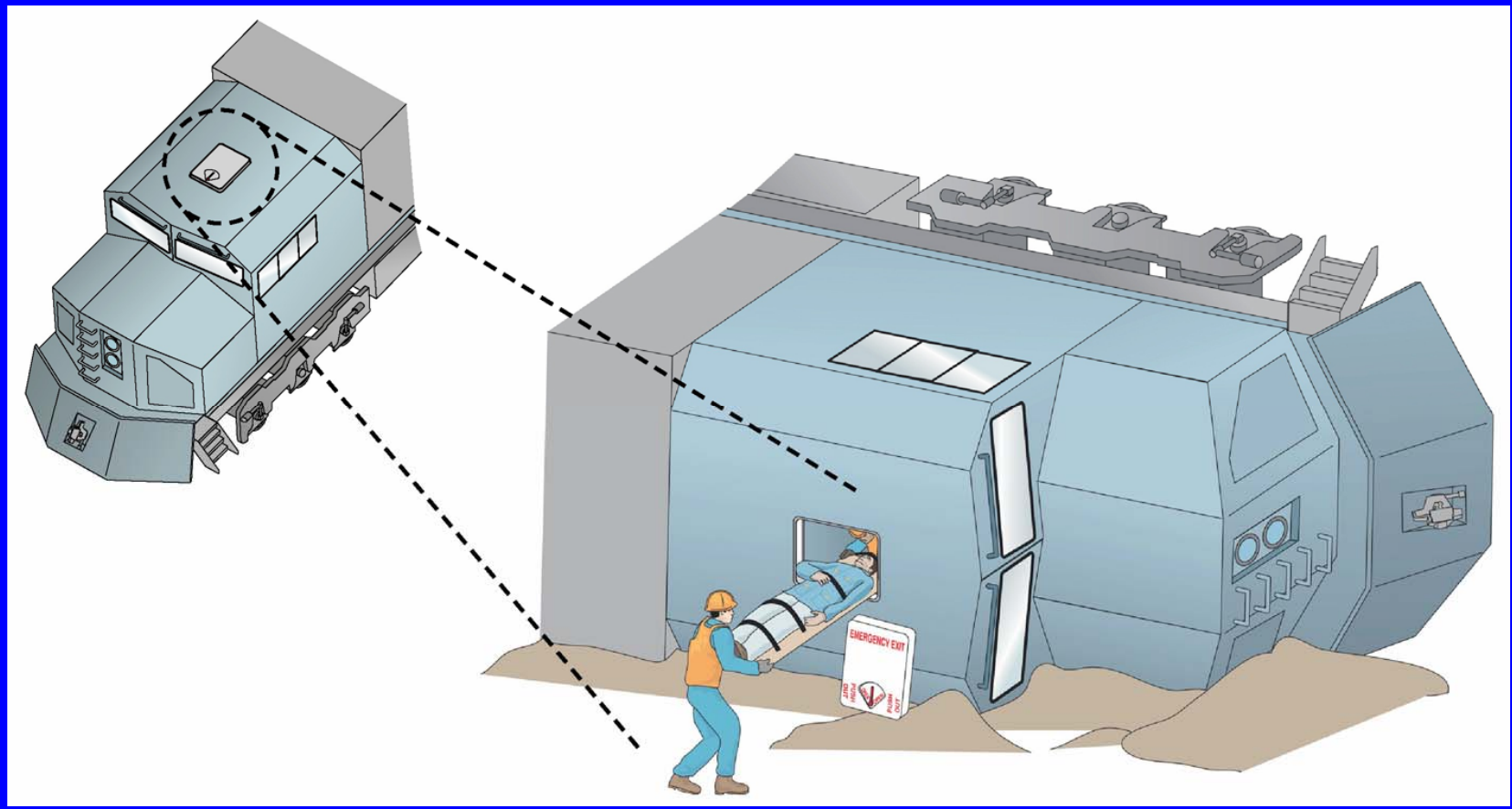
Conventional: Crush Focused on Cab Car



Colliding Locomotive and Cab Car

Train Occupant Protection – Locomotive

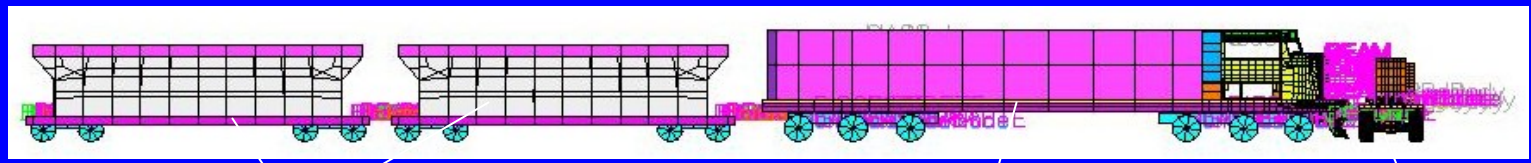
Hatch Egress System



- Roof-mounted hatch facilitates egress from toppled locomotive

Train Occupant Protection
Locomotive Safety

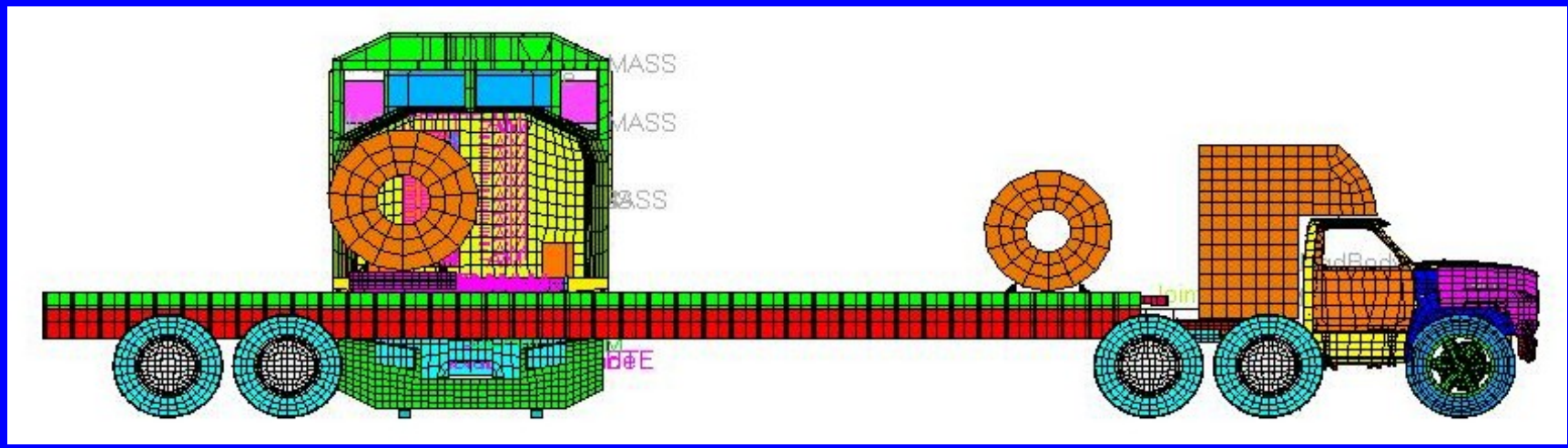
Model of Locomotive into a Steel Coil at 60 mph



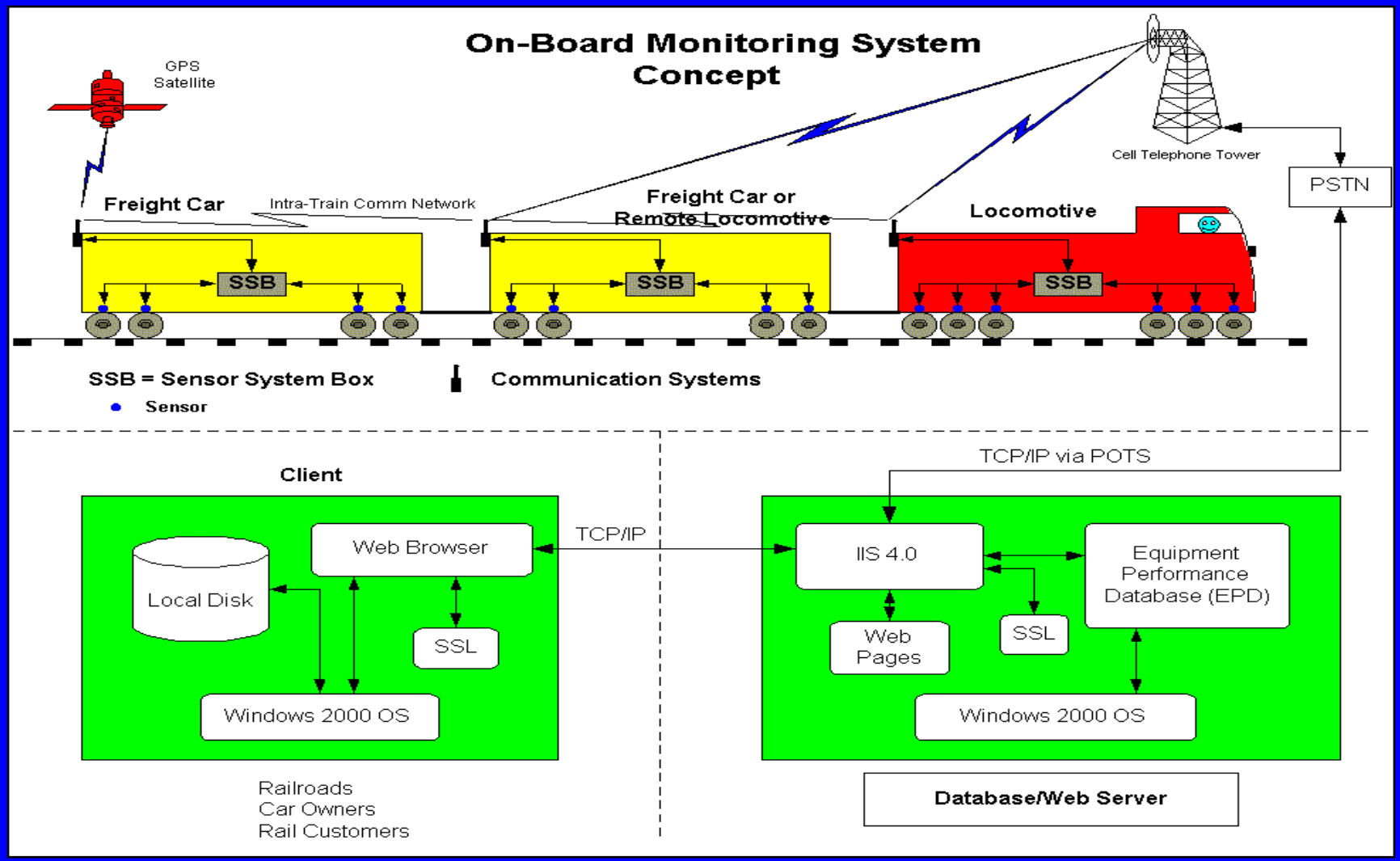
2 Loaded Hopper cars

Test Locomotive

Steel Coils
Truck



Rolling Stock and Components



Next Generation High-Speed Rail FY 05 Appropriation ($000)

Train Control Systems •North American Joint PTC Project ($6,500) •Train Control – TTC ($1,000)	**$7,500**
Non-Electric Locomotives •Advanced Locomotive Propulsion System ($900) •Diesel Multiple Units Compliance and Demonstration (FL) ($400) •Diesel Multiple Units Compliance and Demonstration (NJ) ($400)	**$1,700**
Grade Crossing and Innovative Technologies •Alaska RR luminescent grade crossings ($1,000) •Vicksburg, MS Fairgrounds St grade crossing ($1,000) •Assembly Street, South Carolina ($600) •High-speed rail improvements between NYC and Albany, NY ($350) •Mitigating grade crossing hazards ($400) •Low cost innovative technologies ($1,000)	**$4,350**
Track and Structures	**$1,000**
Corridor Planning •Gulf Coast Corridor ($1,000) •Memphis region ($400) •Spokane region ($1,000) New England HSR Boston-Springfield-New Haven study ($700)	**$3,100**
Magnetic Levitation •California-Nevada Interstate Maglev Project ($1,000) Pennsylvania Maglev Deployment Project ($1,000)	**$2,000**
TOTAL NGHSR (Does not include 0.8% rescission)	**$19,650**

Motive Power Programs/DMU

Colorado Railcar DMU Demonstrator Updated for Florida and Ready for Testing at TTC

Motive Power Programs/DMU

Turbine Electric Locomotive with SFRTA bilevel cars

Grade Crossing Earmarks - FY05 Appropriation ($000)

Rail Highway Crossing Hazard Eliminations-Section 1103(c)	$5,200*
Hamilton Boulevard, Mobile, Alabama	$1,000
City of Spartanburg rail crossing mitigation, South Carolina	$1,075
Safety and Mitigation Rail Relocation in Auburn, Maine	$500
Harrisburg CorridorOne Track Safety, Pennsylvania	$550
Illinois statewide highway-rail crossing safety program	$400
McCord Road, Lucas County, Ohio grade separation	$1,000
Vermont statewide highway-rail crossing safety	$325
Wisconsin railway-highway crossing elimination	$400
* Does not include 0.8% rescission	