



**CALIFORNIA**  
High-Speed Rail Authority

# Planned Safety and Security Systems

Jon Tapping, Director of Risk Management

Board Meeting: Agenda Item 4

August 4, 2015

Sacramento, CA



# HIGH-SPEED RAIL: Around the World

---

- **12 Countries with High-Speed Rail Service**
  - » Dozens of Others with High-Speed Rail Under Construction & In Development
- **Over 18,500 Miles of High-Speed Rail**
- **1.6 Billion Annual Passengers**



# SAFETY & SECURITY: Historical Perspective

---

- **Japan**

- » Over 50 years of *Shinkansen*
- » Topography Similar to California
- » Excellent Safety Record
- » Few Derailments and No Fatalities



- **France**

- » Over 30 years of *TGV*
- » Excellent Safety Record
- » Few Derailments and No Fatalities



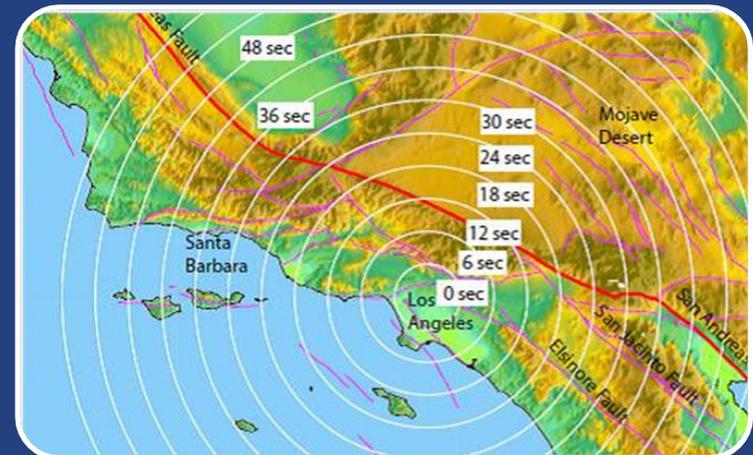
- **South Korea**

- » Over 11 years of *KTX*
- » Excellent Safety Record
- » Few Derailments and No Fatalities



# OUR APPROACH TO SAFETY AND SECURITY

- Comprehensive, Pro-active Approach
- Domestic and International Experience and Best Practices
- Program Elements
  - » Risk-Based Hazard Management
  - » Interagency Planning, Coordination, Training
  - » Robust Design Criteria
  - » Supports Overarching Risk Management Program
  - » Safety and Security Committee Structure for Decision-making
  - » Prevention Through Design for System Requirements
  - » Fire and Life Safety and Security
  - » Policing Strategy
  - » Application of Technological Solutions
    - Positive Train Control System
    - Earthquake Early Warning System
    - Intrusion Detection



# IMPLEMENTATION OF OUR SYSTEM

- **Exclusive-Use Corridor :**

- » Sealed Corridor
- » Grade Separations
- » Dedicated Right-of-Way



- **Shared-Use Corridors (Caltrain and Metrolink):**

- » Strategic Collaboration and Integration with Existing Systems
- » Corridor-specific hazard management program
- » Grade crossing improvements
  - Grade separations
  - Quad gates or other crossing protection



# POSITIVE TRAIN CONTROL (PTC)

---

- **PTC Benefits:**

- » Eliminates Risk of Train-to-Train Collision
- » Reduces Risk of Potential Derailments by Enforcing Speed Limits
- » Provides Additional Safety for Railroad Workers
- » Increase in Reliability and Operating Performance

- **PTC Improvements Funded in Part by High-Speed Rail:**

- » Caltrain
- » Metrolink
- » San Diego North County Transit District: Coaster
- » California Amtrak



# POSITIVE TRAIN CONTROL: Example

---

# GRADE SEPARATION

---

- **Roadway is Re-Aligned Over or Under the Railway**
- **Benefits Include:**
  - » Improved Safety
  - » Reduced Noise (no train horns)
  - » Decrease in Traffic Congestion
  - » Reduction in GHG Emissions
  - » Improved Train Operations Reliability
- **Regional Improvements:**
  - » Northern California: 44 Grade Crossings Will be Upgraded or Eliminated
  - » Central Valley: 55 Grade Crossings **To Be Eliminated**
  - » Southern California: State College, Doran Street, Rosecrans Ave/Marquardt Ave = **To Be Eliminated**



# GRADE SEPARATION: Example

---



# SYSTEM SECURITY

---

## Holistic and Layered Approach Including:

- » Assessment of Security Risk
- » Security Awareness Training of Employees, Passengers and Community
- » Designing for Optimum Security
- » Utilizing Security Technologies
  - CCTV
  - Intrusion Protection
  - Access Controls
- » Strategic Deployment Of Security Personnel
- » Community Policing Approach



# RAIL SYSTEM POLICING

---

- **Goals:**

- » Enhance System Security
- » Minimal Impact on Passenger Experience and Operations
- » Reduce Fear of Crime



- **Approach:**

- » Community-Based
- » Passenger-Focused
- » Coordinated with Local Law Enforcement and First Responders



# COORDINATED EMERGENCY MANAGEMENT

- Outreach and Education for Stakeholders
- Fire and Life Safety and Security Committee Meetings
- Informs Program Design Criteria and System Requirements
- Emergency Drills and Exercises for Local First Responders



# CONSTRUCTION SAFETY

- Community, Employees & Contractors
  - » Safety Training
  - » Safety & Security Reporting
  - » Traffic Management
  - » Coordination with Local Jurisdictions
  - » Construction Hazard Management
  - » Outreach and Awareness Safety Events

**BE WORK  
ZONE ALERT**



# CONCLUSION

---

## Safety and Security are a high priority

- Risk based, rather than prescriptive
- Meets or exceeds current practice or regulation
- Emphasis on designing hazards and vulnerabilities out
- Improves safety for the communities along the CHSR
- Collaborative Approach

