Assembly Special Committee on Rail Safety

Report on California Passenger Rail

Troubled Tracks – Commuter Rail Shortcomings

January 18, 2006

Committee Members:

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Executive Summary

Background

On January 26, 2005, a commuter Metrolink train crashed in Glendale, killing 11 people and injuring nearly 200. The crash occurred when a driver parked his sport utility vehicle on the train tracks. The train collided with the parked SUV and derailed, causing one of the worst rail accidents in the country's recent history.

In response to the crash, Assembly Majority Leader Dario Frommer (D-Glendale) requested that the California State Assembly Special Committee on Rail Safety be created. Frommer was named chairman of the committee by Speaker Fabian Nuñéz (D-Los Angeles) to gather information and develop recommendations to address California's worsening performance on rail safety. California continues to rank as one of the six worst states in the country regarding the number of accidents and fatalities at public grade crossings.

The Assembly Special Committee on Rail Safety also includes Assemblymembers Joe Coto (D-San Jose), Sharon Runner (R-Lancaster), Ron Calderon (D-Montebello), Dennis Mountjoy (R-Monrovia), Karen Bass (D-Los Angeles), Rudy Bermudez (D-Norwalk) and Jenny Oropeza (D-Los Angeles).

Special Hearing on Passenger Rail Safety

Frommer called a special hearing of the committee on July 20, 2005 in Glendale to discuss how to improve California's dismal record on rail safety. California is one of six states that continues to rank as the worst in rail safety based on the number of accidents and fatalities at public grade crossings. The hearing focused on four issues: (1) dangers that exist at at-grade rail crossings, (2) the practice of using a "push-pull configuration" for trains, which was the configuration being used by the train that derailed in the January 2005 collision in Glendale, (3) the need for increased funding for rail safety programs and (4) improving education regarding rail safety.

"Push-pull configuration" places the heavy locomotive at the rear of a train, where it then "pushes" the lighter passenger cabs as the train heads one way on the track. On the way back, the heavy locomotive then "pulls" the lighter passenger cabs. There are allegations that pushed trains are more likely to derail because the lighter passenger cabs in the front can be pushed off the tracks more easily

The committee heard testimony from the Glendale crash victims and victims' families, as well as local law enforcement officials who were first responders at the derailment. Also testifying were representatives from the Federal Rail Administration, the California Department of Transportation, Metrolink and other state transit agencies. In addition, because of the terrorist attacks on public transit in Spain and Great Britain, in March and July 2005, respectively, the Governor's Office of Homeland Security testified regarding the security of California's passenger rail systems. Finally, the committee heard extensive testimony on the issue of how well California rail safety is being funded through state and federal funds.

Committee Testimony

During the hearing, the committee heard detailed accounts of the crash and its aftermath from local law enforcement that were the first responders to the derailment.

In addition, the committee heard recommendations from victims and victims' families who asked that state and federal rail agencies take immediate steps to improve passenger rail safety. FRA representatives testified that a study they conducted on the Glendale crash had deemed existing push-pull operations of commuter trains safe, presenting evidence that operating in push mode do not cause a train to experience more derailments than trains operating in pull mode. The FRA did not, however, address the discrepancy in the severity of collisions. Historically, collisions involving pushed trains appear to result in more severe passenger injuries and a greater number of fatalities than pulled trains. In the case of Metrolink, 13 people have been killed since 1992 in collisions involving trains in push mode, while no passengers have been killed in collisions involving trains in pull mode. Representatives of FRA went on to discuss their current undertaking of updating safety standards for cab cars.

Metrolink representatives testified that they support the findings from the FRA study on push-pull train operations. Notwithstanding that support, Metrolink also told the committee that following the Glendale train crash, Metrolink has now blocked off all seats in the front mezzanine level of the front passenger cab car during push-mode. In addition, Metrolink announced that it was considering installing crash energy management equipment on passenger cab cars to increase passenger safety.

In addition to these safety precautions, experts agree that eliminating at-grade crossings is the most effective measure for improving California's dismal record on rail safety. The elimination of at-grade crossings will restrict vehicle traffic and pedestrians from impeding the travel of trains, which is often the cause of major train accidents. However, since 1974, funding for reducing the number of at-grade crossings in California has not been increased, resulting in the elimination of far too few of these dangerous crossings. Since 1991, California has eliminated 812 out of the 11,000 at-grade crossings in the state. At this pace, it will take approximately 2,550 years to eliminate all of California's at-grade crossings.

Bureaucratic Obstacles

At the July 2005 hearing, the Committee examined the respective roles of local, State and federal agencies on passenger rail issues. Confusing and overlapping jurisdictions can lead to slow action and a failure to appropriately enforce state and federal laws. Regulation in California comes from the Public Utilities Commission (PUC) and the state Department of Transportation. The FRA and Federal Transit Administration (FTA) provide federal oversight. Finally, but no less important, rail employees, private railroads and passenger service providers are all involved in advocating for improvements in rail safety. The PUC shares responsibility in California for railroad safety regulation, inspection and enforcement with the FRA. Notwithstanding this shared enforcement responsibility, all collected fines are diverted to the federal treasury, a practice that acts as a disincentive for the state to take on the cost of enforcing these safety laws

and regulations. The PUC should have the authority to collect fines to pay for that enforcement activity.

In addition, the Federal Railroad Safety Act of 1970 created the Federal Rail Administration (FRA) and directed the Secretary of Transportation to promulgate uniform national regulations governing railroad safety. The Act contained an express preemption clause with two savings clauses. This preemption appeared to weaken some of California's efforts to improve railroad safety on issues related to prevention of accidents such as: increased levels of inspections, increased staff and improved training and testing.

However, currently, there does not appear to be any federal statute or regulation approved by Congress that would preempt California from enacting legislation prohibiting intrastate transit lines from utilizing push configurations. Although federal preemption may limit the states' ability to respond to security threats to the nation's rail systems and overlapping responsibilities between local, state and federal entities tend to exacerbate already lax enforcement of existing federal standards, the state is not powerless to respond. In fact, there are critical changes states can make to enhance the safety and security of rail lines without running afoul of federal preemption standards

Recommendations

California transit authorities, the FRA and the state of California should take critical steps to better ensure passenger safety. In the short term, California should set a timetable for phasing out push-pull mode operations within the state. Following the FRA's evaluation of the safety of push-pull configuration in 1996, the agency issued Emergency Order No. 20, which concluded that "certain current conditions and practices on commuter and intercity passenger railroads pose an imminent and unacceptable threat to public and employee safety." In addition, the order went on to state: "[I]n collisions involving the front of the passenger train, cab car forward and MU operations do present an increased risk of severe personal injury or death when compared with locomotive-hauled service." For that reason, transit authorities should immediately restrict access to the front of cab cars in order to keep open a crush zone, which would limit injuries in case of a severe collision.

Transit authorities should also move immediately to install security gates at at-grade crossings to prevent vehicle access along the rail lines. This would help prevent drivers from stranding a vehicle on top of the train tracks, a situation which makes derailment significantly more likely, as was the case in the Glendale crash. Currently, gates block only the crossing traffic from an approaching train. Additional gates should be placed blocking the actual train tracks from any vehicle except for a train. In addition, transit authorities should fence off their rails in urban settings to deter pedestrian and auto access. Finally, the transit authorities should install surveillance systems at their most dangerous at-grade crossings, which would provide early warning systems to oncoming trains and would also facilitate the tracking, arrest and prosecution of those who unlawfully and with gross negligence place any obstruction on a railroad track that proximately results in the damaging or derailing of a train, or injury to passengers or employees.

In the long term, California must increase its commitment to rail safety by increasing funding to reduce the number of intersections between roads and rails. This will not only facilitate the safe movement of commuters but also the safe movement of goods, which is vital to California's economy. As the California Legislature creates an infrastructure bond for 2006, California should earmark at least $500 million to eliminate the most dangerous rail crossings in the state.

In addition, California must enlist the help of its Congressional delegation to set up a joint authority between the FRA and state agencies to better enforce rail safety standards and eliminate slack enforcement practices that have historically plagued California's rail lines. Finally, the Congressional delegation should also work vigorously to secure a larger share of funds from the Office of Homeland Defense to better protect California's transit lines.

Introduction

Movement of people and goods by rail is a crucial part of California's transportation system and a vital component of the state's economy. Rail transportation provides jobs, tax revenue and highway congestion relief. Thus, the increase in railroad accidents and injuries represents a growing problem, not only for travelers, transportation and law enforcement professionals, but for all industries that rely upon the safe and efficient functioning of the state's rail systems.

The American Association of Railroads (AAR) expects rail freight demand to increase 67% nationally by 2020 (California Public Utilities Commission [PUC], 2005), increasing traffic on lines where accident rates are growing by an alarming rate.

For decades, the greatest cause of death associated with railroading in America has been collisions between trains and motor vehicles at grade crossings. Collisions involving violators of grade crossing laws and trespassers on railroad rights-of-way have also become an increasingly severe rail safety problem.

According to the U.S. Department of Transportation, in 2003, these two categories accounted for 94% of rail-related fatalities. While three decades of combined efforts from freight and passenger railroads, state, local and federal agencies, had resulted in a decrease in grade crossing collisions and fatalities by nearly 75% by 2003, there are reports of a troubling reversal in this downward trend in grade crossing fatalities. The number of deaths at rail crossings rose 11% to 368 in 2004 and preliminary data from 2005 signal an acceleration in this trend.

State and Federal Statistics: California Performance

According to the FRA, rail accidents increased 14% from 2002 to 2004.[1] Although many states have seen a decrease in the number of rail related accidents and derailments, California is one of six states that continue to rank as the worst in rail safety based on the number of accidents and fatalities at public grade crossings.[2] **Together these six states account for 37% of the nation's public grade crossing accidents.** Statistics show that 94% of public grade crossing accidents are caused by risky driver behavior or poor judgment. In a number of key areas, California's rail safety performance is at or near the bottom of the 50 states, according to statistics published by Operation Lifesaver, a national education and awareness organization. Operation Lifesaver concluded that California ranks:

- **1st** in Highway-Rail Grade Crossing Fatalities
- **1st** in pedestrian trespass fatalities
- **2nd** in pedestrian trespass injuries
- **4th** in grade crossing injuries
- **5th** in grade crossing collisions[3]

Collisions and Train Accidents, published by the California Highway Patrol, reports a total of 717 train collisions with more than 600 victims, either injured or killed, since 2001, with 130 collisions in 2004 alone.

[1] According to the FRA, there were 3,127 rail accidents in 2004, up from the 2,993 accidents reported in 2003 and 2,738 accidents in 2002.
[2] The other states are Texas, Illinois, Louisiana, Indiana and Ohio.
[3] Statistics Overview; Operationlifesaver.com

Rail Safety Hearing Summary

On Wednesday July 20, 2005, Majority Leader Frommer called a special hearing in Glendale to identify strategies to improve California's dismal record on rail safety and investigate ways for the state to improve passenger rail safety.

Immediately following the Glendale collision, concern was raised regarding the safety of existing train configuration operations, particularly regarding the existing push-pull system of trains. "Push-pull" trains utilize a conventional heavy locomotive at the rear of the train. In the "push" mode, the locomotive pushes the lighter passenger cars in front. On the return trip, the train operates in "pull" mode, with the locomotive pulling the cars behind it.

Similar concerns were raised nine years ago, when two major train accidents occurred in Silver Spring, Maryland and Secaucus, New Jersey within a week of each other, killing 13 people. Both of these accidents involved trains operating in the push mode.

During the Assembly Special Committee on Rail Safety hearing, Federal Rail Administration (FRA) representatives described how they conducted an additional study on push-pull service after the Glendale accident in January, discussed the results of the study and informed the committee about the John A. Volpe National Transportation Systems Center's[4] pending research on cab car design improvements, crash-worthiness and crash avoidance of push-pull analysis. Testimony was also heard from victims of the Glendale accident and their families; state, local and regional first responders; federal, state and local departments with jurisdiction over rail safety; and security and representatives of the state's passenger rail providers.

[4] The Volpe Center, an internationally recognized center of transportation and logistics expertise, is part of the U.S. Department of Transportation's Research and Innovative Technology Administration.

Push-Pull Configuration

For several years, the push-pull configuration of trains has been controversial, with experts disagreeing on whether it endangers rail safety. Some observers contend that allowing a heavy locomotive to push lighter passenger cab cars one way makes it easier for the lighter cab cars to derail if the train hits an obstruction. These observers believe that having a heavy locomotive in front at all times makes the train better equipped, through its size and weight, to more easily clear obstructions from the track without derailment. However, the issue goes beyond whether push-pull configuration trains are more likely to derail and requires an examination of whether the injuries incurred during a collision in a pushed train are more severe than those incurred in a pulled train.

Federal Rail Administration Response

In 1996, the FRA evaluated the safety of push-pull and Multiple-Unit (MU) locomotive[5] operations following two major accidents that left 13 dead and nearly 200 injured.

At 8:40 a.m. on February 9, 1996, a near-head-on collision occurred between two trains on the borderline of Secaucus and Jersey City, New Jersey when one train failed to observe signal indications requiring that the train stop short of the site where the accident eventually occurred. Of the 325 passengers on both trains, 162 reported minor injuries. The only passenger death and most of the passenger injuries reported came from passengers on one of the trains, which was operating in push mode. Meanwhile, the locomotive engineer of the other train, which was operating in pull mode, was killed.

[5]Multiple Unit service is comprised of two to three passenger cars that are semi-permanently coupled together with a powered control cab at each end of the “pair” or “triplet” of cars.

Seven days later, at 5:40 p.m. on February 16, 1996, 11 people were killed and 26 injured in Silver Spring, Maryland, when an Amtrak train bound from Washington, D.C., to Chicago collided head-on during a storm with a Maryland Transit (MARC) train. The crash occurred when both trains were on the same track during a switching point.[6] After the crash, debate ensued over whether the MARC train riders were made too vulnerable by being seated in a passenger train pushed by a locomotive[7].

These two accidents led some to theorize that the actual configuration of a train operated in push or pull mode could add to the severity of accidents by increasing the likelihood of train derailments and passenger injuries.

Following the FRA's evaluation of the safety of push-pull configuration in 1996, the agency issued Emergency Order No. 20, which concluded that "certain current conditions and practices on commuter and intercity passenger railroads pose an imminent and unacceptable threat to public and employee safety."[8]

The order claimed that no definitive conclusions had been reached but asserted that "the death tolls [of the Secaucus and Silver Spring accidents] might have been reduced significantly had occupied cab cars not been the lead cars."[9] In addition, the order went on to state: "[I]n collisions involving the front of the passenger train, cab car forward and MU operations do present an increased risk of severe personal injury or death when compared with locomotive-hauled service."[10]

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[6] A point when one train stops to allow the opposite-bound train to cross over a parallel track.
[7] Sugg, Diana K. "Human Error and Jammed Switch Among Possible Causes – Experts Say Trains Endanger Riders in Cars Beings Pushed." The Baltimore Sun, February 18, 1996.
[8] Department of Transportation, FRA Emergency Order No. 20, Notice No. 1, February 20, 1996, page 10; http://www.fra.dot.gov/downloads/safety/eo20.pdf
[9] Ibid., page 6.
[10] Ibid.

Emergency Order No. 20 required railroads to adopt enhanced operating rules and plans for passenger safety in the leading car of a train. One such rule required that railroads "conduct an analysis of their operations and file with FRA an interim safety plan"[11] on how to address risk of a collision. As part of preparing that interim safety plan, transit agencies were expected to examine whether passenger seating should be prohibited in the lead cab car of pushed trains, according to the order. It is unclear, however, whether the FRA has enforced compliance of this and other enhanced operating rules.

While Emergency Order No. 20 installed many new safety protocols, it did not ban push-pull operation. The order remains in effect today and was followed by issuance of Passenger Train Emergency Preparedness and Passenger Equipment Safety Standards final rules in May of 1998. In an effort to update those standards, the FRA in 2003 began the process of revising its Passenger Equipment Safety Standards. New standards are expected to be unveiled in 2006.

The FRA studied push-pull service after the Glendale Metrolink crash in January 2005 and deemed push-pull service safe. Listed below are the highlights for the FRA's research for the study to date.

- Between January 1997 and February 2005, there were 1,643 grade crossing collisions between motor vehicles and passenger trains (intercity and commuter) that involved the first unit of the train.
- A comparison of the difference between the proportion of derailments occurring in the push mode and the pull mode of operation indicates that such difference (less than 1.5%) is not statistically significant.
- Intercity passenger service trains generally operate in the pull mode. More than 95% of Amtrak service is in the pull mode. The rest is in the push mode.
- Of the approximately 8.3 billion commuter rail passenger miles traveled annually, nearly 35.4% is in Multiple Unit (MU) service and 64.5% is in push-pull service (32.5% in push mode and 32.1% in pull mode).[12]

[11] Ibid., page 8.
[12] Department of Transportation, FRA "Interim Analysis: Push-Pull and MU Train Operations," July 1, 2005.

Type of Commuter service	Collisions	Derailments
Pull	263	1
Push	183	2
MU	45	
Intercity service		
Amtrak/Alaska R.R.	1,152	

The FRA's report excluded any data on train collisions before January 1997, claiming that all data on train accidents prior to 1997 were "commingled reports of commuter rail and intercity accidents/incidents" and thus could not be separated for the purposes of being included in the report, which drew a distinction between data of commuter trains and intercity trains. This exclusion is significant with respect to the "push-pull" controversy because the report does not include the two accidents of push-pull service trains (Secaucus, New Jersey and Silver Spring, Maryland) discussed earlier because they occurred in 1996. In addition, the report did not count non-fatal injuries from the Glendale accident, which totaled nearly 200, in its total number of injuries tabulated for push-pull service trains.

Overall, the FRA contends in its July 2005 report to the Committee that push service is just as safe as pull service. Comparing the number of derailments occurring in the push mode to the number occurring in pull mode indicates that the difference is not statistically significant, according to the FRA study. The FRA testified that its analysis of the Glendale collision and another accident in Portage, Indiana on June 18, 1998, when a Chicago-bound commuter train crashed into a tractor-trailer, killing three passengers and injuring four, shows that the chance that a train will derail in an impact at a highway-rail crossing is only 1.5 percent greater in the push mode than in the pull mode.

On the other hand, the FRA's declaration that push-pull configuration is safe addresses only the issue of whether a pushed train has a greater chance of derailment than a pulled train. The FRA's conclusion ignores the significant disparity in fatalities between collisions of a train operating in push mode and a train operating in pull mode.

In fact, Metrolink has not reported a single fatality during the derailment of a pulled train since 1992. In the chart below, it is noted that no passengers have died during a derailment in pull mode but that 13 fatalities have occurred in derailments during push mode configuration.

Metrolink Train Derailment Incidents 1992 - 2005				
Date	**Incident Location**	**Incident Description**	**Train Configuration**	**Fatalities**
1992	Sylmar	Metrolink train hit truck stopped on tracks	Cab Car forward (Push mode)	0
1999	Fullerton	Metrolink hit a BNSF train	Locomotive forward (Pull mode)	0
2002	Placentia	BNSF train hit Metrolink train	Cab Car forward (Push mode)	2
2003	Glendale (Buena Vista)	Metrolink train hit truck stopped on tracks	Cab Car forward (Push mode)	0
2005	Glendale (Fletcher Av)	Metrolink train #100 hit SUV stopped on tracks, then struck UP locomotive and Metrolink train #901	Cab Car forward (Push mode)	11

Available Options for Improving Rail Safety in Push-Pull Configurations

Option #1 Eliminating Push Mode Operations

Sixteen railroads nationwide rely on push-pull operations and would be affected by this option. Implementing this option in California would affect four railroads: Metrolink, Caltrain-JPB, Altamont Commuter Express and San Diego Northern, with 35, 29, 9 and 10 rail cars respectively.

Alternatives to traditional service of trains do exist. Several options were outlined, both by the FRA and by the Glendale crash victims and victims' family members.

Alternative 1: Place Heavier Locomotives on Both Ends of the Train

One option for replacing push configurations would be for commuter railroads providing push-pull service to purchase locomotives to place on both ends of the train, rather than just the one locomotive they have now. According to the FRA, they estimate that this could cost more than $3 million per locomotive. As an example, Metrolink has 46 cab cars in their fleet, which includes the 35 cars in operation and spares. It would cost Metrolink approximately $138 million to purchase the necessary locomotives to implement this policy.

Alternative 2: "Wye" Tracks and Loops

A "wye" track is a triangular arrangement of tracks forming the letter Y, which is used for turning train cars and engines in a manner similar to an automobile making a three-point turn out of a driveway to head in the opposite direction from which it came.

According to the Glendale train crash victims and victims' families who testified at the July 20, 2005 hearing, at the end of each trip for a train with a "wye" configuration, the train pulls forward past a switch, the switch is thrown and the train is backed down a connected track past another switch. That switch is thrown and the train pulls forward back onto the main line, with its locomotive up front in pull mode.

Witnesses on the victims' panel at the Assembly Special Committee Hearing on Rail Safety in July submitted testimony contending that, based on their own independent research, installing a "wye" configuration track would cost only $100,000 for each of seven rail lines, or

$700,000 total. This cost estimate includes the cost for additional track and the installation of switches necessary for turning the train around, according to the testimony.

Metrolink estimates the cost to change push service to "wye" service ranges from $4.8 million to $37.7 million. The estimate is based on a number of factors including, but not limited to, the variation in cost of land, number of new at-grade crossings and complexity of track configuration and land use impacts, according to Metrolink. Metrolink's estimates include the following:

- Costs for track, turnouts, inter-lockings, new at-grade crossings, bridges.
- Estimated costs for engineering, planning and environmental clearance have been included in the construction costs but not in the vacant land costs.

The following is not included:

- Additional land costs associated with occupied land such as relocation, goodwill and eminent domain proceedings.
- Estimates are based on aerial maps of the locations. No engineering has been done, consequently, the locations, plans and required mitigations would require significant further analysis in a formal environmental impact study. Hence, estimates are subject to significant adjustment.

Alternative 3: Cabbage Cars

Another option submitted by the victims' panel at the hearing was for trains to use a "cabbage" car on one end of the train, similar to the one used by the Amtrak Portland to Seattle Cascade service. A "cabbage" car is an old, scrap locomotive with its engine and generators replaced with lead/cement ballast for added weight that is placed as a "dummy" locomotive on the front end of a train operating in push mode. On June 10, 2005, the "cabbage car" of the Portland-Seattle train hit a large welding truck containing gasoline, oxygen, acetylene and

propane. While the collision caused a fire, only one minor injury to a train passenger was reported during that accident.

Option #2 Restricting First Car Occupancy in MU and Push Mode Operations

One option discussed at the July 20, 2005 hearing was whether passengers should be restricted from the first car of the train during push mode operations. A Metrolink official testified that following the Glendale collision in January 2005, Metrolink has prohibited passenger seating in the forward mezzanine portion of its cab cars while operating in push mode.

The FRA opines that restricting passengers from riding in the lead cars of trains would increase the number of standees in the other train cars, particularly during the morning rush hours when most commuter trains operate in push mode. The impact during off-peak hours would be less as passenger loads are significantly reduced.

The FRA estimates that the cost of adding additional cars to trains to compensate for the empty first cab car would be approximately $1.5 million for a single-level coach and $2 million for a multi-level coach.

Other Safety Measures

Shock Absorbers

The vulnerability of front cars during impact could be significantly improved with better crash energy management technology, like “cow catchers,” which are strong metal frames fixed to the front of a train that push objects off the track as the train moves forward. The victims’ testimony, as well, included a plea for placing better shock absorbers in front of cab cars to absorb crash impact and to protect the first row of passengers.

Subsequent to the July 2005 hearing, Metrolink has proactively taken steps to improve

safety on its trains, above and beyond what is currently required by the FRA. In September 2005, Metrolink put out a Request for Proposals seeking companies to install different crash energy management devices on their new cab cars. These devices, which are attached to the front of cab cars, are designed to buffer and absorb most of the initial impact during a crash, providing protection for cab cars and passengers.

Sealed Corridor Approach

One option to protect the road and rail travelers, along with the communities surrounding our rail corridors and the employees that serve passenger and freight rail providers, is to pursue a long-term strategy of separating the two, especially in high traffic or unprotected areas. A sealed corridor program targets an entire corridor for grade separations and other measures which provide "hard" barriers to dangerous interactions between road and rail traffic in a cost-effective manner. By accounting for all crossings within a rail corridor, it treats all of the "at-grade crossings" which include four-quad gates, median barriers and street closures as one project. The overall goal of a sealed corridor is to restrict access on the rail tracks and property to help avoid future collisions. The sealed corridor approach is being used in North Carolina and a pilot program for two corridors on the Metrolink system is being initiated in Southern California.

While this is a promising approach, the FRA included only $250,000 for Metrolink to study the measures needed for the two Metrolink lines. While this commitment is commendable, the FRA and the California Congressional delegation will be critical in assuring that the estimated $50 million for the Metrolink projects alone, follows the completion of the study next year.

Funding for Grade Separation Projects

In an effort to reduce the number of fatalities around at-grade crossings, the FRA announced an initiative in 1991 intended to eliminate 25% of all grade crossings by the year 2001. The elimination of at-grade crossings will restrict vehicle traffic and pedestrians from impeding the travel of trains, which is often the cause of major train accidents.

However, since 1974, funding for reducing the number of at-grade crossings in California has not been increased, resulting in the elimination of far too few of such dangerous crossings. According to the FRA the number of passive crossings, both public and private, has been decreasing about 2% per year since 1992 and the number of all crossings (active and passive) decreased 9.3% between 1990-1996 (NTSB, 1998). Since 1991, California has eliminated 812 out of the 11,000 grade crossings in the state. Funding constraints have resulted in an average of just four grade separation projects each year. At this pace, it will take approximately 2,550 years to eliminate all of California's grade crossings.

In an effort to address the inadequate funding levels for grade separation and improvement projects, committee Chairman Frommer authored AB 1067 during the 2005-06 legislative session, which included the ability to increase funding of grade separation projects by $25 million annually in the state. Unfortunately, that funding increase was rejected by the Assembly Appropriations Committee in May 2005.

Moving forward, a review of the state's long term goal of at-grade crossing elimination is needed to identify a plan of action to increase the number of grade separation projects in the state's most vulnerable areas.

Transit Security Enhancement Projects

Federal and state transportation security funding has been weighted enormously toward the nation's aviation security needs. At the same time, however, public rail and transit provide five times more passenger trips. With more than 200 local transportation agencies, California's commuter network is among the nation's largest. In Northern California, Bay Area Rapid Transit, which serves 311,000 riders per weekday and makes more than 90 million trips per year on 104 miles of track, has spent $20 million on security upgrades since September 11, 2001. The federal government has reimbursed the agency for $6 million. In Southern California, nearly $2 million in federal security grants was awarded in July 2004 to Metrolink, which serves approximately 40,000 riders daily.

The "open system" nature of public transportation makes transit operations harder to protect than closed systems like aviation. While the task of eliminating all threats to transit riders may be impossible, the discrepancy between federal security funding for aviation and transit is indefensible. Simply acknowledging that our nation's transit riders will never be completely safe from attack ignores the possibility that incremental improvements to transit and rail safety and security can be significant in potentially protecting thousands of lives from danger. Certainly, the Governor and the California Congressional Delegation have a role in advocating for improvements in these programs. It is essential that California be able to rely on this support, as well as a reflection in future United States Department of Transportation budget requests of the magnitude of the task at hand in providing a safer environment for freight and passenger rail operations.

Other States

The state of Washington uses Talgo trains from Spain for the Amtrak *Cascades* route. These trains are "articulated," or operating as a set, with adjacent cars sharing axles and wheels and functioning as a single, complete unit. This increases the stability of the train and improves safety and the smoothness of the ride. Talgo trains have been used throughout Europe for more than 40 years, where they operate at speeds greatly exceeding 100 miles per hour. Washington trains cannot exceed 80 miles per hour, and Washington is the only state in the United States that operates these types of trains.

The FRA requires Talgo trains to place a "dummy" locomotive with its engine removed on one end of its pushed train, resulting in both ends of the train having an operating panel. Thus, while Talgo trains do operate in a push-pull mode, someone is operating the train from the front end at all times.

Bureaucratic Obstacles

Limited Enforcement Authority

At the July 2005 hearing, the Committee examined the respective roles of local, State and federal agencies on passenger rail issues. In particular, the Committee looked at how agency policies and interactions affected:

- crash avoidance and injury prevention strategies and current
- funding levels for rail safety and security programs in order to
- recommend legislative action to further improve passenger rail safety.

Confusing and overlapping jurisdictions can lead to slow action and a failure to appropriately enforce state and federal laws. Regulation in California comes from the Public Utilities Commission (PUC) and the state Department of Transportation. The FRA and Federal

Transit Administration (FTA) provide federal oversight. Finally, but no less important, rail employees, private railroads and passenger service providers are all involved in advocating for improvements in rail safety. The PUC shares responsibility in California for railroad safety regulation, inspection and enforcement with the FRA. Notwithstanding this shared enforcement responsibility, all collected fines are diverted to the federal treasury, a practice that acts as a disincentive for the state to take on the cost of enforcing these safety laws and regulations. The PUC should have the authority to collect fines to pay for that enforcement activity.

Federal Preemption of California Laws and Regulations

The Federal Railroad Safety Act of 1970[13] created the Federal Rail Administration (FRA) and directed the Secretary of Transportation to promulgate uniform national regulations governing railroad safety. The Act contained an express preemption clause with two savings clauses.[14] This preemption appeared to weaken some of California's efforts to improve railroad safety on issues related to prevention of accidents such as: increased levels of inspections, increased staff and improved training and testing.

States successfully lobbied for two amendments to the FRSA allowing the states to regulate railroad safety until the Secretary of Transportation "prescribes a regulation or issues an order covering the subject matter of the State requirement."[15] In cases where the Department of Transportation had "covered the subject matter," the FRSA permits states to adopt additional or more stringent laws or regulations related to railroad safety or security when that law or regulation satisfies a three-pronged test:

[13] 49 U.S.C Sec. 20101 and following, hereafter, FRSA.
[14] Ibid. Sec. 20103 (a).
[15] Ibid. Sec 20106.

1. It is necessary to eliminate or reduce an essentially local safety hazard;
2. It is not incompatible with a law, regulation, or order of the U.S. Government; and
3. It does not unreasonably burden interstate commerce (Kenworthy, Transportation Safety and Insurance Law (3rd ed. Matthew Bender & Co., 2005) Sec. 5.05).

Given the states' restricted regulatory authority in the areas of railroad safety, it is reasonable to consider how far California can go to appropriately respond to the challenges of improving rail safety. While many states collaborate with the FRA in federal railroad regulation, information provided to the Committee strongly suggests that the FRA is not sufficiently funded to do all that is required, nor does it appear to have the resources to promulgate or update regulations in a timely manner.

Although federal preemption may limit the states' ability to respond to security threats to the nation's rail systems and overlapping responsibilities between local, state and federal entities tend to exacerbate already lax enforcement of existing federal standards, the state is not powerless to respond. Federal preemption is far from complete. In fact, there are critical changes states can make to enhance the safety and security of rail lines without running afoul of federal preemption standards.

Since the enactment of the FRSA, the U.S. Ninth Circuit Court of Appeals has upheld state regulations regarding rail safety on at least three occasions. In *Southern Pacific Transportation Co. v. Public Utilities Comm. of the State of California*, 820 F.2d 1111 (9th Cir. 1987) the Ninth Circuit ruled that California regulations concerning track clearance are not preempted by federal law. In *Southern Pacific Transp. Co. v. Public Utility Comm. of the State of Oregon* 9 F.3d 807 (9th Cir. 1993), the Ninth Circuit ruled that an Oregon law restricting locomotive train whistle sounding was not preempted. Finally, in Union Pacific R.R. Co. *v.*

California Public Utilities Comm., 346 F.3d 851 (9th Cir. 2003), the Appeals Court ruled in favor of some California regulations, while invalidating others. Specifically, the Court upheld the authority of three state regulations concerning train configurations, a requirement that Railroads obtain approval before making changes to internal Train Track Dynamics (TTD) rules, and fines for railroads that fail to comply with those internal TTD rules. However, the court also determined that states were preempted from issuing regulations concerning employee training, and ruled that requiring railroad cooperation standards violated the Interstate Commerce Clause.

In addition to the preemption clause in the FRSA, the Locomotive Boiler Inspection Act[16] grants the United States the power to regulate all "parts and appurtenances" of railroad locomotives, which under federal regulations would include cab cars.[17] According to the U.S. Supreme Court in *Napier v. Atl. Coast Line R.R.*, 272 U.S. 605, 71 L. ed. 432, 47 S. Ct. 207 (1926) the LBIA "occupies the field" regarding "the design, the construction and the material of every part of the locomotive ..."

While the Supreme Court's decision in *Napier* concluded the LBIA preempted all state laws and regulations concerning the design, construction and the material of a locomotive, the Ninth Circuit noted in *Southern Pacific Transp. Co. v. Public Utilities Comm. of the State of Oregon*, supra, that it does not mention preemption of state authority over the *use* of those locomotive parts. According to the Ninth Circuit in *Southern Pacific*, laws that do not limit or expand the type of equipment required on locomotives (or cab cars), nor interfere with the goals or implementation of the federal statute, are permissible.

The case law governing federal preemption under the FRSA and the LBIA suggests that while the state may be preempted from mandating the redesign of cab cars to be retrofitted with

[16] 49 U.S.C. Sec. 20701 to 20903, hereafter, LBIA
[17] Ibid. 20702 (a).

crash energy management systems, the state may act in other areas, such as requiring greater security measures to prevent unauthorized access to rail lines. The state also has the authority to regulate how locomotives and cab cars are utilized when the FRA has not "covered the subject matter." With regard to push-pull configuration, federal regulation permits transit authorities to operate trains in the push mode, but the FRA issued Emergency Order No. 20 as a result of substantial safety concerns concerning the push configuration. Shortly thereafter, the FRA adopted safety standards for cab cars and produced a study comparing derailment risks for pushed and pulled trains. The FRA, however, has not made any regulatory decision that would have the effect of fully covering the subject matter of the safety of locomotives pushing passenger cars.

The standard for "covering" preemption is a high one, thus giving states latitude to act. According to the U.S. Supreme Court in *CSX Transportation, Inc. v. Easterwood*, 507 U.S. 658, 664-65, 123 L. Ed. 2d 387, 113 S. Ct. 1732 (1993), "*to prevail on the claim that the regulations have pre-emptive effect, petitioner must establish more than that they 'touch upon' or 'relate to' that subject matter, for 'covering' is a more restrictive term which indicates that pre-emption will lie only if the federal regulations substantially subsume the subject matter of the relevant state law*" (citation omitted).

The courts have also opined that the standard for FRSA preemption is even higher than the ordinary preemption standard. In *United Transp. Union v. Foster* (5th Cir. 2000) 205 F.3d 851,860), the court stated that "FRSA preemption is even more disfavored than preemption generally," quoting *Rushing v. Kansas City S. Ry. Co.* (5th Cir. 1999) 185 F.3d 496, 515).

The FRA's Emergency Order No. 20, cab car safety standards and study comparing derailment risks of trains being pushed to those being pulled (completed this past July) does not

appear to meet the Supreme Court's "covering" test to "substantially subsume" any state law or regulation prohibiting the *use* of push configured trains. Moreover, regulations concerning intrastate transit lines that do not cross state boundaries have no extra-territorial effect, and therefore, would not create an impermissible burden on interstate commerce. Finally, federal case law presumes that the historic police powers of the state are not to be superseded by a federal act "unless that [is] the clear and manifest purpose of Congress."[18] Currently, there does not appear to be any federal statute or regulation approved by Congress that would preempt California from enacting legislation prohibiting intrastate transit lines from utilizing push configurations.

Recommendations

While the FRA may be comfortable with the existing configuration of the push/pull mode, which several California transit authorities regularly utilize, information coming from the FRA makes it difficult to take comfort in their position.

Moreover, while the FRA contends that push mode operations are no more likely to cause a derailment than pull mode operations, they failed to show any credible evidence that the resulting severity of passenger injuries were comparable in each type of derailment. The committee was provided with statistics documenting that 13 deaths have occurred during the derailment of Metrolink trains in push mode, while no deaths resulted from derailments in pull mode.

The following steps should be taken to better ensure passenger safety:

[18] *Rice v. Santa Fe Elevator Corp*., 331 U.S. 218, 230, 91 L. Ed. 1447, 67 S. Ct. 1146 (1947).

1. **Eliminate the push mode operation of trains within the next three years.** Transit Transit authorities should no longer operate in "push" mode, where a locomotive is pushing lighter cab cars along the track. The FRA and others have recognized he vulnerability of trains operation in this manner and alternatives do exist. This report highlighted several options a for eliminating trains operating in push mode:

    a. Place a locomotive "dummy" car on one end of the train so that the train is always being pulled by a heavier locomotive, rather than a light cab car.

    b. Install "wye" tracks, a triangular arrangement of tracks forming the letter Y, which is used for turning train cars and engines in a manner similar to an automobile making a 3-point turn, allowing trains to head back in the direction it came with the locomotive in the lead.

    c. Place "cabbage" cars, old, scrap locomotives that has had its engine and generators replaced with lead/cement ballast for added weight, at one end of the train so that cab cars are not in the lead.

2. **Restrict occupancy in the cab cars**. Transit authorities should follow the lead of Metrolink and **immediately** restrict occupancy in the first car of their trains until the FRA adopts updated safety standards to substantially reduce the vulnerability of cab cars during collisions and until the transit authorities have adequately implemented those updated safety standards.

3. **Install gates at gate crossings**. Security gates should be installed at at-grade crossings to prevent vehicle access along the rail lines. This would help prevent drivers from stranding a vehicle on top of the train tracks which makes a derailment significantly more likely, as was the case in the Glendale crash. Currently, there are only gates to block the crossing traffic from an approaching train. Additional gates should be placed blocking the actual train tracks from any vehicle except for a train. In addition, for regional transit lines, train tracks should be fenced off for safety, limiting pedestrian and auto access. In addition, for regional transit lines, all train tracks should be fenced off for safety, limiting pedestrian access.

4. **Install surveillance systems at most dangerous at at-grade crossings to provide early warning systems to oncoming trains**. If a train engineer can see a potential danger on the tracks as early as possible, it gives him or her ample time to apply the brakes and warn the passengers of an imminent danger.

5. **Urge FRA to expedite and complete their new safety standards**. The FRA needs to expedite its regulatory process to promulgate news safety standards for cab cars as soon as possible in 2006.

6. **California should increase its commitment to rail safety and decreasing the number of at-grade crossings.** The State spent $1.3 billion in fiscal year 2004-05 on statewide transportation maintenance and safety programs during a funding crisis. Only $25 million

was dedicated to improving rail safety, an amount that has not been increased since 1974. While the best way to decrease accidents and fatalities surrounding rail transportation is to decrease at-grade crossings, at our current pace, it will take more than 2,500 years to eliminate those dangerous crossings. That is unacceptable. The significant infrastructure bond in consideration for 2006 should earmark at least $500 million for critical grade separation projects and rail safety improvements.

7. **Work with the federal government for several changes including:**
    a. **Joint authority to enforce rail safety standards**. Before any expansions of port rail transit capacity takes place, the Governor and the California Congressional Delegation should work to ensure the California PUC has joint authority to enforce rail safety standards on our internal state transit lines, as well as in urban zones for freight shipments;
    b. **Seek greater funding**. California needs increased federal transportation dollars to: improve rail safety, reduce its number of at-grade crossings, enhance the FRA's ability to perform its enforcement duties and bolster its protection of transit lines through a greater share of Homeland Security funds.

Conclusion

California has for too long been one of the nation's worst offenders when it comes to rail safety. While the federal government takes the lion's share in regards to authority of ensuring rail safety, the state bears some responsibility for the increasingly dangerous rails systems in California. Despite the importance of rail lines for the delivery of goods and transporting

workers, our investment in maintaining and improving those systems has eroded significantly over the past two decades. As was mentioned earlier in the report, California has not increased the amount it devotes annually to rail safety since 1974. It is not possible for California to climb up from its unacceptable ranking in rail safety without the efforts of the state and federal government to allocate more funding to these efforts.

Transit lines need to begin phasing out push-pull configurations and, until that is accomplished, restrict passenger seating in their cab cars. In addition, California's transit lines should take immediate steps to better protect their passengers, starting with gating their lines and equipping them with surveillance systems to protect against vehicle incursions.

While California's transit authorities can and should take these steps on their own accord, the Legislature appears to have the authority to mandate that they take those recommended steps. In addition, the Legislature can make continued state funding, or possible bond funding contingent upon such action.

More needs to be done at all levels of government to adequately protect California's rail commuters and our rail lines. It is incumbent upon us to act without delay within the scope of our authority to implement operational standards that can help prevent the magnitude of injuries and loss of life such as occurred in Glendale in January 2005.

PANEL #1

FEDERAL RAIL ADMINISTRATION (Appendix 2)

Brenda Moscoso, Operation Research Division and Al Settje, Regional Administrator

Focus of Panel:
The panel was asked to provide testimony before the committee that focused on the administration's priorities, programs, and guidelines for our nation's passenger rail systems and equipment. Of particular concern was the FRA's requests for funding and their guidelines for such practices as push-pull configuration.

PANEL OUTCOMES:

Highlights of Testimony & Panel Recommendations:

- FRA has authority on all federal commuter rail and inner city rail systems
- FRA promotes the fact that passenger safety is a shared responsibility between state and federal administration
    - FRA strongly advocates closure of unnecessary and redundant crossings, **but** states have authority over these closures
- FRA will work with Congress to ensure passage of legislation that ensures suitable criminal punishments for those who commit attacks against railroads
    - In 1997 the FRA issued model state laws for railroad trespassing and vandalism – Only Iowa has enacted the law
- Since there are so few accidents based on the millions of passenger miles operated every year, derailments at grade crossings in passenger service are very rare and commuter rail service operated in either push or pull modes are safe
- Lighter weight of cab car will make for a more severe outcome, however the probability of derailment is only a 2% point difference with (push-pull) configuration and therefore not statistically significant in the probability of derailment
- Pending research:
    - Volpe Center Grant: research on workstation table to protect passengers during a crash and 3 person seat that protects the abdomen and head during a crash
    - Accident investigation: talk to passengers after accidents to learn about how equipment functioned during crash, what protected passengers, etc.

- Research on compartmentalization, padded surfaces, lapbelts are not beneficial for passengers (could cause injuries)
- Shoulder restraints are problematic because the seats must be a lot stronger and it is difficult to find an attachment for the 3-point seat belt
- Crash energy management

PANEL #2

VICTIMS & VICTIMS' FAMILIES (Appendix 3)

Focus of Panel:
The panel was asked to provide testimony before the committee that focused on the victims and victims' family recommendations for improving rail safety in California.

Highlights of Testimony & Panel Recommendations:

1. Ban pull-push train operations (the engine car weighs 2-3 more than a cab-car)
2. Prevent motorists from driving down the tracks by placing barriers on both sides of the railroad track
3. Place an automatic gate on each side of a track
4. Construct two tracks on each route (one north and one south, one east and one west).
5. Make a turnaround for each train so the engine is always pulling the cab-car
6. Radar/sensor on every track to alert operator of obstructions on track
7. Cameras at each railroad crossing to catch violators and impose heavy fines for violators
8. 3-point seatbelts for passengers and passengers should remain seated and buckled up until train stops
9. Button activation for crash preparation, triggering automatic brake alarm systems, audible PA and flashing lights for the hearing impaired, to alert passengers of an impending crash so they can prepare and brace themselves
10. Radar detection and night vision to see obstruction on track
11. Seatbelts to keep passengers in their seats and help prevent passengers from being thrown around the train during a crash/derailment
12. Encourage conductor to make safety announcements
13. Have an alarm go off when the emergency brake is pulled
14. Train is much safer being pulled by the locomotive (in a crash, a heavy locomotive in the back would cause a jackknife)

15. Use a turntable, or balloon track, or equip all the trains with locomotives on both sides
16. Use a railroad Y (the easiest and cheapest way; doesn't require uncoupling of locomotive to put it on the other side; takes about 15 minutes to maneuver train around a Y)
17. $2 million to put Y's in entire Metrolink system
18. Systems that are pushed are naturally more unstable than systems that are pulled
19. Improved crashworthiness passenger car: shock absorber equipment placed in front of cab-car to absorb impact and protect the first row of passengers

PANEL #3

FIRST RESPONDERS: (Appendix 4)

Focus of Panel:
The panel was asked to provide testimony before the committee that focused on the departments' experience with rail accidents and enforcement at rail crossings and rights of way.

Highlights of Testimony & Panel Recommendations:

Glendale Fire Department

- Battalion Chief Donald Wright's Recommendations
    1. Adopt proposed AB 1067 to increase publicity about hazards of railroad crossings and generate funding for programs to educate the public
    2. Additional crossing warning systems and crossing access minimizing techniques to deter drivers
    3. Warning systems to be built into trains to provide collision warnings and increase emergency preparedness
    4. Elimination of grade crossings wherever possible

LA County Sheriff's Department

- Lieutenant Mike Parker's Recommendations
    1. Enforcement, education, engineering, and legislation must all come together to increase safety
    2. Patrols by officers onboard trains, canine patrols, track inspections, photo enforcement, closed-circuit security cameras in stations
    3. Increased funding is necessary to increase enforcement and education programs

4. Training programs and drills increase response quality of emergency response teams
5. Public awareness programs: presentation at schools, public service announcements, brochures and pamphlets, magazine and newspaper advertisements on rail safety
6. Engineering: Warning lights and quad gates at grade crossings
7. Legislative: Increase fines and penalties for rail crossing violations, as well as increasing funding to increase safety

Top Priorities from Law Enforcement Panel

- Top Priorities
    1. Increase and enhance penalties against those who endanger the lives of others
    2. Try to make grade crossings impenetrable to drivers
    3. Advanced warning systems for passengers onboard to help them prepare
    4. Compile a statewide statistical analysis that identifies which grade crossings are the most dangerous and where the most collisions occur
    5. Public education gets people to wake up and see the hazards posed by railways, and hopefully call the local law enforcement to report violators
    6. Money generated from fines and penalties can be circulated back to be used to fund a photo enforcement system and education programs
    7. Video surveillance to give an early warning of any obstructions on the rail tracks

PANEL #4

CALIFORNIA RAIL AUTHORITIES: (Appendix 5)

Focus of Panel:
The panel was asked to provide testimony before the committee that focused on the current funding level {state and federal} for passenger rail safety programs and proposals for funding these programs in the future, the CPUC's Rail Safety Action Plan specifically as it relates to track defects and grade crossing accidents and recommendations for emergency preparedness and terrorist attack prevention.

<u>Highlights of Testimony & Panel Recommendations:</u>

California Department of Transportation

- William Bronte Deputy Director of Rail
    1. Dept. responsibilities regarding rail safety
        - Ensure that equipment used in state wide systems is safe and meets federal safety regulations (oversee repair and renovations)
        - Ensure that highway railroad grade crossings on state routes are properly protected
        - Administer Federal Section 130 railroad highway grade crossing funds and State Section 190 highway grade separation programs
        - Educate public about hazards of grade crossings and trespasser violations
        - Advise local jurisdictions of local developments' impact on highway rail system
    2. No direct responsibility over grade crossings in local streets
    3. Retained special consultant to analyze statistical safety of push-pull configurations; found no statistical evidence that push trains are less safe than pull trains (in terms of fatalities)
    4. Biggest risk for safety for rail passengers and workers was high number of at grade crossings in the state
    5. Constructed grade crossing separations where practical and cost-effective; these protections are evaluated annually and $5 million is set aside to make improvements
    6. Section 130 funds: $10 million per year to improve about 20 grade crossings (more warning and flashing lights)
    7. Section 190 funds: projects determined by the CPUC
    8. Provides funds to California's Operation Lifesaver program to further public education
    9. Best way to improve safety at grade crossings: Close crossing or provide grade separation
    10. Teach classes on the methods of assessing railroad crossing safety and administration to provide rail staff with more technical information regarding grade crossings
    11. *Mr. Frommer's Recommendation: Double the money for section 130 and 190 programs*

California Public Utilities Commission

- Steve Larson Executive Director
    1. 3 Branches of CPUC focused on Rail Safety
        - Rail Crossing Engineering section: reviews safety of highway grade crossing and evaluate post-accident crossing safety

- Rail Transit Safety: safe construction, inspection, and operation of public transit systems
- Commission of Railroad Operation: investigates all serious railroad accidents and enforces FRA general orders

2. 26 federally certified railroad safety inspectors on CPUC staff
    - Inspect railroads for violations of federal standards
3. Positive Train Control (PTC) system
    - Makes accidents/collisions preventable
    - NTSB #1 recommendation for rail passenger safety in the US
    - Automatically stops trains from entering blocks that are already occupied by another train
    - Implementation not required by FRA
    - Costs about $3 billion to implement nationwide
4. CPUC Recommendations based on Glendale crash
    - Design improvement to pilot (heavy metal bumper in front of cab-car to deflect debris off track)
    - Seatbelts
    - Camera in lead car would provide record of event and some warning
    - Prohibit passengers from sitting in front half of cab-car
    - Improve railroad right-of-way security measures
5. Assessment of rail traffic growth: revenue ton-miles incorporates weight and distance
6. 2004 total Train Miles operated in CA: 37 million miles
7. 216 railroad accidents projected to occur in CA by year's end
8. Existing regulations are ineffective
    - 1991: CPUC directed by legislature to identify railroad derailment accident sites in CA and up regulations
    - CPUC imposed local safety railroad rules in 23 local sites
    - 9th Circuit Court of Appeals: local safety hazards sites are under federal jurisdiction and must follow FRA rules
    - CPUC safety regulations were struck down by the court
9. CPUC Rail Safety Action Plan (April 2005)
    - Continue traditional ongoing railroad inspection activities in cooperation with FRA

- Identification of rail crossings through EIR process within proposed construction projects to recommend appropriate grade crossing safety recommendations early in the planning stage
- Collection and analysis of near miss data relative to grade crossing to predict problem areas
- Investigation of all rail crossing and trespassing fatalities and significant accidents and apply information to rail crossing diagnostic reviews
- Expansion of CPUC commitment to Operation Lifesaver
- Increase number of focused equipment, track, and operation practices inspections
- Develop system to ensure automatic grade crossing safety equipment is not discarded or unaccounted for when removed, so it can be used again in less dangerous locations
- Track federal safety legislation and support publicly
- Revise FRSA to empower states to share more regulatory control of local railroads, especially those that are more vulnerable to accidents
- Support SJR 13 to amend FRSA to allow states to designate local safety hazard sites and regulate railroad safety locally

Governor's Office of Homeland Security (OHS)

Mike Dayton, Deputy Director

1. OHS serves as the states administering agent for federal preparedness dollars
2. The State Homeland Security Grant Program and Urban Areas Security Initiative Program are the primary sources of preparedness grants to help local government combat terrorism
    a. State Homeland Security Grant Program funds are allocated on a base-plus population basis to the 58 counties
        i. Based on the Approval Authorities (five member board) assessments funding is allocates within the operational area
    b. Urban Areas Security Initiative Program, (UASIP) is directed to high-threat urban areas pre-selected by Dept. of Homeland Security.
        i. Mass transit systems have also received funding under UASIP, in FY 2004 LA Metrolink received nearly $2M and LA County Metropolitan Transit District (MTA) received nearly $800,000. In FY 2003, LA MTA received $4.5M
3. In FY 2005 the Dept. of Homeland Security created the Transit Security Grant Program.
    a. LA and Santa Ana areas are expected to receive nearly $7M to enhance security at the LA MTA and Metrolink systems

4. Examples of eligible protective measures authorized by US Dept. of Homeland Security included the purchase of explosive agent detection sensors, driver shields, GPS tracking systems, on-board cameras, secure entry ID systems, improved lighting, fencing and secured gates, public and employee awareness training
5. Funding from the federal government will also be made available next year

Southern California Regional Rail Authority

David Solow, Chief Executive Director

1. Metrolink is the sixth largest commuter train system in the country providing over 40,000 daily trips while serving 54 stations over 400 miles of track
2. Metrolink trains operation in pull mode for 50% of the time
3. Metrolink supports the findings from FRA recent study on push-pull train operations
4. Federal regulations require that commuter train locomotives and cab control cars operate in the front of trains meet the same structural and crashworthiness requirements
5. Since the January 26th train derailment, Metrolink has blocked off all seats in the front mezzanine level when the cab car is in the lead position (push mode)
6. Metrolink is currently working on:
    a. Energy absorbing front-end car bars
    b. Sheer back couplers which also absorb energy
    c. Rea facing seats in cab card
    d. Frangible tables which absorb initial force

Response to Victims and Victims' Families Group recommendation to create "Wye" loop or turnaround tracks:

1. Eliminating the push method of train operation will not significantly improve safety. The operation of "push-pull" has been in use throughout the world for many years. Federal standards require that commuter rail locomotives and cab control cars that operate in the front of trains meet the same structural and crashworthiness standards. Metrolink's average system speed with stops is 40 miles per hour. In general, at speeds in excess of 25 miles per hour, it has not been shown that there is any difference in safety for passengers riding in the lead car or in the first car behind a locomotive.

2. The cost of constructing turning facilities would be dwarfed by the complexity and cost of acquiring non-railroad property in an urban environment.

3. Money spent on expensive turning facilities would be better spent on grade separations and other physical barriers along the railroad right of way, including sealed corridors, which truly enhance public safety and provide positive air quality, vehicular circulation, noise reduction and other community benefits.

4. The construction of new turning facilities in an urbanized environment would require the creation of new at-grade street crossings where none currently exist. This would directly conflict with existing federal, state and regional policy of eliminating street crossings as the best way to ensure safer rail service.

5. To eliminate push-pull operations by means of turning facilities would require the construction of turning facilities at up to 15 locations on the Metrolink system, which covers more than 400 miles of track. The minimum number of turning facilities needed to operate a significant proportion of the existing system are:

   a. **LAUS at CMF/Taylor Yard**
   b. **Irvine**
   c. **Lancaster**
   d. **Montalvo**
   e. **Moorpark**
   f. **Oceanside**
   g. **Riverside**
   h. **San Bernardino**

   To continue to operate trains that currently return at stations short of the end of the line, an additional 7 turning tracks would be required at the following locations:

   a. **Burbank Airport**
   b. **Chatsworth**
   c. **Fullerton**
   d. **Laguna Niguel**
   e. **Newhall**
   f. **San Juan Capistrano**
   g. **Via Princessa**

   In addition to the cost of the turning facilities, additional new trains would be required and significant new operating costs would be incurred to retain current operating schedules.

6. These facilities would have to accommodate trains of up to eight cars plus the locomotive. Each wye would take up to 8 acres of land (plus the remainder of affected parcel outside the wye); each loop would require up to 13.1 acres (plus the remainder of affected parcels outside the loop). It is important to note that most wyes or loops would have to be built on non-railroad property, with attendant environmental and community impacts.

7. On some lines there is limited ability to construct turning facilities adjacent to Metrolink-owned lines. To extend beyond Metrolink's service areas into territories controlled by the freight railroads would require renegotiation of agreements with the freight railroads, which are not under SCRRA's control, and would likely result in financial impacts to commuter rail far beyond those associated with the turning facilities alone.

8. Metrolink, on many of its lines and on lines of its private railroad partners, operates in heavily congested rail territory. Theoretically a train can be turned in under 15 minutes; however that assumes there is no other train traffic in either direction between the turning facility and the station.

9. Since Metrolink operates in heavy mixed traffic on many lines, extending the time needed to turn trains would significantly reduce the available time for passenger service. Otherwise, reduction in time for passenger service results in less service, leading to more cars on the roads.

Highlights of Testimony & Panel Recommendations:

California Transit Association
Joshua Shaw, Executive Director

1. California's four commuter rail operations and three state-subsidized Amtrak intercity services handle a combined total of almost 20 million passenger trips every year
2. Concerning crash avoidance, one of the most effective approaches is to separate train traffic from vehicular traffic. However grade separations are expensive, often costing between $10-15$ million

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Appendix 1-5

1. **Turning Tracks Concepts Study**
   Metrolink aerial map of proposed turn-around facilities ("Wye" tracks)

2. **Federal Rail Administration Written Testimony**
   a. Brenda Moscoso, Operations Division of Rail
   b. Al Settje, Regional Administrator

3. **First Responders**
   a. Chief Donald Wright, Battalion Chief Glendale Fire Department
   b. Chief Randy Adams, Glendale Police Department
   c. Lieutenant Mike Parker, Transit Bureau Services, LA County Sheriff's Office

4. **California Rail Authorities**
   a. William Bronte, California Department of Transportation
   b. Steve Larson, Executive Director, California Public Utilities Commission
   c. Mike Dayton, Deputy Director, Governor's Office of Homeland Security
   d. David Solow, Chief Executive Director, Southern California Regional Rail Authority
   e. Joshua Shaw, Executive Director, California Transit Association