



***Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-08***

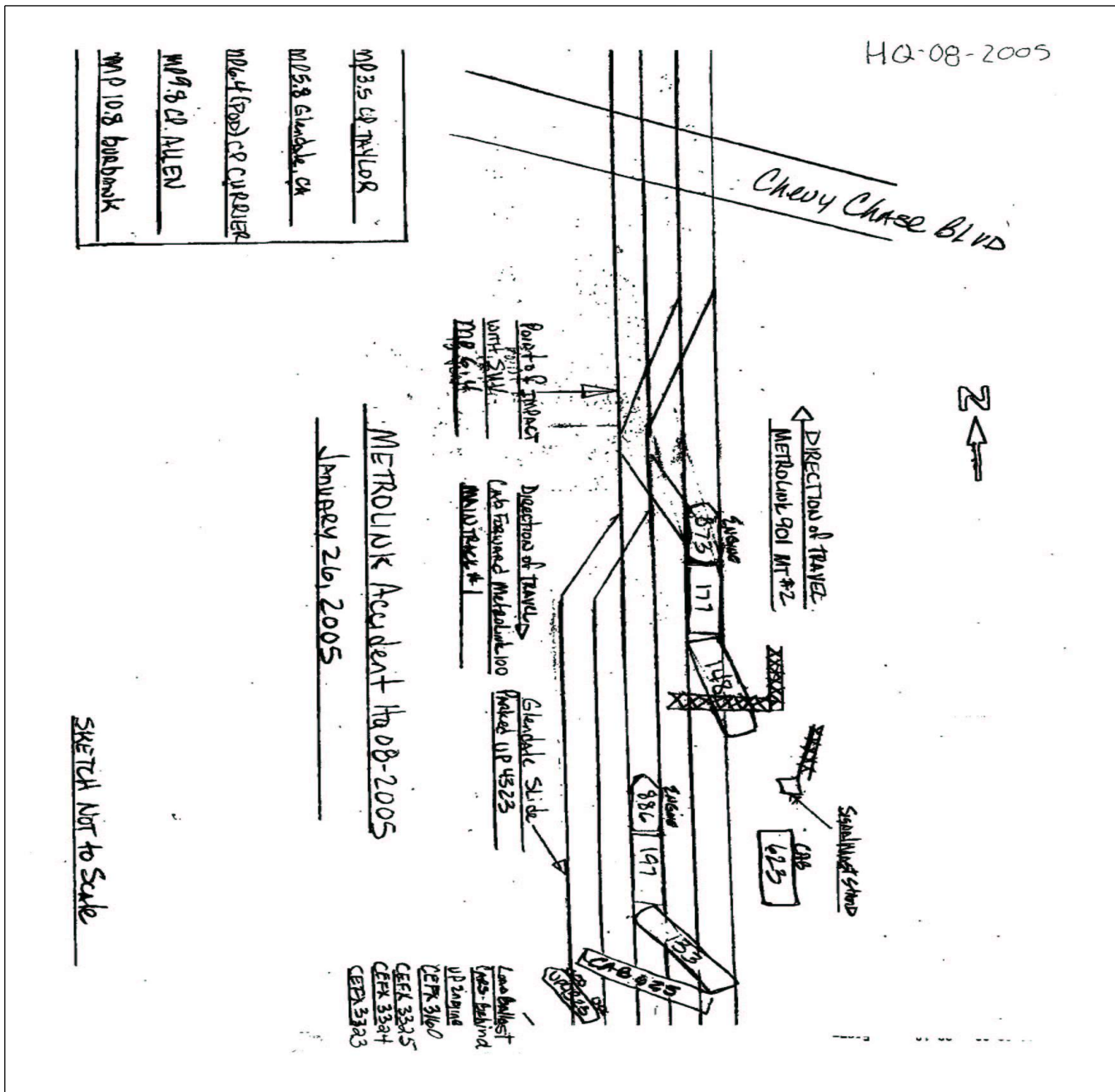
***Southern California Regional Rail Authority (SCRX)
Glendale, California
January 26, 2005***

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

1. Name of Railroad Operating Train #1 Southern California Regional Rail Authority [SCAX]		1a. Alphabetic Code SCAX		1b. Railroad Accident/Incident No. 012605	
2. Name of Railroad Operating Train #2 Southern California Regional Rail Authority [SCAX]		2a. Alphabetic Code SCAX		2b. Railroad Accident/Incident 012605	
3. Name of Railroad Responsible for Track Maintenance: Southern California Regional Rail Authority [SCAX]		3a. Alphabetic Code SCAX		3b. Railroad Accident/Incident No. 012605	
4. U.S. DOT_AAR Grade Crossing Identification Number		5. Date of Accident/Incident Month Day Year 01 26 2005		6. Time of Accident/Incident 06:05: <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	
7. Type of Accident/Incident (single entry in code box) 1. Derailment 4. Side collision 7. Hwy-rail crossing 10. Explosion-detonation 13. Other (describe in narrative) 2. Head on collision 5. Raking collision 8. RR grade crossing 11. Fire/violent rupture 3. Rear end collision 6. Broken Train collision 9. Obstruction 12. Other impacts 09					
8. Cars Carrying HAZMAT 0	9. HAZMAT Cars Damaged/Derailed 0	10. Cars Releasing HAZMAT 0	11. People Evacuated 0	12. Division System	
13. Nearest City/Town Glendale/Los Angeles		14. Milepost (to nearest tenth) 6.4	15. State Abbr Code N/A CA	16. County LOS ANGELES	
17. Temperature (F) (specify if minus) 60 F	18. Visibility (single entry) 1. Dawn 3. Dusk 2. Day 4. Dark Code 4	19. Weather (single entry) 1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow Code 3	20. Type of Track Code 1. Main 3. Siding 2. Yard 4. Industry 1		
21. Track Name/Number Mains 1 & 2		22. FRA Track Code Class (1-9, X) 4	23. Annual Track Density (gross tons in millions) 1.7	24. Time Table Direction Code 1. North 3. East 3	
OPERATING TRAIN #1					
25. Type of Equipment Consist (single entry) 1. Freight train 4. Work train 7. Yard/switching 2. Passenger train 5. Single car 8. Light loco(s). 3. Commuter train 6. Cut of cars 9. Maint./inspect.car	A. Spec. MoW Equip. Code 3	26. Was Equipment Attended? 1. Yes 2. No 1	27. Train Number/Symbol ML 100		
28. Speed (recorded speed, if available) Code R - Recorded E - Estimated 74 MPH E	29. Trailing Tons (gross tonnage, excluding power units) 0	30. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track c. Auto train stop i. Time table/train orders o. Positive train control d. Cab j. Track warrant control p. Other (Specify in narrative) Code(s) e. Traffic k. Direct traffic control f. Interlocking l. Yard limits e N/A N/A N/A N/A			30a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable 2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter 0
31. Principal Car/Unit (1) First involved (derailed, struck, etc) (2) Causing (if mechanical cause reported)	a. Initial and Number N/A	b. Position in Train 1	c. Loaded (yes/no) yes	32. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box. Alcohol Drugs N/A N/A	
	0	0	yes	33. Was this consist transporting passengers? (Y/N) Y	
34. Locomotive Units	a. Head End	b. Mid Train	c. Rear End	35. Cars	Load
		b. Manual	c. Remote		a. Freight
			d. Manual		b. Pass.
			e. Remote		c. Freight
					d. Pass.
					e. Caboose
(1) Total in Train	0	0	1	0	(1) Total in Equipment Consist
(2) Total Derailed	0	0	1	0	(2) Total Derailed
	0	0	1	0	
	0	0	1	0	
	0	0	1	0	
36. Equipment Damage This Consist	6300000	37. Track, Signal, Way, & Structure Damage	301105	38. Primary Cause Code M402	39. Contributing Cause Code N/A
Number of Crew Members			Length of Time on Duty		
40. Engineer/Operators N/A	41. Firemen 0	42. Conductors 1	43. Brakemen 0	44. Engineer/Operator Hrs 1 Mi 48	45. Conductor Hrs 1 Mi 48
Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other	49. EOT Device? 1. Yes 2. No 2	50. Was EOT Device Properly Armed? 1. Yes 2. No N/A
Fatal	0	8	0	51. Caboose Occupied by Crew? 1. Yes 2. No	N/A
Nonfatal	N/A	8	0		
OPERATING TRAIN #2					
52. Type of Equipment Consist (single entry) 1. Freight train 4. Work train 7. Yard/switching 2. Passenger train 5. Single car 8. Light loco(s). 3. Commuter train 6. Cut of cars 9. Maint./inspect.car	A. Spec. MoW Equip. Code 2	53. Was Equipment Attended? 1. Yes 2. No 1	54. Train Number/Symbol ML 901		
55. Speed (recorded speed, if available) Code R - Recorded E - Estimated 45 MPH E	57. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track	57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable			

56. Trailing Tons (gross tonnage, excluding power units)		N/A		c. Auto train stop d. Cab e. Traffic f. Interlocking		i. Time table/train orders j. Track warrant control k. Direct traffic control l. Yard limits		o. Positive train control p. Other (Specify in narrative) Code(s)		2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter		0					
58. Principal Car/Unit		a. Initial and Number		b. Position in Train		c. Loaded(yes/no)		59. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.				Alcohol		Drugs			
(1) First involved (derailed, struck, etc)		ML000 148		3		yes						N/A		N/A			
(2) Causing (if mechanical cause reported)		0		N/A		N/A		60. Was this consist transporting passengers? (Y/N)				N/A					
61. Locomotive Units		a. Head End		Mid Train		Rear End		62. Cars		Loade		Empty		e. Caboose			
				b. Manual		c. Remote				a. Freight		b. Pass.		c. Freight		d. Pass.	
(1) Total in Train		1		0		0		(1) Total in Equipment Consist		0		3		0		0	
(2) Total Derailed		0		0		0		(2) Total Derailed		0		2		0		0	
63. Equipment Damage This Consist		6065000		64. Track, Signal, Way, & Structure Damage		0		65. Primary Cause Code		M402		66. Contributing Cause Code		N/A			
Number of Crew Members				Length of Time on Duty													
67. Engineer/Operators		68. Firemen		69. Conductors		70. Brakemen		71. Engineer/Operator		72. Conductor							
1		N/A		1		N/A		Hrs 1 Mi 40		Hrs 1 Mi 40							
Casualties to:		73. Railroad Employees		74. Train Passengers		75. Other		76. EOT Device?		77. Was EOT Device Properly Armed?							
Fatal		1		2		0		1. Yes 2. No 2		1. Yes 2. No N/A							
Nonfatal		0		32		0		78. Caboose Occupied by Crew?		N/A							
								1. Yes 2. No									
Highway User Involved				Rail Equipment Involved													
79. Type		C. Truck-Trailer. F. Bus J. Other Motor Vehicle		Code		83. Equipment		3. Train (standing)		6. Light Loco(s) (moving)		Code					
A. Auto D. Pick-Up Truck G. School Bus K. Pedestrian				N/A		1. Train(units pulling)		4. Car(s)(moving)		7. Light(s) (standing)		N/A					
B. Truck E. Van H. Motorcycle M. Other (spec. in narrative)				N/A		2. Train(units pushing)		5. Car(s)(standing)		8. Other (specify in narrative)		N/A					
80. Vehicle Speed (est. MPH at impact)		N/A		81. Direction geographical		Code		84. Position of Car Unit in Train		N/A							
				1. North 2. South 3. East 4. West		N/A											
82. Position				Code		85. Circumstance		Code									
1. Stalled on Crossing 2. Stopped on Crossing 3. Moving Over Crossing 4. Trapped				N/A		1. Rail Equipment Struck Highway User		N/A									
86a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?				Code		86b. Was there a hazardous materials release by		Code									
1. Highway User 2. Rail Equipment 3. Both 4. Neither				N/A		1. Highway User 2. Rail Equipment 3. Both 4. Neither		N/A									
86c. State here the name and quantity of the hazardous materials released, if any.														N/A			
87. Type of Crossing		1. Gates		4. Wig Wags		7. Crossbucks		10. Flagged by crew		88. Signaled Crossing Warning		Code		89. Whistle Ban		Code	
Warning		2. Cantilever FLS		5. Hwy. traffic signals		8. Stop signs		11. Other (spec. in narr.)		(See instructions for codes)				1. Yes			
		3. Standard FLS		6. Audible		9. Watchman		12. None						2. No			
Code(s)		N/A		N/A		N/A		N/A						3. Unknown		N/A	
90. Location of Warning				Code		91. Crossing Warning Interconnected with Highway Signals		Code		92. Crossing Illuminated by Street Lights or Special Lights		Code					
1. Both Sides						1. Yes				1. Yes							
2. Side of Vehicle Approach						2. No		N/A		2. No							
3. Opposite Side of Vehicle Approach				N/A		3. Unknown				3. Unknown							
93. Driver's Age		94. Driver's Gender		Code		95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train		Code		96. Driver		Code					
0		1. Male		N/A		1. Yes 2. No 3. Unknown		N/A		1. Drove around or thru the Gate		4. Stopped on Crossing					
		2. Female								2. Stopped and then Proceeded		5. Other (specify in narrative)				N/A	
										3. Did not Stop							
97. Driver Passed Standing Highway Vehicle		Code		98. View of Track Obscured by (primary obstruction)		Code											
1. Yes 2. No 3. Unknown		N/A		1. Permanent Structure 3. Passing Train 5. Vegetation 7. Other (specify in narrative)		N/A											
				2. Standing Railroad Equipment 4. Topography 6. Highway Vehicle 8. Not obstructed													
101. Casualties to Highway-Rail Crossing Users		Killed		Injured		99. Driver Was		Code		100. Was Driver in the Vehicle?		Code					
		0		0		1. Killed 2. Injured 3. Uninjured		N/A		1. Yes 2. No		N/A					
						102. Highway Vehicle Property Damage (est. dollar damage)		0		103. Total Number of Highway-Rail Crossing Users (include driver)		0					
104. Locomotive Auxiliary Lights?				Code		105. Locomotive Auxiliary Lights Operational?		Code									
1. Yes 2. No				N/A		1. Yes 2. No		N/A									
106. Locomotive Headlight Illuminated?				Code		107. Locomotive Audible Warning Sounded?		Code									
1. Yes 2. No				N/A		1. Yes 2. No		N/A									

108. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED.
HQ-08-2005
2005.jpg



HQ-08-2005

Chevy Chase Blvd



← DIRECTION OF TRAVEL
METROLINK 901 MT #2

Point of Impact
with SUV
1171
197

Direction of Travel
CAB Engine METROLINK 100
MAIN TRACK # 1

Glendale Slide
Track UP 4523

Low ballast
CNS - Ballast
UP 2471
UP 3160
UP 3325
UP 3324
UP 3323

Signal Mast
CB# 125

Signal 886
Signal 197
Signal 153

- MP 35 CL TAYLOR
- MP 58 Glendale, CA
- MP 4 (Road) CR CURRIER
- MP 9 CL ALLEN
- MP 108 Burbank

METROLINK Accident HQ-08-2005
January 26, 2005

SKETCH NOT TO SCALE

109. SYNOPSIS OF THE ACCIDENT

At approximately 6:00 a.m. PST, January 26, 2005, Metrolink ML100 (Train No. 1) was traveling at a recorded speed of 74 mph, eastbound on Main Track 2 heading from Burbank towards Los Angeles, California. At the same time, Metrolink 901 (Train No. 2) was traveling westbound at an estimated speed of 45 mph, with locomotive forward, on Main Track 1 and had just departed Glendale Station. Union Pacific Work Train, UGSVTD-18, (Train No. 3), was left unattended and secured on the Glendale Slide Track. The trains were operating on the Metrolink Valley Subdivision. The incident occurred at CP Currier, MP 6.40. The method of operation in the area of the incident is by a Traffic Control System. The maximum authorized speed for passenger trains is 79 mph. Event recorder records indicate that both trains were operating within authorized timetable speeds.

For the purpose of this report all directions are established by the timetable in effect.

Train no. 1, traveling with cab car forward, struck a Jeep Cherokee SUV at a measured distance of 155 feet east of the Chevy Chase highway-rail crossing (DOT 746812T, MP 6.51). The impact with the SUV caused Train no. 1 to derail and strike standing Train no. 3, derailing the lead locomotive of Train no. 3. The collision then caused two cars in Train no. 1 to jackknife, striking the side of two of the cars in westbound Train no. 2 and derailing them, as well.

As a result of this accident, a conductor and 10 passengers were killed, while 2 crew members and 40 passengers were injured.

Probable Cause:

The Eastbound Metrolink train 100 collided with an obstruction (Jeep Cherokee SUV) placed on Main Track 2.

110. NARRATIVE

The following information was obtained from an investigation that was conducted by the Federal Railroad Administration.

Location and Method of Operation:

Metrolink operates the Valley Subdivision in a timetable east-west direction between CP Taylor, MP 3.5, in the City of Los Angeles and ends in Lancaster, California, MP 76.6. The method of operation is a Traffic Control System, Centralized Traffic Control (CTC). The dispatcher is located in Pomona, California. The subdivision consists of multiple main track territory with sidings and crossovers. The maximum timetable speed for trains operating at the point of impact is 79 mph for passenger trains and 55 mph for freight trains.

Circumstances prior to the accident:

Train no. 1 (Metrolink 100 East, Cab Forward)

The crew of Train no. 1 included a locomotive engineer and a conductor. They first went on duty at 4:07 a.m. in Moorpark, California. This is their home terminal and both received the statutory off duty period prior to reporting for duty.

Train no. 1 consisted of one locomotive and three passenger cars. It was operated with the cab car forward. The train was scheduled to travel from Moorpark to Los Angeles, California and departed about 5:07 a.m. Prior to arriving in Los Angeles, it was scheduled for station stops in Burbank and Glendale, California.

As Train no. 1 approached Chevy Chase grade crossing on Main Track 2, the engineer saw the approaching headlight of Metrolink 901 West (Train No. 2) on Main Track 1, and then noticed the outline of an automobile on Main Track 2. The engineer was in the right side of the cab forward car. The conductor was in the lower portion of the cab car.

Train no. 2, (Metrolink 901 West)

The crew of Train No. 2 included a locomotive engineer and a conductor. They first went on duty at 4:25 a.m. at the Metrolink Central Maintenance Facility in Taylor Yard. This is their home terminal and both received the statutory off duty period prior to reporting for duty. They departed for Los Angeles Union Station at about 5:15 a.m. and arrived about 5:30 a.m. After boarding passengers, the train departed Los Angeles about 5:48 a.m. for their first stop in Glendale, California. They departed Glendale and headed to Burbank on Main Track 1. As Train No. 2 approached Chevy Chase grade crossing, the engineer observed Metrolink Train 100 (Train No. 1) approaching on the adjacent track on his left. The engineer noticed sparks from under the leading cab car and observed the train was derailed.

The Accident:

Train No.1 (Metrolink 100 East, Cab Car Forward)

Approaching the accident site from MP 8.0 traveling east on Main Track 2, the grade for the first half mile ascends 0.08 percent. At MP 7.5 the grade descends -0.04 to -0.45, to -0.62, to -0.19 percent to MP 6.4 at the point of impact (POI). There is a 24 minute left hand curve and a 50 minute right hand curve between MP 8.0 and MP 6.4. The accident occurred at 6:05 a.m.

After seeing the outline of the automobile, the engineer estimated that his train was traveling close to track speed of 79 mph. At this time he placed his train into

emergency braking. After striking the automobile, he was aware that his train had derailed. He then left the operating cab and warned the passengers to hold on. He then looked out of the window and saw that the train would impact a parked Union Pacific locomotive (Train No. 3) on the Glendale Slide Track. He then climbed the stairs to the upper level of the cab and warned the passengers to brace, before bracing himself. After the train came to rest, he observed a fire at what had been the leading end of the cab car. He used his personal cell phone to telephone the train dispatcher to report the emergency. The engineer and conductor were injured in the accident. The engineer was hospitalized then released 15 days later; the conductor was treated at the scene and lost 14 days of work. There were eight passengers killed, two employees injured and eight passengers injured.

Train No. 2 (Metrolink 901 West)

Approaching the accident site from MP 4.0 traveling west on Main Track 1, the grade ascends from 0.42 percent to 1.09 percent for a 1.4 miles. It then ascends from 0.27 percent to 0.71 percent for a distance of 0.7 of a mile and descends to 0.19 percent for a distance of 0.3 of a mile at point of impact. There is one 30 minute left hand curve between MP 4.0 and MP 6.4 (POI). The accident occurred at 6:05 a.m.

After seeing the sparks from Train no. 1, the engineer estimated his train speed to be between 40 and 50 mph. He placed his train into emergency braking and shortly after the cab car of Metrolink 100 passed his locomotive, he felt his train derail. After his train came to a stop, he notified Metrolink dispatcher of the emergency via train radio and went back to the derailed cars to assist. The conductor of Train no. 2 sustained fatal injuries. There were two passenger fatalities and 32 passenger injuries.

Post-Accident Investigation:

Emergency response personnel arrived about five minutes after the accident. Emergency triage units were set up on both sides of the accident site. A total of 119 Los Angeles City and County fire trucks, 29 private ambulances, 3 Los Angeles City helicopters, and police forces from the cities of Los Angeles and Glendale and Los Angeles County were on the scene. The accident scene was declared a crime scene when it was discovered that the vehicle placed on the track by a trespasser caused 11 fatalities and 42 injuries. The accident area was released to railroad investigation agencies after the police gathered and secured the evidence. The operator of the vehicle left on the track was charged with 11 counts of manslaughter.

Post-Accident Signal Investigation

The accident was near Chevy Chase Drive, Highway-Rail Grade Crossing, DOT # 746812T, MP 6.51 and at CP Currier, MP 6.4. This grade crossing has an advance warning system for vehicle traffic and consists of two standard five-inch masts near the edge of the road. Attached to each mast is a crossbuck, a 12 inch flashing light, light unit, gate arm, audible warning bell and a Safetran Grade Crossing Predictor (GCP) Model 3000. This provides train detection on an approach circuit sufficient to allow at least 20 seconds warning time during train movements. CP Currier consists of a universal crossover and siding. The signal system at CP Currier consists of General Railroad Signal colorlight signals, Union Switch & Signal with Model 23 dual controlled switches.

The Metrolink signal inspection team consisted of a NTSB Investigator, FRA Signal Inspectors, and Metrolink Signal Manager and Contract Signal Inspectors. The team removed the seals at CP Currier, CP Allen, CP Taylor, and the signal house at Chevy Chase Drive. The inspections were observed by the NTSB and FRA inspectors. The relays and terminals in the houses were inspected for possible disarrangement of circuits; none were found. Data Logger Summaries from Chevy Chase Drive show a system warning time of 32 seconds on Main Track 2.

From the post-accident signal investigation, there is no indication that the conditions observed and described above were contributing factors in the accident.

Post-Accident Track Inspection:

The track inspection team consisted of a NTSB Investigator, FRA Track Inspector, Director of Southern California Regional Rail Authority, Amtrak Division Engineer, and the Project Manager of Herzog Contracting Corporation. The post-accident observations found that the general construction of Main Track 2 consisted of 136-lbs. continuously welded rail (CWR). The rail was seated in 8 1/2 x 16 inch double shoulder tie plates. The cross ties measured 9 x 7 inches by 9 feet spaced 19 1/2 inches on center. The cross ties were boxed anchored and supported by angular granite ballast in the cribs and outside on the shoulders.

Track geometry measurements taken by the inspection team were recorded and found that the widest gage was measured at 56 1/2 inches. Maximum allowed in FRA Class 4 Track is 57 1/2 inches. The greatest cross level measurement was 1/4 inches. Maximum allowed in FRA Class 4 Track is 1 1/4 inches. There were no alignment deviations found.

Track inspections and records were found to be in compliance with FRA Track Safety Standards. An Ultrasonic Rail Test conducted on October 29, 2004, found no rail defects in the area of the accident. On May 20, 2004, FRA Geometry T-16 Test Car surveyed the Metrolink Valley Subdivision. One cross level defect was recorded at MP 6.6, approximately 1000 feet west of the point of impact. This defective condition was repaired per FRA regulations.

From the post-accident track inspection, there is no indication that the conditions observed and described above were contributing factors in the accident.

Post-Accident Mechanical Inspection:

The mechanical inspection team consisted of a NTSB Investigator, FRA Mechanical Inspector, Southern California Regional Rail Authority Mechanical Officers, and Representatives from Volpe, Dynamic Science Inc., and Bombardier.

The Crash Worthiness investigation of the passenger cars found that the passenger cars in Train 901 and 100 were built prior 2002 except SCAX 197. This car was accepted by Metrolink in August 2002. All cars appeared to be in compliance with CFR Part 238 and 49 CFR Part 239. Mechanical inspection of Metrolink 901 West found that the automatic brake valve was placed in emergency application before the collision. It appears that the cab car of Metrolink 100 East derailed after colliding with the motor vehicle on the tracks. Metrolink 100 East then struck Union Pacific Locomotive 4323 parked on the Glendale Siding. The mechanical inspection was completed at the Metrolink Ventura facility and no exceptions taken on the paperwork.

From the post-accident mechanical investigation, there is no indications that the conditions observed and described were contributing factors in the accident.

Damages:

Union Pacific Locomotive estimate, \$240,000, Metrolink equipment, \$12,365,000, Track and Signal, \$301,105.

Probable Cause:

The Eastbound Metrolink train 100 collided with an obstruction (Jeep Cherokee SUV) placed on Main Track 2.