Two detours were established on the Santa Monica Freeway between Washington Boulevard and La Brea Avenue. An HOV detour utilized the Santa Monica Freeway right up to the location of the structure collapse. Westbound HOVs utilized a converted eastbound offramp/ connector and were essentially taken off the freeway at one offramp and immediately back on the converted eastbound offramp. Eastbound HOVs were taken off at La Brea Avenue and returned at Washington Boulevard. A more circuitous detour was necessary for SOVs that were diverted off the freeway at La Brea Avenue approximately one mile upstream of the HOV lane determination. Eastbound HOVs were also exited at Robertson where they traversed local arterials leading to the freeway at Washington Boulevard. Overall, there was a savings of approximately 15 to 20 minutes for HOVs during the peak commute period.

The public adapted well to the installation of HOV lanes, both on I-10 and I-5/SR 14 truck lanes. On the SR 14 truck lanes, peak HOV volume frequently ranged from 2,000 to 2,200 vehicles per hour per lane during peak periods. On I-10, HOV usage ranged from 700 vehicles per hour to 1,400 vehicles per hour during peak periods. Mixed flow lanes on the State Route 14 truck bypass frequently ranged as high as 2,400 vehicles per hour per lane. The overall savings to the public utilizing HOV lanes averaged approximately 20 minutes.

The Los Angeles County Metropolitan Transportation Authority Response

Arthur T. Leahy, Los Angeles County Metropolitan Transportation Authority

The earthquake occurred at 4:31 A.M. on January 31, 1994. That was a holiday Monday morning. By 5:30 A.M., an emergency command center had been established at the LACMTA. Staff from all departments—including operations, equipment maintenance, facility maintenance, engineering, safety, communications, and the news bureau—gathered at the center to share information and to start identifying response strategies. The group examined the extent of damage to facilities and equipment, available communications, and alternatives.

A number of immediate actions were initiated. First, all bus and rail operators were mobilized. This effort followed the previously developed emergency plan, so LACMTA personnel knew what to do. An assessment of all facilities was initiated to determine the extent of damage and necessary repairs were identified. These efforts were coordinated with those of other agencies through the command center in the basement of City Hall.

Although the first day was very difficult with reoccurring aftershocks, 96 percent of the normal bus service was operated. Ridership was about 20 percent below normal, but it was important for transit dependent groups. Responses from riders indicated that the service was critical for traveling to and from work. This provided a reassurance to the public that the city was still functioning.

The Metro Blue Line was also in operation that day. The system was inspected after each aftershock to ensure that all the structures were still sound. The Red Line subway was not in operation, however, due to the inspections needed after each aftershock. A bus bridge was established replicating the route of the Red Line. On Tuesday, the day after the earthquake, all bus and rail service was in operation. Ongoing communications were maintained with Caltrans and local jurisdictions. This was critical since many of the bus route were impacted by detours and conditions on the freeways and local streets. Approximately 75 detours were in place within 24 hours of the earthquake.

During the weeks after the earthquake, the MTA actively participated in an interagency planning committee. This committee was chaired by a representative from the governor's office. A great deal of support was provided by the governor's office, as well as federal officials. Other representatives on the committee were from Caltrans, the City of Los Angeles, law enforcement agencies, and the other transit agencies in the area. The purpose of the committee was to plan and coordinate street and highway detours, bus service changes and new services, and coordinating public information. Daily updates and press releases were used to help communicate with residents and travelers.

In closing, the experience of the LACMTA indicates the importance of having an emergency plan that all employees are familiar with. It is also critical to update these plans after they are used in an emergency. The plan worked well and all employees knew what they should do. The single largest key to success was probably the close coordination and communication among the different

agencies. This enhanced the efforts of each agency and provided a coordinated approach to addressing problems and to communicating with the public.

The Metrolink Response

Richard Stanger, Metrolink

I would like to take this opportunity to provide an overview of the Metrolink system and to describe how we responded after the earthquake. Metrolink started operations just 15 months before the earthquake in October of 1992. Metrolink is part of the Southern California Regional Rail Authority, which was established through a joint-powers agreement among five counties. The sole purpose of the authority is to plan, build, and operate commuter rail service.

The system has expanded very rapidly. The initial system included 112 miles when it was opened in 1992. By June of 1993, 196 miles were in operation. Currently, the system includes 346 miles. By 1995, the Metrolink system will encompass 500 miles on seven lines.

A number of factors have contributed to this growth. First, the bond measures passed in 1989 and 1990 earmarked adequate funds to build the system. The bond measures were largely a response to the significant increases in congestion experienced in the Los Angeles area. Between 1980 and 1990, vehicle miles of travel increased by approximately 60 percent, with only a 2 percent increase in road miles. Second, for the first time, freight railroads were willing to sell major portions of urban track. Between 1990 and 1993, public agencies purchased 700 miles of railroad rights-of-way and track, along with 700 acres of stations, yards, and other facilities. Slightly less than half of this is anticipated to be used for commuter rail. Third, county governments realized they would have to work together to implement a commuter rail system. Finally, improvements to existing railroad rights-of-way are categorically exempt under California environmental law. This allowed immediate movement toward construction.

The Metrolink system uses existing railroad rights-of-way and freeway median rights-of-way. Where possible, existing stations have been renovated. The cost of the initial four lines was approximately $600 million. This included almost 200 miles of track and the central maintenance facility. This averages out to approximately $3 million a mile. The subsidy per trip is approximately $0.28 per mile or $8.70 for an average trip. The subsidy levels have been declining.

After the earthquake, key segments of the freeway system were broken and traffic, especially in the north, was disrupted. The rail lines fared much better. The Red Line bounced one foot vertically and one foot laterally, but remained relatively undamaged. Surface railroad tracks, especially in curves, moved as much as a foot laterally, but maintained gauge.

It was evident immediately after the earthquake that there was a need to expand Metrolink service to help maintain mobility. Service was not operated the day of the earthquake because of the need to inspect the system after each aftershock. The reassignment of vehicles into the area started immediately, however. Three trains were available due to the delay in the opening of the Orange County Line. Also, the MTA had purchased the Saugus Line to Palmdale a year earlier, so that the track was already owned.

Ridership levels were below normal on Tuesday, but on Wednesday, an additional 4,000 people rode the system. This continued through the next week. It was also evident that service would have to be extended to intercept commuters coming from the Antelope Valley where 300,000 people live. By Thursday, agreements had been reached with the cities of Lancaster and Palmdale that by the following Monday the system would be extended to Lancaster and two new stations would be open. The new stations were developed quickly, with at least six contractors working simultaneously. Also the Corps of Engineers and the SeaBees helped construct some stations, along with city and county public works departments. The response was truly a group effort.

Before the earthquake, daily system ridership was slightly under 1,000. Ridership peaked in the two weeks immediately after the earthquake and then leveled out. Caltrans was able to open part of the I-5/Route 14 interchange by the end of January. We knew that ridership would decline, partly because we had only 14,000 seats available for some 21,000 riders. Riders who purchased a February monthly pass could ride through March for free and free emergency trips were provided for firefighters, police, and other individuals.