Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

Metro

PLANNING AND PROGRAMMING COMMITTEE
FEBRUARY 16, 2005

SUBJECT: RESPONSE TO BOARD MOTION REGARDING METROLINK COMMUTER RAIL TRACK INSPECTIONS

ACTION: RECEIVE AND FILE

RECOMMENDATION

Receive and file a response from the Southern California Regional Rail Authority (SCRRA) regarding the inspection practices for Metrolink commuter rail tracks (Attachment A).

ISSUE

In response to an October 28, 2004 motion approved by the Board of Directors, staff asked the SCRRA to identify a plan that would increase Metrolink commuter rail track inspections. The motion followed the Union Pacific Railroad (UPRR) derailment in North Whittier on October 16, 2004. The SCRRA is satisfied with its current track inspection practices, which exceed Federal Railroad Administration (FRA) requirements and industry conventional rail practices in Southern California. The SCRRA is not recommending any changes to these practices at this time.

DISCUSSION

Metrolink is Southern California's regional commuter rail system. The SCRRA operates Metrolink services over a combination of member agency-owned tracks, UPRR and Burlington Northern Santa Fe (BNSF) tracks. SCRRA contractors maintain the member-agency owned tracks and they determine the frequency and method for inspection and maintenance. However, the UPRR and the BNSF are responsible for inspecting and maintaining their own tracks.

By letter dated October 28, 2004 to the SCRRA, staff transmitted a copy of the Board-approved motion and requested that SCRRA staff assist in responding to the motion. Since then, SCRRA staff has reviewed the frequency and technology used for rail track inspections by its contractors and the host railroads on whose tracks the SCRRA operates several of its Metrolink lines. On January 3, 2005, SCRRA staff forwarded a response to us regarding

their track inspection practices and the sufficiency of their current inspection practices (see Attachment A).

Summary of SCRRA Response

As a contractual user and tenant of the freight railroads, the SCRRA relies on the freight railroads to maintain their tracks at, or above, FRA Standards. The terms and conditions of SCRRA's contractual use of the UPRR and BNSF railroads reference FRA or industry standards of maintenance that the freight railroad owners are to provide. They do not specify the frequency or methods of inspection or maintenance activities. The SCRRA relies on the FRA, and the California Public Utilities Commission as its agent, to enforce its requirements on the railroads used by Metrolink trains.

The SCRRA has indicated that it conducts visual and ultrasonic inspections more frequently than is required by the FRA. The SCRRA maintains and operates on tracks owned by SCRRA's member agencies, and operates on tracks owned and maintained by UPRR and the BNSF. The FRA requires all owners of track to perform basic inspections and repairs of track. Two requirements are most relevant to this issue. The first is for an internal rail flaw (typically ultrasonic) inspection to be performed once per year or "once per 40 million gross tons" on most of the tracks owned or used by the SCRRA. As Metrolink tracks carry much less than 40 tons per year, the requirement for the SCRRA defaults at once per year. The SCRRA performs three per year. The second FRA requirement is for two visual inspections per week. The SCRRA completes three visual inspections per week and three ultrasonic rail inspections per year on SCRRA member agency-owned railroad segments.

NEXT STEPS

Staff will continue to monitor the SCRRA's track maintenance and inspection practices for Metrolink and return to the Board of Directors as necessary, should any changes be considered.

ATTACHMENT

A. SCRRA's January 2005 Response Regarding SCRRA and Host Railroad Inspection Practices for Commuter Rail Tracks.

Prepared by: Patricia Chen, Transportation Planning Manager, Local Programming

James L. de la Loza
Chief Planning Officer

Roger Snoble
Chief Executive Officer

ATTACHMENT A

SCRRA JANUARY 2005 RESPONSE REGARDING SCRRA AND HOST RAILROAD INSPECTION PRACTICES OF COMMUTER RAIL TRACKS

SCRRA maintains and operates on tracks owned by SCRRA's member agencies, and operates on tracks owned and maintained by UPRR and by the Burlington Northern Santa Fe (BNSF). The Federal Railroad Administration (FRA), under 49CFR213 requires all owners of track to perform basic inspections and repairs of track. Parts 213.233, 235, 237, and 239 establish inspection frequencies for visual inspections of all track, for inspection of turnouts, for rail flaw detection, and for inspection following unusual occurrences. Specifically part 213.237, requires an internal rail flaw (typically ultrasonic) inspection to be performed once per year or "once per 40 million gross tons" on most of the tracks owned or used by SCRRA. (40 MGT would be accumulated in about 10 months on the UP, or about 3-4 years on SCRRA).

SCRRA completes three visual inspections per week (whereas part 213.233 requires only two) and three ultrasonic rail inspections per year (whereas part 213.237 requires only one) on the SCRRA member agency-owned railroad segments.

SCRRA/Freight Railroad Operating Agreements and Maintenance Standards

SCRRA operates its Metrolink Riverside Line service on the Los Angeles Subdivision, and its Ventura County Line on portions of the Santa Barbara Subdivision, both owned by the UPRR; and its 91-Line, Orange County Line, and Inland Empire-Orange County Line services on portions of the San Bernardino Subdivision owned by the BNSF. Portions of all of these lines operate within Los Angeles County, except the Inland-Empire Orange County Line.

The terms and conditions of SCRRA's use of these facilities are established in various operating agreements between SCRRA, its member agencies, and the freight railroads. These agreements, in varying forms, reference FRA or industry standards of maintenance to be provided by the freight railroad owners. They do not specify the frequency or methods of inspection or maintenance activities.

Specifically, under the terms of the Operating Agreement with the Union Pacific, the Union Pacific is required to maintain tracks "at no less than FRA Class 4 standards", and the Riverside Nonexclusive Lease of Railroad Facilities requires UP to maintain the tracks "in such condition as to permit the operation of [Metrolink] trains at (i) the maximum speeds, in accordance with FRA standards, that are feasible giving due consideration to the physical characteristics of the Leased Premises and the layout of the tracks, or (ii) such other speeds as mutually agreed."

Likewise, the Shared Use Agreement governing operation on the San Bernardino Subdivision requires BNSF to maintain the tracks "to a safe condition consistent with

industry practice in such condition as to allow...continued rail operations at the train speeds shown in the Timetable....

Thus, as a contractual user and tenant of the freight railroads, SCRRA relies on the freight railroads to maintain their tracks at, or above, Federal Railroad Administration (FRA) standards and relies on the FRA (and the California Public Utilities Commission as its agent) to enforce its requirements on the railroads used by commuter trains. SCRRA has no contractual authority to require or enforce maintenance practices on the freight railroads that are more stringent than FRA standards.

The BNSF engineering staff reports that they perform visual inspections and document them per FRA standards five days out of seven each week and they vary their ultrasonic rail inspections between 35 and 60 days (more frequently in winter, when the rail is more brittle).

According to UPRR counsel, the UPRR has historically ultrasonically tested its tracks on at least an annual basis. The stretch of UPRR rail that failed on October 16, 2004 had been visually inspected by UPRR, FRA, and California PUC personnel two days before it failed. No fissure was detected during the inspection. UPRR has determined that the railroad will increase its ultrasonic testing of tracks and joint bars from the current annual cycle to a 3-month cycle.

Ultrasonic Inspections

Ultrasonic technology produces a graphic detection and representation of rail flaws by sending a high frequency sound wave through the rail. Interruptions in the sound wave are an indication of a defect. One limitation to the effectiveness of ultrasonic technology is its current inability to detect flaws in components, which are attached to, but not a part of, the rail itself. One critical component is a "joint bar".

Railroad signal systems use the rails that carry trains to carry the signal detection current. In order for railroad signal systems to work properly, the segments of rail for each signal circuit must be isolated with insulated joint bars. While most rails are welded into long strings ("ribbon rail") there are also some locations where non-insulated joint bars are used to structurally connect rails together. UPRR's initial investigation indicates that the incident in North Whittier was caused by a crack in an insulated joint bar.

Both types of these joint bars are not within the path of ultrasound used to detect rail flaws; traditionally they are inspected visually along with the track. Qualified track inspectors are trained to closely observe joint bars for signs of cracking because they know that ultrasonic inspections are not able to detect incipient cracks in the metal. The UPRR informs us that it has recently developed the technology of ultrasonically testing joint bars, and has been ultrasonically testing <u>non-insulated</u> joint bars on its route between Los Angeles and El Paso for three years on at least an annual basis. Although UPRR is working on a new technology for inspection of internal defects in joint bars, it is important to note that even in <u>non-insulated</u> joint bars, the current process "sees" only a portion of the mass of the bar. Moreover, UPRR believes that ultrasonic testing of <u>insulated</u> joint bars, such as that which

UPRR believes caused the recent incident, is not effective currently, since the insulation and epoxy used to construct insulated bars prevents the soundwave from finding an internal flaw in the bar.

Ultrasonic testing of joint bars (as opposed to track) is not required by FRA. Accordingly, until such time as ultrasonic or other technology can reliably detect flaws in joint bars, visual inspections will remain the industry standard and method of choice in this area.