



# NEWS

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CONTACT: BILL HEARD/JIM SMART  
MTA PRESS RELATIONS  
(213) 244-7047, 244-6347  
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## **REVIEW BOARD REPORTS METRO RAIL TUNNELS 'STABLE;' OUTLINES RECOMMENDATIONS FOR RESUMPTION OF TUNNELING**

Noting that the Metro Rail tunnels beneath Hollywood Boulevard are "stable and in no danger of collapse" and that "only minor additional (ground) movements may occur," a Tunnel Review Board reported today that the MTA can safely resume tunneling by implementing a series of recommendations outlined in its report.

In a seven-page report, the four-member panel of tunnel and soils experts advised the MTA that ground movement along Hollywood Boulevard had not changed significantly since Aug. 20 and that "no major changes in the present condition of structures or utilities are expected."

The Board's findings were reported at a meeting today of the Rail Construction Corporation's engineering and construction committee by Dr. James Gould, a member of the Tunnel Review Board. Edward McSpedon, MTA executive officer, construction, will deliver a follow-up presentation, Friday, to the Los Angeles City Council.

"The report provides an explanation of the factors that caused the excessive subsidence along Hollywood Boulevard," McSpedon said. "It also gives us the technical direction we need to proceed safely with the excavation of the Metro Red Line tunnels.

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"We will implement the Board's recommendations over the next several days in order to resume our tunneling operations by mid-September," McSpedon said. "Public safety and the safety of our construction workers remains our highest priority."

Currently, the machine boring the Number 1 (northside) tunnel is halted just west of Highland Avenue. The soil in this area is more stable and approximately 1/2 inch of ground settlement has occurred. Excavation in the Number 2 tunnel has been halted just west of Hudson Avenue. With continued adherence to specified mining techniques in the Number 2 (southside) tunnel, the Board said, "total settlements may be anticipated...in the 1-to-2 inch range above the tunnel crown."

Among the four reasons for the ground settlement that disrupted Hollywood Boulevard recently, the report cited:

- ◆ The infusion of water into the soil from broken water service and fire lines,
- ◆ Tunneling in loose alluvium (sandy and silty) soils,
- ◆ Soils that were compacted by tunneling operations, and
- ◆ Downward pressure that crushed and caused movement of wooden wedges used to hold the initial tunnel liner segments in place.

The installation of reinforcing columns and side braces in a 200-foot stretch of Number 1 tunnel between Wilcox and Whitley Avenues halted movement of the tunnel liner.

As a means to ensure the stability of subsurface soils around the Number 1 tunnel, the Board recommended regrouting the entire 200 feet where steel

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reinforcing columns are installed to ensure that the tunnel liner is in "full and intimate contact with the surrounding ground...." The panel recommended the use of compaction grouting along the center line of both tunnels through the distress area and west to Cherokee Avenue. Compaction grouting applies pressure to surrounding soils, helps hold them in place and minimizes ground settlement.

Pre-drilling of grout holes also was recommended in front of Mann's Chinese Theater as a standby measure to permit grouting if required as a precaution to protect the celebrity hand and foot prints in the theater's courtyard.

Finally, the Board recommended that the tunnel contractor and the construction management firm continue to work with the utility agencies to locate, inspect and repair all leaking utility lines, and ensure timely utility agency response for emergency shut-offs and repairs.

The construction manager should continue to continuously monitor buildings and street surfaces, the panel advised, and should continue to tightly monitor and enforce contact grouting requirements as specified in the construction contract.

In reaching its conclusions, members of the panel reviewed geotechnical data, including subsurface and surface settlement measurements. They also toured the tunnels and interviewed members of the MTA's engineering, construction management and construction contractor staff.

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