Date: January 9, 2006

To: Councilmember Wendy Gruel, Chairperson
Transportation Committee
c/o: Adam R. Lid, Office of the City Clerk

From: Gary Lee Moore, City Engineer
Bureau of Engineering

for Frances Bannerjee,
Interim General Manager
Department of Transportation

Subject: **REPORT ON THE APTA PEER REVIEW FOR THE METROPOLITAN TRANSIT AUTHORITY (MTA), WILSHIRE CORRIDOR TUNNELING PANEL REVIEW**

Council motion (CF#05-2812) requested the Department of Transportation (LADOT) and the Bureau of Engineering (BOE) to report on the safety issues related to tunneling along the Wilshire Corridor and also requested the MTA to report on the American Public Transportation Association (APTA) Peer Review panel's examination of the Wilshire Corridor.

RECOMMENDATION

That the City Council and the Mayor RECEIVE and FILE this report.

DISCUSSION

On October 23 through October 27, 2005, APTA met with transportation and engineering experts at the MTA Headquarters in a Peer Review Panel to discuss safety and methane risks of the proposed Wilshire Corridor Tunneling. The Panel was to, "conduct an independent evaluation and report on gas-related safety issues associated with the proposed extension of the Red Line Subway along Wilshire Boulevard..." The panel included tunneling and mine safety experts from around the world. The goal was to bring the experience and perspectives of a wide range of experts to evaluate the proposal to rescind the federal prohibition against subway tunneling in Los Angeles, and to determine if tunnel and station construction and operation can be implemented in a safe manner.

BOE attended the October 25, 2005 panel session, which covered the geology and extent of methane in the Wilshire area, and the City's recent experience in safely tunneling through almost 30 miles of similar gassy formations. In particular, for the BOE, the East Central Interceptor Sewer (ECIS) and North East Interceptor Sewer (NEIS) were used as "lessons-learned" examples, some of which were incorporated into the Panel's recommendations. The Mining & Tunneling Unit of Cal-OSHA worked closely with City technical staff during both design and construction phases of the recent tunnels. Cal-OSHA stated in a certificate of commendation to the City dated July 21, 2005, that the NEIS tunnel was the, "most dangerous tunnel job in the history of the State ...which included numerous safety, health and environmental challenges." The BOE also introduced the new Methane Ordinance to the Panel and described how it would help ensure the long-term safety and operations of subway stations and related structures/facilities.

For the ECIS and NEIS tunneling projects, detailed subsurface investigation prior to selecting the final tunnel alignment allowed the ranking of potential hazards, and adequate characterization of gas (methane and hydrogen sulfide) and other geotechnical hazards (such as high groundwater, soil contamination, active faults, oil fields, weak and compressible soils, etc.). Success was achieved by using new technology (closed-faced, 'pressure-balanced" tunneling machines) and requiring techniques such as advance probing, strong ventilation and continual gas testing with automated machine shut-offs if gas levels warranted such during tunneling, and stringent Health & Safety procedures. Pre-cast gasketed tunnel liners were installed as the tunneling machine progressed, and shaft sites were made of concrete to keep out gas and water. These procedures also addressed control of ground surface settlement as well as gas seepage and explosion hazards. The tunnels were completed safely, on-time and within budget.

The conclusions of the Panel were that several things had changed since the tunneling prohibition in 1985, including:

- Improved attitude toward tunneling safety
- Improved instrumentation
- Current tunnel boring machine technologies have a good track record
- There have been 20 years to learn the geology and address the problem
- There is much more construction and operation experience in tunneling
- There are no significant problems with deep basements along Wilshire Boulevard.

As the Panel's unanimous findings and BOE's contribution show, tunnels can be safety built through methane-rich and other geotechnically-challenging areas.

Based on our limited review of the APTA report, the City of Los Angeles staff agrees with the findings of the APTA Peer Review Panel that "It is possible to tunnel and operate a subway along the Wilshire Corridor safely" provided the facilities are designed, constructed, and operated in a manner appropriate for the ground and gas conditions along the corridor.

FISCAL IMPACT

There are no impacts.

COORDINATION

LADOT and BOE coordinated with the Mayor's Office, the CLA and the MTA leading up to the Panel formation and during the entire APTA Peer Review process.

CFJ/MEM
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