Many of you have followed Metro’s planning for the Westside Subway Extension. There has been a great deal of interest in your neighborhoods about the studies involving the location of the Century City station and tunnels.

Metro contractors have conducted extensive geotechnical investigations to learn more about soil and seismic conditions, oil well locations, potential noise and vibration, and possible impacts for current or future buildings. Analysis of this information, including all back-up data and material, was recently released in two technical reports. A summary of the reports was presented to Metro’s Planning and Programming Committee by a panel of technical experts and an independent review panel comprised of internationally recognized experts in geology, seismology, and engineering.

Please visit us online at metro.net/westside to learn more about the subway, view the reports, videos of the presentation to the Metro Board, and the experts’ biographies. A full set of the reports is available at both the Beverly Hills Public Library (444 N Rexford Dr) and the Westwood Public Library (1246 Glendon Av).

This document provides you with a brief summary of the findings of the studies. Please note that no decision has been made by the Metro Board to date. It is anticipated that the Final Environmental Impact Statement/Report (FEIS/R) will be released in early 2012 for a 45-day public review period before it is presented to the Metro Board for their consideration.

**OVERVIEW**

In October 2010, the Metro Board asked for a detailed investigation of technical issues regarding the location of the Century City station for the Westside Subway Extension and tunnels in the area. Since then, more than 200 field tests were conducted in the area. The data were analyzed and reviewed and two technical reports produced—the Tunnel Safety Report and the Fault Investigation Report.

**CONTACT US**

Please go the “Contact Us” section of metro.net/westside. You can also keep up with subway developments and discussion on Facebook: facebook.com/westsidesubwayextension, or follow us on Twitter: twitter.com/westsidesubway.
What were the conclusions of the studies?
The studies concluded that (1) there is not a viable location anywhere on Santa Monica Bl for a Century City station due to the presence of two active fault zones; (2) Constellation Bl is outside of active fault zones and is a viable station location; and (3) that the tunnels and stations can be built to be safe and without impacting people or property located above them.

What did the studies find about the fault zones in this area?
Santa Monica Bl lies within the Santa Monica fault zone from west of Century Park West to east of Avenue of the Stars. The originally proposed Santa Monica Bl Station at Avenue of the Stars would be directly within the fault zone. The studies found that the West Beverly Hills Lineament (WBHL) is a northern extension of the Newport-Inglewood fault zone. In this area, the zone has several well-defined strands along the eastern edge of Century City and western edge of Beverly Hills. A proposed station location on Santa Monica Bl at Century Park East would straddle the WBHL.

The studies found that the station location on Constellation Bl would not be within an active fault zone and is a viable option for a station location. The Constellation Bl Station site is south and west of both active fault zones.

How could the Constellation site be safe for a station? It’s still close to the active fault zones.
Throughout our active seismic region, we have to deal with ground shaking as a result of earthquakes. There is a difference between a location in an active fault zone where ground rupture or deformation could occur and an area where ground shaking occurs. No subway stations have been built in known active fault zones in North America. Modern engineering techniques have been developed to address the ability of structures, including subway stations, to withstand ground shaking.

If it is not safe to build a subway station in a fault zone, is it safe to tunnel through one?
There are numerous proven design and construction methods to ensure that a subway tunnel is safe in a fault zone. These include building a larger diameter tunnel and/or a very strong and flexible lining to withstand several feet of movement. Tunneling at a high angle across a fault zone, rather than along one, limits the risk.

Is there a risk of ground settlement from the tunnel?
The latest technology uses pressurized, closed-face tunnel boring machines (TBMs). As these machines proceed, concrete tunnel liners are immediately installed in the newly excavated tunnel portion. These techniques combine to provide immediate ground support of the tunnel. These machines were successfully used on the Metro Gold Line Eastside Extension (MGLEE) where ground movement was very limited and, along most of that alignment, there was no measureable settlement.
### Will people above the tunnels in Beverly Hills, Century City or Westwood hear or feel the trains?

Metro now operates 18 miles of subway tunnels in downtown Los Angeles, Hollywood, and North Hollywood running under numerous buildings including homes, often at more shallow depths than the tunnels planned for the Westside Subway Extension. To date, no complaints have been received about noise or vibration from train operations. Noise and vibration tests were part of the recent field tests. Results predict that ground-borne vibration from the trains would not be greater than 64 decibels, less than the 72 to 75 decibel standard established by the Federal Transit Administration (FTA) for residential and institutional uses. Predicted noise levels would be no greater than 33 decibels, lower than the FTA noise standard of 35 and 40 decibels for residential and institutional use. Monitoring of noise and vibration above existing Metro tunnels has shown no detectable noise or vibration above normal background levels. Noise and vibration are created in the tunnels as the train wheels run over the tracks. They are absorbed in the soil and dissipate over distance. The tops of the tunnels are planned to be 50 to more than 110 feet deep in the area from West Beverly Hills to Westwood. They are shallowest close to the stations and generally deepest midway between the stations. It will be 70 feet deep to the top of the tunnels under the south wing of Building B at Beverly Hills High School. The tunnels will be even deeper in some areas between Santa Monica and Wilshire Boulevards — more than 100 feet deep in some cases. The tracks are about 20 feet below the top of the tunnels.

### Is there a risk from gassy ground or oil wells?

Field tests in this area looked for methane and hydrogen sulfide, gases that occur naturally in the ground. Results indicated that methane levels were below those encountered along the subway in downtown Los Angeles. The hydrogen sulfide levels in the Century City area were either very low or not detectable. All subway tunnels and stations are equipped with gas detection equipment and robust ventilation and fire suppression systems. Oil well maps and scans only detected one oil well potentially in the path of the tunnel. It is in Century City and, following further tests, will be properly abandoned if necessary.

### Can BHHS still be used as an emergency evacuation center?

The studies determined that the subway tunnels will not impact the availability of BHHS for use as an emergency shelter or evacuation center, even in the event of an earthquake.

### Will the tunnels impact future plans to remodel BHHS or build new buildings?

The studies determined that subway tunnels would not preclude Beverly Hills High School’s future plans, including in areas directly above the tunnels. This includes the possibility of building multi-level underground parking. In most cases, such construction actually reduces the pressure on the tunnels as the weight of the new building and its contents is less than that of the soil removed.

### Who conducted these studies and what is their background?

The individuals involved included engineers, geologists, and seismologists. The Fault Investigation Study and Tunnel Safety Report were prepared by Metro’s contractor for this project. They brought in specialists to assist with the fault studies. The work was reviewed by an independent Tunnel Advisory Panel. A separate independent panel then reviewed the studies. Biographies can be viewed at [metro.net/westside](http://metro.net/westside).

#### Fault Experts

- James Dolan, Ph. D.
- Thomas Heney, Ph. D.
- Thomas Rockwell, Ph. D.

#### Metro’s Tunnel Advisory Panel

- Ed Cording, Ph. D.
- Geoff Martin, Ph. D.
- Harvey Parker, Ph. D.

#### Independent Review Panel

- Lloyd Cluff
- Lucile Jones, Ph. D.
- Paul Jennings, Ph. D.
- Thomas O’Rourke, Ph. D.

### How does this new information about the Santa Monica Fault or the West Beverly Hills Lineament impact plans for future building in this area?

These studies were conducted as a part subway planning and the data generated was analyzed solely for those purposes. The data has been made public and other regulatory and permitting agencies, as well as other property owners, can evaluate the information to determine if it has any implications independent of the subway.