Metro Purple Line Extension Community Meeting

Wednesday November 7, 2018

Contents:

1. Metro response dated December 5, 2018 to questions submitted regarding Beverly Hills High School on November 7, 2018
   a. Health Risks
   b. Noise
   c. Oil Well and Methane Gas
   d. Seismic

2. Presentation by Metro and Consultants (November 7, 2018)
Health Risks
COMMENT CARD RESPONSES (HEALTH RISKS)

1. Are you going to start a medical fund for the high school students who will be exposed to toxins and dust?

Response: As stated in the Final SEIS, air quality and health risk levels are all below applicable standards and excess risk levels. As such, no medical fund is needed. Please refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.

2. Why are (you) not going to talk about technical discussions any longer about the high school?

Response: During the preparation of the SEIS, Metro conducted a detailed technical analysis of air quality and health risk at Beverly Hills High School. Please refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
COMMENT CARD RESPONSES (HEALTH RISKS)

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:
* If it is safe, how did all those students get sick from the oil mining, and now they won't get sick from the tunneling and excavation from the same land?

Response: There are volatile compounds in oil that are also toxic and/or carcinogenic. The prior litigation involving the Venoco drill site alleged that some of those compounds may have been released into the air in conjunction with Venoco’s oil production activities. Some former BHHS students may have been exposed to those compounds over an extended period of time. In contrast, Metro will not be producing, storing, or distributing oil in conjunction with the tunneling activities at BHHS and therefore students will not be exposed to oil compounds.
COMMENT CARD RESPONSES (HEALTH RISKS)

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

1. How about all the oil wells done from 1970's-2000s that are not documented? How do you address the 75-80 unmapped oil wells that were a result of the cluster cancer to the students? (resulted in cancer cluster in students?)

Response: There are volatile compounds in oil that are also toxic and/or carcinogenic. The prior litigation involving the Venoco drill site alleged that some of those compounds may have been released into the air in conjunction with Venoco’s oil production activities. Some former BHHS students may have been exposed to those compounds over an extended period of time. The number and locations of the wells at BHHS are reasonably well defined. There are six older wells on the property and one well offsite adjacent to the west property line. There are also 19 more recent wells that were operated by Venoco at the southwest corner of the site. As discussed during Metro’s presentation, Metro has retrieved and reviewed state (DOGGR) records and historic aerial photographs of BHHS going back to the early 1920’s to confirm the locations of these wells and to look for evidence of other wells. Metro has found no evidence that suggests there are 75 to 80 unmapped wells at BHHS. Please also refer to response MR-B2 in Appendix J of the Final SEIS.

2. How can you measure the unknown?

Response: The subsurface conditions along the proposed subway alignment have been evaluated with a combination of direct measurement and sampling (with borings and gas probes) and with geophysical surveys (magnetometer and ground penetrating radar surveys). The DOGGR well records and historic aerial photographs also provide insight into what is, and
COMMENT CARD RESPONSES (HEALTH RISKS)

is not, present at the BHHS site. These sources of information were discussed at the recent presentation. Please also refer to response MR-B2 in Appendix J of the Final SEIS.

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

For Alice: BHHS is under major construction above ground to better our students, now they’ll have construction above and below ground, where are they supposed to breathe? Athletes are at school for 9 hours a day and the entire school is outside, how is this functional for them?

Response: As stated in slide 106 of the November 7 presentation, the quantity of emissions being emitted during construction of the Westside Purple Line Extension project are generally lower than those predicted to be emitted by the BHHS modernization project. This is due in part to Metro’s implementation of its Green Construction Policy which calls for the use of Tier 4 construction equipment, which has lower emission rates than older equipment. In addition, electrically powered equipment will be used when possible. Emissions from the Westside Purple Line Extension project are not predicted to cause an exceedance of the ambient air quality levels, nor are they predicted to cause an excess health risk. The health risk assessment was based on a 12-hour exposure to outside air, a scenario that no student is likely to experience. Metro has agreed to install air filtration systems in the classrooms adjacent to the construction site. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.

COMMENT CARD 4

1. For Alice: BHHS is under major construction above ground to better our students, now they’ll have construction above and below ground. Where are they supposed to breathe? Athletes are at school for 9 hours a day and the entire school is outside. How is this functional for them?

Response: As stated in slide 106 of the November 7 presentation, the quantity of emissions being emitted during construction of the Westside Purple Line Extension project are generally lower than those predicted to be emitted by the BHHS modernization project. This is due in part to Metro’s implementation of its Green Construction Policy which calls for the use of Tier 4 construction equipment, which has lower emission rates than older equipment. In addition, electrically powered equipment will be used when possible. Emissions from the Westside Purple Line Extension project are not predicted to cause an exceedance of the ambient air quality levels, nor are they predicted to cause an excess health risk. The health risk assessment was based on a 12-hour exposure to outside air, a scenario that no student is likely to experience. Metro has agreed to install air filtration systems in the classrooms adjacent to the construction site. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
COMMENT CARD RESPONSES (HEALTH RISKS)

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

Why was there an oil leak in the staging area this month? (Par Kasser)

Response: A piece of equipment on Constellation Blvd. had a small hydraulic fluid leak. The spill was contained and safely and quickly removed.

What occurs if you/Metro does not comply with the MOA and/or the imposed conditions/ regulations, i.e., like the 5 min limit on the trucks being idled, for example.

Response: Metro is responsible for monitoring the work of the contractor and to ensure that all work complies with the commitments in the MMRP. In addition, an independent compliance monitor will monitor construction activities adjacent to BHHS.
Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

What happens to the construction under the high school if there is no final signed MOA?

Since all conditions have not been agreed to, why hasn't Metro agreed to the conditions the city includes in the MOA?

Response: Metro is in the process of negotiating an MOA with the City of Beverly Hills. The MOA is not a requirement to start construction. FTA signed the Record of Decision for the Final EIS in 2012 and the Metro Board of Directors certified the Final EIR in 2012, allowing construction activities in Century City to commence.
1. How long the construction will take place in the school?

Response: No construction activities will be conducted at BHHS. The tunnel will be constructed 60 to 70 feet beneath BHHS and the staging area for that construction is located over 100 feet from BHHS. Construction activities are expected to last approximately six years with activity at the construction staging sites being the greatest during the first three years of construction (2018 through 2020), while tunnel construction is occurring. Although tunnel construction activity would generally occur 24 hours a day for six days per week, the hauling of materials will occur during non-peak traffic periods.

2. Which part of the school will it be on?

Response: As noted above, no construction activities are planned on the school property. The tunnel will pass beneath the existing tennis courts, BHHS Building B1, and the future half-court soccer field and tennis courts. Prior to and during construction, there would be survey and monitoring activities, including surface, ground, and building movement detection and gas monitoring instruments to monitor construction activities; ground improvement (grout injection); geophysical investigations to locate abandoned oil wells; and soil borings on the BHHS campus to monitor construction activities.
1. Did you take into consideration that over 150 students/teachers and faculty were exposed to toxins during the oil mining and there was a settled class action litigation?

**Response:** There are volatile compounds in oil that are also toxic and/or carcinogenic. The prior litigation involving the Venoco drill site alleged that some of those compounds may have been released into the air in conjunction with Venoco’s oil production activities. Some former BHHS students may have been exposed to those compounds over an extended period of time. In contrast, Metro will not be producing, storing, or distributing oil in conjunction with the tunneling activities at BHHS and therefore students will not be exposed to oil compounds.
COMMENT CARD 9

1. Are children’s developing bodies more susceptible to the effects of exposure to toxicity?

Response: The Health Risk Assessment takes into account the unique health parameters for each age group. The Health Risk Assessment accounts for exposure by sensitive groups, such as high school children and pregnant staff, as per the Office of Environmental Health Hazard Assessment guidelines. Please refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment methodology.

2. Did you know that Metro is already non-compliant and have not watered down their mounds of dust? What if they are non-compliant?

Response: The Final SEIS requires that the stockpiles be covered if the excavated soil is suspected or known to be contaminated. While the stockpile at Century City is not contaminated, it was recently covered on 11-8-18. Prior to covering, it has been sprayed with water to control fugitive dust in accordance with the MMRP.
2. What consideration was given in the environmental reports to the children from the high school (and others) being at the high school beyond 3:00 pm until as late as 6:00 or 7:00 pm? (i.e. sports, activities). Doesn't that increase their exposure?

Response: The Health Risk Assessment conservatively assumed a 12-hour daily exposure to outside air, which would account for students being on campus that long. The results of the analysis were below the excess risk of 10 in a million. Please refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment methodology.
1. When is construction scheduled to start at BHHS?

**Response:** No construction activities will be conducted at BHHS. The tunnel will be constructed 60 to 70 feet beneath BHHS and the closest truck loading area for that construction is located over 100 feet from BHHS. Construction activities had already started as of September 2018 and are expected to last approximately six years with activity at the construction staging sites being the greatest during the first three years of construction (2018 through 2020), while tunnel construction is occurring. Although tunnel construction activity would generally occur 24 hours a day for six days per week, the hauling of materials is restricted by the MMRP to non-peak traffic periods.

2. How can we, as parents, have any assurances that kids will not suffer long-term health issues.

**Response:** A detailed, conservative air quality and health risk analysis was conducted on the construction phase of the project. Emissions from the Westside Purple Line Extension project are not predicted to cause an exceedance of the ambient air quality levels, nor are they predicted to cause an excess cancer risk. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
1. Trucks are not loading during peak traffic, but what happens during peak school time?

**Response:** A detailed, conservative air quality and health risk analysis was conducted on the construction activities. Trucking is not permitted from 7:00 – 9:00 AM and from 3:30 – 6:00 PM. Most trucking will occur in the evening and overnight hours. Some trucking will occur during the day. Trucks will be dispatched in a manner to avoid stacking of vehicles on the roadways to help reduce emissions.

2. The hauling trucks are at what level? What is the best level of diesel trucks? Why isn’t Metro using them? Why not level 4?

**Response:** Tier 4 regulations are applicable to off-road construction equipment only. All hauling trucks are required to meet Air Resources Board PM10 filter requirements and Metro’s Green Construction Policy requirements.

3. Why have you started w/o signing the MOA?

**Response:** Metro is in the process of negotiating an MOA with the City of Beverly Hills. The MOA is not a requirement to start construction. FTA signed the Record of Decision for the Final EIS in 2012 and the Metro Board of Directors certified the Final EIR in 2012, allowing construction activities in Century City to commence.
COMMENT CARD RESPONSES (HEALTH RISKS)

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

1. Based on your expertise, do you think that a school with 1400 students is the best place to start a 7 year tunneling project, which is directly under the school?

Response: A detailed, conservative air quality and health risk analysis was conducted on the construction phase of the project. Emissions from the Westside Purple Line project are not predicted to cause an exceedance of the ambient air quality levels, nor are they predicted to cause an excess cancer risk. Please refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.

The Final SEIS considered alternate construction staging locations and tunnel alignments and concluded that the current scenario is the only prudent and feasible option. Please refer to response MR-A3 in Appendix J of the Final SEIS for a discussion of the feasibility of alternative construction scenarios.

2. What are all the toxins that the students will be exposed to that heightens their risk to cancer by 3.6%?

Response: The Health Risk Assessment, which is conservatively based on 12 hours of outdoor air exposure, indicates a 3.6 out of a million cancer risk, not a 3.6% increase in cancer risk. If the 3.6 in a million is converted to a percentage, it would be 0.00036%. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
3. Metro has stated there are 3.6% chance increases risk of cancer once construction starts. How do you expect people sending their kids to Beverly High with this situation?

Response: The Health Risk Assessment, which is conservatively based on 12 hours of outdoor air exposure, indicates a 3.6 out of a million cancer risk, not a 3.6% increase in cancer risk. If the 3.6 in a million is converted to a percentage, it would be 0.00036%. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
COMMENT CARD 15

1. How many hours were the students estimated to be at the school in your studies?

   **Response:** The Health Risk Assessment was based on a 12-hour exposure for 225 days a year for 5 years. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.

2. Who is the entity who is monitoring the activity at the high school to make sure they are doing is safe and per your assurances? What if you are non-compliant?

   **Response:** Metro is responsible for monitoring the work of the contractor and to ensure that all work complies with the commitments in the MMRP. In addition, an independent compliance monitor will monitor construction activities adjacent to BHHS.
1. What if you hit one of the 80 unmapped oil wells? What will happen? What if there is an explosion directly under the school?

Response: Metro has found no evidence to suggest there are 75 to 80 unmapped wells at BHHS. That statement does not appear to be plausible and its basis is not known. To the contrary, the available records indicate there are six older wells on the property and one well offsite adjacent to the west property line along with 19 more recent wells that were operated by Venoco at the southwest corner of the site. The available records and testing results indicate that none of these wells are within the limits of the tunnel excavation. The state (DOGGR) records indicate that all of the abandoned wells have surface casings and cement plugs along, and below, those surface casings – as is required for the drilling and subsequent abandonment of a well. If a well casing were to somehow avoid documentation by DOGGR, detection in historic aerial photographs, detection by the surface magnetometer surveys, detection by the ground penetrating radar surveys, and detection by the planned subsurface magnetometer surveys, and if it was encountered by the tunnel boring machine (TBM), it is likely that both the TBM and the well casing would be damaged. The surface casings typically only extend to depths of about 100 feet below the ground surface. They do not extend to the depths where oil-bearing deposits are present thousands of feet below the ground surface. As such, the primary risk associated with encountering a well casing would be damage to the TBM. Please also refer to response MR-B2 in Appendix J of the Final SEIS.

2. Please explain the 3.4 times higher risk of cancer? What is this based on? How many hours of daily exposure is it based on?
RESPONSES (HEALTH RISKS)

Response: The Health Risk Assessment, which is conservatively based on 12 hours of outdoor air exposure, indicates a 3.6 out of a million cancer risk, not 3.4 times higher cancer risk. If the 3.6 in a million is converted to a percentage, it would be 0.00036%. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.

COMMENT CARD 17

1. How do you justify 3.4x fold increase risk of cancer in kids in high school, and can you guarantee there will be no methane gas related explosion/danger to the area?

Response: The Health Risk Assessment, which is conservatively based on 12 hours of outdoor air exposure, indicates a 3.6 out of a million cancer risk, not 3.4 times higher cancer risk. If the 3.6 in a million is converted to a percentage, it would be 0.00036%. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
COMMENT CARD RESPONSES (HEALTH RISKS)

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

How can you have construction staging within 15 feet of portable classrooms with 300 diesel trucks every day, exposing kids to hazardous material?

Response: The closest truck loading area is over 100 feet from BHHS. Twenty-foot sound walls will surround the staging area. All hauling trucks are required to meet ARB PM10 filter requirements and Metro’s Green Construction Policy requirements. Trucking is not permitted from 7:0030 – 9:00 AM and from 3:30 – 6:00 PM. Most trucking will occur in the evening and overnight hours. Some trucking will occur during the day. Trucks will be dispatched in a manner to avoid stacking of vehicles on the roadways to help reduce emissions.

COMMENT CARD 18

1. How can you have construction staging within 15 feet of portable classrooms, with 300 diesel trucks every day, exposing kids to hazardous material?

Response: The closest truck loading area is over 100 feet from BHHS. Twenty-foot sound walls will surround the staging area. All hauling trucks are required to meet ARB PM10 filter requirements and Metro’s Green Construction Policy requirements. Trucking is not permitted from 7:0030 – 9:00 AM and from 3:30 – 6:00 PM. Most trucking will occur in the evening and overnight hours. Some trucking will occur during the day. Trucks will be dispatched in a manner to avoid stacking of vehicles on the roadways to help reduce emissions.
1. Please discuss the 3-4x fold increase risk of cancer that is slated in the Metro studies, and why anyone would accept that risk for their own children or other children as well as adults!

Response: The Health Risk Assessment, which is conservatively based on 12 hours of outdoor air exposure, indicates a 3.6 out of a million cancer risk, not 3-4x fold increase in cancer risk. If the 3.6 in a million is converted to a percentage, it would be 0.00036%. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
1. Students at the high school stay there on average 8-12 hours during the day. Why would construction, staging, drilling, take place during school hours?

Response: Alternative construction approaches and alternative access shaft locations were considered in the Final SEIS. Due to the physical constraints and environmental impacts associated with placing the access shaft at the alternative sites identified, they were not determined to be feasible or prudent. Although tunnel construction activity would generally occur 24 hours a day for six days per week, the hauling of materials is restricted to non-peak traffic periods. Please refer to response MR-A3 in Appendix J of the Final SEIS.

2. Noise and vibration has been high during the day recently, why?

Response: With one recent exception that has been remedied, Metro is unaware of any exceedances of noise and vibration thresholds.

3. Metro has zero experience with building under a high school/ school with oil wells & methane gas. Why now? Why all the risk? Last meeting, we were told there was close to 4% increase (remainder of sentence cut off).

Response: There are several locations in Los Angeles alone where subway tunnels extend beneath and/or immediately adjacent to school sites. These include the Camino Nuevo Charter Academy, the Esperanza Public Elementary School, the West Portal Public Elementary
School, the Rooftop K-8 Public Alternative School, the Young Oak Kim Academy, and the Northwest School. As discussed at the presentation, extensive testing has been performed in the project area and several potential alignments have been evaluated. As discussed at the recent presentation, all the available information that has been collected indicates the proposed tunneling activities at BHHS can be safely performed.

The Health Risk Assessment, which is conservatively based on 12 hours of outdoor air exposure, indicates a 3.6 out of a million cancer risk, not 4% increase in cancer risk. If the 3.6 in a million is converted to a percentage, it would be 0.00036%. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.

**Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting**
**November 7, 2018**

Comments:

You mentioned no idling for trucks more than 5 min. How about turning on the trucks? Have you looked into how much exhaust comes out when the trucks turn on?

Response: The trucks will be in hot start mode (turned off for less than 30 minutes) if they are restarted on site. Hot start emissions, as compared to cold or warm start emissions contribute an extremely small portion of emissions as compared to running and idle emissions.

2. For staging area 2 near the school, can you use only electric vehicles?

Response: The use of electrically powered construction equipment will be put into place when feasible such as for certain cranes and pumps.
COMMENT CARD 22

1. Students are at school for over 7 hours a day from 8 to 3, and the ones who are on sports teams are there for 9 hours. My son is there from 8 till 4:30 every weekday. It is false that kids are at school for 6 hours a day. This is false information you are telling parents regarding exposure to students at the high school.

Response: The Health Risk Assessment was based on a 12-hour exposure for 225 days a year for 5 years. Emissions from the Westside Purple Line project are not predicted to cause an exceedance of the ambient air quality levels, nor are they predicted to cause an excess health risk. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
Comments:

1. Can you please relocate the high school students during the tunneling? It is my understanding we can move them to the City’s La Cienega Building by Fentin Field, or El Rodeo (?).

Response: Tunneling using the proposed methods is routinely conducted under occupied structures and does not require relocation of the occupants.

2. What happens to students who are on campus for 12 hrs? Who are doing sports activity?

Please help our students.

Response: The Health Risk Assessment was based on a 12-hour exposure for 225 days a year for 5 years. Emissions from the Westside Purple Line project are not predicted to cause an exceedance of the ambient air quality levels, nor are they predicted to cause an excess health risk. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
COMMENT CARD RESPONSES (HEALTH RISKS)

The following comment cards were addressed during the November 7 Community Meeting. Please view the Q & A videos provided on our website for the responses.
Beverly Hills High School Questions – November 7, 2018
Metro Response – December 5, 2018

Noise
1. Exactly how close is the staging area to the bungalows at the high school?

**Response:** The staging areas at 1940 and 1950 Century Park East are adjacent to the Beverly Hills High School property line where the portable classrooms are located. However, the closest truck loading area is located over 100 feet from BHHS. Sound walls will be surrounding the staging area.

2. Why is the sound wall needed?

**Response:** The noise barrier fence is needed to reduce the construction noise to the high school portable classrooms and to meet the City of Beverly Hills daytime construction noise limits.

3. Is vibration caused by heavy equipment able to be measured and mitigated?

**Response:** There is a continuous vibration monitoring station at the high school property line. The monitoring station will be operated for the full duration of construction. The vibration monitoring station automatically generates warnings and alarms if the vibration thresholds are exceeded. If there is an exceedance the work causing the exceedance will be halted. Mitigation will be implemented by relocating the construction activity farther from the high school or using different equipment and/or alternative methods of construction.

4. What does it mean “limits” construction? What are the guidelines? Please define limits.
Response: The City of Beverly Hills limits construction noise to no more than 5 dB above the existing ambient for daytime, evening, or nighttime hours. The vibration limits are the Federal Transit Administration (FTA) damage risk criteria to limit either architectural or structural building damage during construction. There are also Metro vibration annoyance criteria that are intended to limit ground vibration to occupied spaces in buildings that may result in interference with normal activities.

**COMMENT CARD 2**

1. **A school is being closed in Beverly Hills due to safety for the students. How in our right minds can we justify sending thousands of kids to school for 9 hours amidst vibration, air quality, noise and the danger of abandoned oil wells?**

   **Response:** A detailed, conservative air quality and health risk analysis was conducted on the construction phase of the project. The Health Risk Assessment conservatively assumed a 12-hour daily exposure to outside air, which would account for students being on campus that long. The results of the analysis were below the excess risk of 10 in a million. Please refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment methodology.

   Noise from construction activities planned for Section 2 of the Project will not interfere with academic or recreational activities on the BHHS campus, and BHHS will be able to continue to operate as it does under current conditions. No exceedances of the City of Beverly Hills noise limits were predicted at the existing classroom locations. Although the analysis predicted a daytime noise exceedance of the City of Beverly Hills daytime noise limits by up to
8 dB at the temporary classroom locations, with implementation of the proposed mitigation, noise levels are not predicted to exceed the City noise limits. The contractor will be required to construct a sound wall around Area 2 and Area 3 (see slide 53 of the November 7 presentation) and use low noise emission construction equipment. With these noise control measures, noise levels during construction are predicted not to exceed the City of Beverly Hills Municipal Code construction noise limit of existing ambient by +5 dBA at the BHHS temporary classrooms and school recreational facilities. In accordance with mitigation measures, noise levels will be monitored by the contractor during construction. If the measured construction levels exceed the applicable noise limits, the contractor will provide appropriate abatement measures and/or modify the activity responsible for the exceedance. Please also refer to response MR-A2 in Appendix J of the Final SEIS.

As indicated by the figures that were included with Metro’s presentation, there has been a significant amount of subsurface exploration and testing at BHHS. The subsurface conditions have been relatively well defined and significant concentrations or amounts of methane have not been found along the alignment at BHHS. Additional testing will be performed prior to, and during, the tunneling as a precautionary measure. The California Department of Conservation – Division of Oil, Gas, and Geothermal Resources (DOGGR) and its predecessor agencies (Division of Oil & Gas and State Mining Bureau), have regulated oil drilling and production activities in the State since the late 1800’s. These agencies have prepared and maintained maps of the historic oil well locations and they have overseen the abandonment of wells when those activities were performed. DOGGR has permitted and mapped the oil wells that have been drilled on the BHHS property. DOGGR’s records indicate there are six older wells on the property and one well offsite adjacent to the west property line. There are also 19 more recent wells that were operated by Venoco at the southwest corner of the site. As discussed during Metro’s presentation, Metro has retrieved and reviewed historic aerial photographs of BHHS going back to the early 1920’s to confirm the locations of the mapped wells and to look for evidence of other wells. Metro has also performed geophysical surveys to screen for the presence of oil wells along the alignment. No oil wells have been identified within the tunnel alignment. As discussed, Metro will also perform directionally-drilled magnetometer surveys in advance of the tunnel boring machines as an additional precautionary measure to screen for the presence of oil wells. Please also refer to responses MR-B1 and MR-B2 in Appendix J of the Final SEIS.
 COMMENT CARD 3

1. How do you justify exposing kids to so much construction noise, limiting their learning comprehension?

Response: Noise from construction activities will not interfere with academic or recreational activities on the BHHS campus, and BHHS will be able to continue to operate as it does under current conditions. No exceedances of the City of Beverly Hills noise limits were predicted at the existing classroom locations. Although the analysis predicted a daytime noise exceedance of the City of Beverly Hills daytime noise limits by up to 8 dB at the temporary classroom locations, with implementation of Metro’s proposed mitigation, noise levels are not predicted to exceed the City noise limits. The contractor will be required to construct a sound wall around Area 2 and Area 3 and use low noise emission construction equipment (CON-92). With these noise control measures, noise levels during construction are predicted not to exceed the City of Beverly Hills Municipal Code construction noise limit of existing ambient by +5 dBA at the BHHS temporary classrooms and school recreational facilities. In accordance with mitigation measures, noise levels will be monitored by the contractor during construction. If the measured construction levels exceed the noise limits, the contractor will provide appropriate abatement measures and/or modify the activity responsible for the exceedance. Please also refer to response MR-A2 in Appendix J of the Final SEIS.
What level of noise is expected in the BHHS classrooms during boring and subsequently during subway operation?

Response: Per the American National Standards Institute (ANSI) S12.602, “Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 1: Permanent Schools,” the maximum allowable one-hour average sound level of exterior source background noise in furnished classrooms is 35 dBA. This standard is used in the design of new school buildings, and has been adopted by various school districts, the California Collaborative for High Performance Schools (CHPS), and the LEED rating system. The groundborne noise from train operations is not predicted to exceed the 35 dBA ANSI standard.

The groundborne noise levels are predicted to be in the range of 30 dBA to 33 dBA in the BHHS classrooms during train operations. The underground tunneling activities are predicted to result in groundborne noise levels of 30 dBA for the tunnel boring machine. The background noise level in the high school buildings due to the heating and air conditioning systems is typically 40 dBA to 45 dBA or higher.

Please discuss how metro will address increased pulmonary disease?

Response: A detailed, conservative air quality and health risk analysis was conducted on the construction phase of the project. Emissions from the Westside Purple Line project are not predicted to cause an exceedance of the ambient air quality levels, nor are they predicted to
cause an excess cancer risk. Please refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.

3. Under what context would Metro use electric vehicles?

Response: The use of electrically powered construction equipment will be put into place when feasible, such as for certain cranes and pumps.

4. At last meeting a woman complained of continuous (illegible/ cut off section) that was intrusive and debilitating.

Response: Metro and the contractor have provided additional mitigation measures, as referenced on slide 12 of the November 7 presentation.

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

Spending some time at right next your current constellation construction; it sounds like roller coaster collapsing every few minutes. How are you realistically expecting students to study in bungalows against the construction wall which is less than 15 feet away?

Metro

COMMENT CARD 5

1. Spending some time right next to your current constellation construction; it sounds like a roller coaster collapsing every few minutes. How are you realistically expecting students to study in bungalows against the construction wall which is less than 15 feet away?

Response: Noise from construction activities will not interfere with academic or recreational activities on the BHHS campus, and BHHS will be able to continue to operate as it does under current conditions. No exceedances of the City of Beverly Hills noise limits were predicted at the existing classroom locations. Although the analysis predicted a daytime noise exceedance of the City of Beverly Hills daytime noise limits by up to 8 dB at the temporary classroom locations, with implementation of Metro’s proposed mitigation, noise levels are not predicted
COMMENT CARD RESPONSES (NOISE)

to exceed the City noise limits. The contractor will construct a sound wall around Area 2 and Area 3 and use low noise emission construction equipment. With these noise control measures, noise levels during construction are predicted not to exceed the City of Beverly Hills Municipal Code construction noise limit of existing ambient by +5 dBA at the BHHS temporary classrooms and school recreational facilities. In accordance with mitigation measures, noise levels will be monitored by the contractor during construction. If the measured construction levels exceed the noise limits, the contractor will provide appropriate abatement measures and/or modify the activity responsible for the exceedance. Please also refer to response MR-A2 in Appendix J of the Final SEIS.

COMMENT CARD 6

1. Move the staging area across the street! Where are you putting the tunneling, football field or tennis court? Why are you not moving the staging area away from the high school?

Response: Alternative construction approaches and alternative access shaft locations were considered in the Final SEIS. Due to the physical constraints and environmental impacts associated with placing the access shaft at the alternative sites identified, they were not determined to be feasible or prudent. Please refer to response MR-A3 in Appendix J of the Final SEIS.
Oil Well and Methane Gas
COMMENT CARD RESPONSES (OIL WELL AND METHANE GAS)

Purple Line Extension: La Clenega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

1. **Is it true that you have never built/tunneled under a school where there are 75-80 unmapped oil wells?**

   **Response:** Metro is not aware of any area along the alignment, including the BHHS site, where there are 75 to 80 unmapped oil wells. As discussed during Metro’s presentation, Metro has retrieved and reviewed historic aerial photographs of BHHS going back to the early 1920’s to confirm the locations of the mapped wells and to look for evidence of other wells. Metro has also performed geophysical surveys to screen for the presence of oil wells along the alignment. No oil wells have been identified within the tunnel alignment. As discussed, Metro will also perform directionally-drilled magnetometer surveys in advance of the tunnel boring machines as an additional precautionary measure to screen for the presence of oil wells. Metro has also consulted with the California Department of Conservation – Division of Oil, Gas, and Geothermal Resources (DOGGR) who are not aware of any basis for the suggestion that there may be 75 to 80 unmapped oil wells at the BHHS site.

2. **Are you familiar with the French nursery school that collapsed due to tunneling for the metro? What are you doing to make sure that doesn’t happen?**

   **Response:** Metro does not have firsthand information on the 2003 collapse in France referenced in the comment. It appears that French tunnel was much larger in cross section (considered a cavern) and being mined using a different type of excavation method, not a tunnel boring machine. The Purple Line tunnel will be constructed using a closed-faced, pressurized (earth pressure balanced) tunnel boring machine. This technology greatly reduces...
the potential for ground settlement and provides continuous support to the tunnel excavation while the lining is installed. Many miles of large diameter tunnels have been installed using this technology in Los Angeles over the past 15 years without incident.

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:
If you haven't dug under the high school yet, aren't you just guessing what is down there? What happens if you hit methane, then what?

Response: As indicated in slides 58-70 of the November 7 presentation, there has been a significant amount of subsurface exploration and testing at BHHS. The subsurface conditions have been relatively well defined and significant concentrations or amounts of methane have not been found along the alignment at the high school. Additional testing will be performed prior to, and during tunneling as a precautionary measure.
COMMENT CARD RESPONSES (OIL WELL AND METHANE GAS)

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

Constructing subway under a school with over 1400 kids and faculty full of unmapped oil wells with methane gas & hydrogen sulfate, etc., extreme chance of explosion! No matter how you try to convince us, how to put all these lives in danger??

Response: As indicated in slides 58-70 of the November 7 presentation, there has been a significant amount of subsurface exploration and testing at BHHS. The subsurface conditions have been relatively well defined and significant concentrations or amounts of methane have not been found along the alignment at the high school. Additional testing will be performed prior to, and during tunneling as a precautionary measure. The California Department of Conservation – Division of Oil, Gas, and Geothermal Resources (DOGGR) and its predecessor agencies (Division of Oil & Gas and State Mining Bureau), have regulated oil drilling and production activities in the State since the late 1800’s. These agencies have prepared and maintained maps of the historic oil well locations and they have overseen the abandonment of wells when those activities were performed. DOGGR has permitted and mapped the oil wells that have been drilled on the BHHS property. DOGGR’s records indicate there are six older wells on the property and one well offsite adjacent to the west property line. There are also 19 more recent wells that were operated by Venoco at the southwest corner of the site. As discussed during Metro’s presentation, Metro has retrieved and reviewed historic aerial photographs of BHHS going back to the early 1920’s to confirm the locations of the mapped wells and to look for evidence of other wells. Metro has also performed geophysical surveys to screen for the presence of oil wells along the alignment. No oil wells have been identified within the tunnel alignment. As discussed, Metro will also perform directionally-drilled
magnetometer surveys in advance of the tunnel boring machines as an additional precautionary measure to screen for the presence of oil wells.

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

1. Are there other dangerous gases that are not detected? Have you measured hydrogen sulfide?

Response: Carbon monoxide and radon gas rarely occur in the subsurface at dangerous levels – and these gases are not normally found at problematic concentrations in the Los Angeles basin. As was discussed during Metro’s presentation, hydrogen sulfide gas concentrations have been measured during the subsurface investigations at BHHS and significant concentrations have not been found.

2. Can such gases emit more due to excavation?

Response: If gases are present in the soil matrix, they can be released when that soil is excavated. However, all of the subsurface testing results indicate significant concentrations of methane and hydrogen sulfide gas are not present along the alignment at BHHS. The tunnel ventilation system will be equipped with a filtration (scrubber) system to remove hydrogen sulfide gas from the exhaust air of the tunnel in the unlikely event that elevated levels are encountered.

3. What are you going to do with the high school students, if there are high detection of gases? Will you close the school?

Response: If methane is detected at significant concentrations (as defined in the FEIS) in the crawl spaces beneath the buildings or on the interior of the buildings, those spaces will be
ventilated. This is standard protocol – such as when gas is detected from a utility line leak. If significant concentrations of methane are detected at or above the ground surface, the source of the methane will be investigated and addressed. It is highly unlikely that significant concentrations of methane will be detected and even less likely that concentrations would be detected that would warrant temporary closure of a building.

4. Can the 3 conditions arise due to tunneling and excavation?

Response: Given there are not significant levels of gas found in the tunnel alignment area, Metro is not aware of a viable mechanism by which the tunneling could create methane where it does not already exist. As such, the tunneling is not expected to have any adverse impact on the three conditions (methane volume, concentration, and pressure) that are necessary for there to be even a potential for a problem.

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

1. Didn’t the state dept. use their police power to stop the oil wells because they deemed it too dangerous? How is it now ok?

2. Are you aware that VENOCO was ordered to clean up the oil wells and never did? No one has cleaned those oil wells? How about those?

Response: We assume this is in reference to an ordinance that was adopted by the City of Beverly Hills in October of 2011 that banned the drilling of oil wells within 500 feet of a school or park. The subway project does not involve the drilling of oil wells.

2. Are you aware that VENOCO was ordered to clean up the oil wells and never did? No one has cleaned those oil wells? How about those?

Response: The City Ordinance referenced above required Venoco to cease its oil production activities by 12-31-16. Venoco subsequently filed for bankruptcy under Chapter 11 on 4-21-17.
The US Bankruptcy court approved a liquidation plan for distributing the company’s assets and resolving its liabilities on 5-23-18. Metro understands BHHS and the City of Beverly Hills are working together to abandon the 19 wells at the former Venoco facility and close the site under DOGGR oversight.

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

What happens if there is an explosion under our high school and the high school collapses?

What about all the AYSO PBHBL (not clear) sports that goes on daily till late hours and on weekends.

1. What happens if there is an explosion under our high school and the high school collapses?

   **Response:** This is not a plausible scenario. As discussed in slides 58-70 of the November 7 presentation, three conditions are necessary for there to be even a potential for explosion in a building: a significant volume of methane, high concentrations of methane (>55,000 ppm), and elevated gas pressures. None of these conditions exist along the subway alignment at BHHS. As such, there is no potential for this scenario to occur based on the available information.

2. What about all the AYSO PBHBL (not clear) sports that goes on daily till late hours and on weekends.

   **Response:** The Health Risk Assessment was based on a 12-hour exposure for 225 days a year for 5 years. Emissions from the Westside Purple Line project are not predicted to cause an exceedance of the ambient air quality levels, nor are they predicted to cause an excess cancer risk. Please also refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.
The following comment cards were addressed during the November 7 Community Meeting. Please view the Q & A videos provided on our website for the responses.
COMMENT CARD 1

1. Please explain once and for all why the original route isn’t an option while it’s safer and cheaper, instead of going under the high school?

Response: Please refer to the November Community Meeting slide number 46. Since 2007, Metro has evaluated many routes through the Century City area, including a Santa Monica Boulevard alignment and a Constellation alignment. The evaluation considered many criteria, including engineering feasibility, safety, cost, environmental impacts, and ridership potential. In May 2012, the Metro Board of Directors selected the Constellation Station location due to safety concerns along Santa Monica Boulevard. The route selected would not require locating a station on a fault, and therefore is safe from fault rupture hazard. Please also refer to page 8-36 of Chapter 8 of the Final EIS/EIR and page 2-7 of Chapter 2 of the Supplemental EIS for a full history of the evaluation of alternative alignments.

2. What would you like us to tell our kids who have heard about the dangers of a metro under BHHS and are terrified?

Response: The stakeholders, including students at the high school, should be provided with and review the information used in the evaluation, as described in the Final EIS/EIR and Supplemental EIS in order to have a thorough understanding of the evaluation of risks for the various options. Please also refer to the Westside Subway Extension Century City Area Tunneling Safety Report, which provides more information on tunneling safety including tunneling beneath buildings.
1. Construction accidents happen—many have in the past. BHHS is the most densely populated part of this city (during the school day) so any accident will be catastrophic, if the tunnel runs under the building. Please discuss why this path is better than the 15 alternatives discussed.

Response: Please refer to responses to Comment Card 1, above, for a discussion of the alignment evaluation and tunneling safety.
COMMENT CARD RESPONSES (SEISMIC)

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

The decision to move the route from Santa Monica Blvd to underneath Beverly Hills High School is purportedly based on allegations that there is seismic activity under S. Monica Blvd. We request proof (tangible) that there is seismic activity. We ask that you conduct boring to confirm that seismic activity does exist under S. Monica Blvd.

Response: As part of the evaluation of faults in the vicinity of the routes being considered, extensive geologic investigation was performed, including 56 continuous core borings, 192 Cone Penetration Tests, and 5 geophysical profiles along 7 transects. The test data confirmed that there is no evidence of faulting near the Century City Constellation Station, whereas there was evidence of complex faulting, potentially including multiple strands of active faults, at potential station locations along Santa Monica Boulevard. Further details of the evaluation are described in the Supplemental EIS and the technical report appendices. The data collected by Metro was subsequently independently evaluated by the California Geological Survey (CGS), in addition to data from other investigations along the Santa Monica Fault, and the CGS thereafter published an Alquist-Priolo Earthquake Fault Zone Map of the area with an associated report dated January 15, 2018 (“The Hollywood, Santa Monica, and Newport-Inglewood Faults in the Beverly Hills and Topanga 7.5' Quadrangles” Fault Evaluation Report FER 259). In the CGS report and map, the Santa Monica Fault is shown as active, and CGS concludes that “The principal traces of the Hollywood, Santa Monica, and Newport-Inglewood Fault Zones...are recommended for zoning as they are well-defined and there is sufficient evidence to conclude they are active.”
Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting  
November 7, 2018

**COMMENT CARD 4**

1. Can you give us a detailed reason as to why you changed the original route from Santa Monica to under the high school, when it is dangerous with over 70+ unmapped oil wells? This is a ridiculous dangerous route!

**Response:** Please refer to responses to Comment Card 1, above, for a discussion of the alignment evaluation and tunneling safety.

Metro is not aware of any area along the alignment, including the BHHS site, where there are 75 to 80 unmapped oil wells. As indicated by slides 76-96 in the November 7 presentation, there has been a significant amount of subsurface exploration and testing at BHHS. The subsurface conditions have been relatively well defined and significant concentrations or amounts of methane have not been found along the alignment at the high school. Additional testing will be performed prior to, and during tunneling as a precautionary measure. The California Department of Conservation – Division of Oil, Gas, and Geothermal Resources (DOGGR) and its predecessor agencies (Division of Oil & Gas and State Mining Bureau), have regulated oil drilling and production activities in the State since the late 1800's. These agencies have prepared and maintained maps of the historic oil well locations and they have overseen the abandonment of wells when those activities were performed. DOGGR has permitted and mapped the oil wells that have been drilled on the BHHS property. DOGGR’s records indicate there are six older wells on the property and one well offsite adjacent to the west property line. There are also 19 more recent wells that were operated by Venoco at the southwest corner of the site. As discussed in slides 76-90 of the November 7 presentation, Metro has retrieved and reviewed historic aerial photographs of BHHS going back to the early
COMMENT CARD RESPONSES (SEISMIC)

1920’s to confirm the locations of the mapped wells and to look for evidence of other wells. Metro has also performed geophysical surveys to screen for the presence of oil wells along the alignment. No oil wells have been identified within the tunnel alignment. As discussed, Metro will also perform directionally-drilled magnetometer surveys in advance of the tunnel boring machines as an additional precautionary measure to screen for the presence of oil wells.

COMMENT CARD 5

1. Have you done a cost analysis of what you will payout to students who will get cancer from the toxins from your tunneling?

Response: A detailed, conservative air quality and health risk analysis was conducted on the construction phase of the project. Emissions from the Westside Purple Line project are not predicted to cause an exceedance of the ambient air quality levels, nor are they predicted to cause an excess cancer risk. Please refer to response MR-A1 in Appendix J of the Final SEIS for a detailed discussion of the air quality and health risk assessment.

2. How were all the huge buildings all over Century City approved with earthquake fault lines, but it is too risky for the metro?

Response: Each new building designed in Century City is required by California law to evaluate fault hazards, and per state law, new habitable buildings may not be constructed over active earthquake faults. The state law codifying prohibition of building construction over active faults was passed as the Alquist-Priolo Earthquake Fault Zoning Act following the destructive 1971 San Fernando earthquake. The City of Los Angeles Department of Building and Safety
COMMENT CARD RESPONSES (SEISMIC)

evaluates geotechnical reports for new structures and requires consideration for fault rupture hazard. No new buildings are approved where active fault strands are known to pass under the planned location of a structure. However, existing buildings are not required by state law to be re-evaluated for the presence of active faulting.

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

1. Isn’t it true the tunneling is not the problem in Century City, but just the platform? How are buildings and skyscrapers ok but not the platform? Can’t you move the platform?

   Response: It is correct that subterranean stations cannot be located on an active fault, whereas tunnels can be designed to cross active faults as described in Metro’s Seismic Design Criteria. (Also refer to the response to card number 5) Likewise, new building structures are not allowed by state law to be constructed over known active faults.

2. If you look at the route of the metro, it doesn’t make sense, please go over the rationale of moving it from the original route?

   Response: Please refer to responses to Comment Card 1, above, for a discussion of the alignment evaluation.
2. If shaking is unavoidable, what do the high school kids do when they are in school for 9 hours? That is why this is wrong. Also if there is an explosion, the whole high school will collapse.

**Response:** Ground shaking due to the presence of faults in Southern California is unavoidable, but that hazard can be designed for in Metro tunnels using the Metro Seismic Design Criteria. Vibrations due to construction of the subway will be mitigated as described in the [Supplemental EIS](#).

As discussed during Metro’s [presentation](#), three things are necessary for there to be even a potential for explosive conditions to develop in a building: a significant volume of methane, high concentrations of methane (>55,000 ppm), and elevated gas pressures. None of these conditions exist along the subway alignment at BHHS. As such, there is no potential for this scenario to occur based on the available information.
1. Seismic expert is not addressing tunneling in seismic zones – he only addressed stations.

Response: Tunneling is addressed in Metro’s presentation slide 48. While stations cannot be located on an active fault, tunnels can be designed to cross active faults as described in Metro’s Seismic Design Criteria. Depending on the predicted fault offset and area over which the movement is distributed, some distortion can be accommodated by the tunnel structure. The approach for design of tunnels crossing active faults is documented in Metro’s Seismic Design Criteria and has a well-established precedent. As described in the Westside Subway Extension Century City Area Tunnel Safety Report, potential tunnel damage is also repairable. Metro’s Red Line tunnel crosses the Hollywood Fault north of the Hollywood/Highland Station. A similar approach for linear structures is adopted for transportation infrastructure in general, including highways, bridges, and pipelines. These structures by necessity cross faults, and established design approaches minimize damage and allow for repair.

2. Can you build the tunnel on Santa Monica Blvd. and then people walk to the station which will be at the current location on Constellation? That way faults are avoided for the station and tunneling under the school is also avoided.

Response: The subway stations must be constructed along the tunnel alignment. Therefore, the subway tunnels must be directly connected to the stations, with sufficient curve radii so that the trains can safely negotiate the tunnel curves.

3. People can walk a few hundred feet to a _______Station (comment is cutoff here).
Response: Please see response to question 2. Subway stations must be constructed along the subway tunnel alignment.

The following comment cards were addressed during the November 7 Community Meeting. Please view the Q & A videos provided on our website for the responses.
Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

1. Why not build the station on Castellano but the subway goes under SM Blub. It is a very short walk. People can walk couple hundred feet for the safety of the kids.

2. Very loud Construction going on now.

Metro

In the last Metro meeting, we were told, at Laciengoa, Wilshire or Rodeo/Wilshire Station, Sismic fault was discovered and that issue needed more work and time and cost in order to fix the problem.

Why the station is Santa Monica? Can we have this approach?
Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

You commented that reviewing various routes generated various scenarios. Prior to a specific route being selected, you listed “increased travel time” and “increased construction cost” as some reasons to exclude certain routes. From a safety and reasonable training environment point of view, are these legitimate or debatable claims?  

Metro

Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

1. How often are these tunnels crossing the fault lines per hour? per day?
2. How many people are inside the metro link at a time? Estimated throughout the day?
3. Are you familiar with the buildings in new construction at Century City? How did the state approve those buildings but not a platform? Aren’t those buildings rectangular?  

Metro
Purple Line Extension: La Cienega and Rodeo Monthly Update Meeting
November 7, 2018

Comments:

* Who directed you where to do the seismic investigation?

* Can you explain whether these fault lines are active and inactive fault lines?

* Were there any fault lines found near the high school? Do you do a study? Are there any?
Beverly Hills High School Questions – November 7, 2018
Metro Response – December 5, 2018

November 7, 2018 Presentation
Agenda

- Project Overview
- Section 1 Construction Updates
  - Wilshire/La Cienega Station
    - Excavation
    - Metro Art
    - Eat Shop Play #Beverly Hills
- Section 2 Pre-Construction Updates
  - Wilshire/Rodeo Station
    - Staging Yard Demolition
    - Geotech Investigation
    - N. Canon Closure
    - Potholing
    - City Utilities
    - MOA Update
    - Mitigation Measures
- Business Interruption Fund
- Beverly Hills High School Technical Review
Purple Line Extension
Project Alignment

Section 1:
Wilshire/Western to Wilshire/La Cienega
> 3.92 miles
> 3 stations

Section 2:
Wilshire/La Cienega to Century City/Constellation
> 2.59 miles
> 2 stations

Section 3:
Century City/Constellation to Westwood/VA Hospital
> 2.56 miles
> 2 stations

Crenshaw/LAX Transit Corridor (under construction)

Purple Line Extension & Station (under construction)

Existing Metro Rail & Station

Subject to Change 19-045 © 2018 LACMA
## Sections 1, 2 & 3 Status

*Subject to change. The PLE project team is working to deliver the project consistent with Measure M*

<table>
<thead>
<tr>
<th>Section</th>
<th>Forecasted Schedule</th>
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<tbody>
<tr>
<td>Section 1</td>
<td>Section 2</td>
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<tr>
<td>Length</td>
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<td>New Stations</td>
<td>Wilshire/La Brea</td>
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<tr>
<td>Wilshire/Fairfax</td>
<td>Wilshire/La Cienega</td>
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### Pre-Construction Activities
- **2014 – 2015**
- **2016 – 2018**
- **2018 – 2020**

### Construction
- **2015 – 2023**
- **2018 – 2025**
- **2019 – 2026**

### Operations
- **2023**
- **2025**
- **2026**
Section 1
Wilshire/La Cienega Station
Rendering shows length of the La Cienega underground station box on Wilshire Bl from La Cienega Bl to Tower Dr
# Wilshire/La Cienega Station

*As of November 2018, subject to change*

<table>
<thead>
<tr>
<th>Activity Name</th>
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Typical Activities/Equipment:
- Excavation
- Steel work
- Deliveries
- Hauling

- Typical hours are 7am – 11pm; yard use is permitted 24/7

- All noise levels must remain in compliance with MOA and FEIR requirements

Excavator in the La Cienega shaft
La Cienega Shaft, looking West
Installing sound blankets over vent fans
When: November 2018

Instrumentation work on Wilshire and La Cienega
• Intermittent lane reductions on Wilshire Bl, La Cienega Bl, and side streets during off-peak hours (non-rush hour)

Street Maintenance, Dewatering Well Maintenance, and Utility Work on Wilshire Bl
• Intermittent lane reductions on Wilshire Bl and side streets during off-peak hours (non-rush hour)
Staging Yard Mitigation

La Cienega Yard

- Active ventilation fans and fan lines were wrapped with sound blankets
- 24’ steel frame will be placed around the ventilation system with sound blankets

Gale Yard

- 14’ fences with sound blankets placed around the crane (reduced the noise by 3 dbA)
- Applied an acoustic dampening material to the 895 crane engine enclosure
- Added a muffling panel on the exhaust door and engine compartment door
- Relocated slew alarm
- Added a noise barrier rubber mat to the lower engine panels
- Acoustic plate under mounted on the crane counterweight
- Closed the gate, when feasible
- Adjusted the crane start up schedule, when possible
- Started closing the gate, when feasible
New Metro Bus Service locations:

- **Eastbound Wilshire Bl:**
  - Metro 20/720 bus stop at La Cienega Bl, in front of 8484 Wilshire

- **Eastbound Wilshire Bl:**
  - Metro 20 bus stop at Gale Dr, in front of 8370 Wilshire

- **Eastbound Wilshire Bl:**
  - Metro 720 stop added to existing 20 stop at Willaman Dr

- **Westbound Wilshire Bl:**
  - Metro 20 stop at Gale Dr in front of 8383 Wilshire
  - Metro 20/720 stop at La Cienega Bl. in front of 8501 Wilshire Bl.
  - Metro 20/720 stop at Willaman Dr. in front of 8665 Wilshire
Metro Art Program
Artists Selected for Section 1

Artists selected by a panel of nationally recognized curators to create site specific, integrated artworks for Section 1 stations

- Ken Gonazels-Day
- Todd Gray
- Karl Haendel
- Soo Kim
- Eamon Ore-Giron
- Fran Siegal
- Susan Silton
- Marc Dean Veca
Afghani Kabob House
8560 Wilshire Bl
Beverly Hills, CA 90211

Takeout, Catering and Free Delivery!

Marketing video in progress
Section 2
Wilshire/Rodeo Station
Purple Line Extension
Section 2 Alignment
Rendering shows length of the underground station box on Wilshire Bl from Canon Dr to Beverly Dr
# Wilshire/Rodeo Station Schedule

*As of November 2018, subject to change. Pending Council approval.*

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**NOTE:** All timeframes noted above are for planning purposes ONLY. Actual dates may change.
Bus Stops

Bus Stop Relocations

- East of Beverly Dr:
  20/720 WB/EB Wilshire Bl between Rexford Dr and Crescent Dr

- West of Beverly Dr:
  20/720 WB/EB Wilshire Bl between Camden Dr and Rodeo Dr
Demolition of 9430 Wilshire Bl
Former Ace Gallery, future Construction Staging Yard
Demolition of 9430 Wilshire Bl
Former Ace Gallery, future Construction Staging Yard
Demolition of 9430 Wilshire Bl
Former Ace Gallery

Site Address: 9430 Wilshire Bl

Schedule
- Major demolition began in October
- Estimated duration of demolition activities: 8-10 weeks
- Work hours: 8am-6pm
- Portion of park next to the alley has been closed temporarily

Traffic Impacts
- Sidewalk/partial lane closure along Reeves Dr and Wilshire Bl (intermittently throughout duration of demolition)
  - Pedestrian protection installed
  - Partial closure of the alley
Soundwall Installation

- Work Hours: 8am – 6pm
- Start Date: Immediately following demolition. Anticipate February 2019.
- Sound wall installed using soldier piles and prefabricated noise panels
- Sound Wall: 20 feet
- Soundwall will have Public Information Graphics
Geotechnical Investigations
Seismic Boring Study – Round 2

- Additional borings to investigate and identify subsurface conditions
- Started October 29th, 2018
- Estimated duration of activities: 10 weeks
- Work Hours: 8pm – 6am

Green = complete, Yellow = underway
**N. Canon Properties**

**Site Address:** 9383-9393 and 9395-9399 Wilshire Bl

**Schedule**

- Abatement - Completed
- Estimated duration of demolition activities: 5 weeks
- Work hours Monday - Friday 8am to 6pm
- Demolition start date - January 2019
N. Canon Closure

• Anticipated construction start in early 2019
Utility Potholing

Work Hours: 9:00am – 4:00pm
Start Date: November 13, 2019

Pothole Locations
• Reeves/Wilshire – 29 Potholes
• Beverly/Wilshire – 9 Potholes
• Canon/Wilshire – 7 Potholes

Example of potholing for water line
Water and Sewer Line Replacement

Anticipated Start Date: January 2019

- Sewer Main Replacement - 10 weeks
- Water Main Replacement - 12 weeks

Trenching for Waterline Replacement
Water and Sewer Line Replacement on Wilshire Bl Between Crescent Dr and El Camino Dr
MOA – Design-Build

- MOA tentatively approved by City Council August 2018, with conditions
- Metro Board approved MOA October 2018
- Metro reviewing additional conditions added
- Anticipate Design-Build work starting January 2019
Century City/Constellation Station
Construction Staging Areas
Completed soundwall adjacent to Beverly Hills High School
1940 and 1950 Century Park East
Two-Month Look Ahead

- Hauling material
- On-site utility and drainage work
- Installation of piles
Metro Business Interruption Fund

Helping local businesses as we build.
Update as of 10/26/18
Financial assistance to small “mom & pop” businesses with 25 or fewer employees directly impacted by Metro Rail construction along three project areas

Businesses must be located immediately adjacent to the rail corridor and meet other eligibility requirements

Grant amount determined by loss of business revenue related to period of construction disruption

To date, 764 grants have been awarded with a total value of more than $17.5 million along all three projects
BIF Grant Award Update

➤ Purple Line Extension, Section 1
  ➤ BIF Grants Awarded: 178
  ➤ BIF Grant Amount Awarded: $4,494,161.83
  ➤ Number of small businesses awarded: 69

➤ BIF Business Advisor: Brian Lazo
  ➤ Pacific Coast Regional Small Business Development Corporation (PCR)
  ➤ Phone: 213.739.2999
BIF Grant Award Update

Purple Line Extension, Section 2
- BIF Grants Awarded: 23
- BIF Grant Amount Awarded: $564,873.82
- Number of small businesses awarded: 19

BIF Business Advisor: Darrell Smith
- Pacific Coast Regional Small Business Development Corporation (PCR)
- Phone: 213.739.2999
Updates on La Cienega and Rodeo Stations

Wednesday, December 5
6:30pm – 8pm

Beverly Hills City Hall
Municipal Gallery, 2nd Floor

455 N Rexford Dr
Beverly Hills, CA 90210

*Parking will be validated
Help Us Keep You Safe

Purple Line Extension
24/7 Project Hotline - 213.922.6934
Email – purplelineext@metro.net

City of Beverly Hills
PurpleLine@beverlyhills.org
Public Works Customer Service: (310) 285-2467

On Metro Transit
See Something, Say Something
888-950-SAFE (7233)

Construction Safety Awareness Program
Glyssa Alcazar, Community Relations Officer
Email: alcazarg@metro.net
Phone: 323.900.2192
Responses to BHHS Concerns
Agenda

• Section 2 Project Background and Schedule
• Topics of Interest to Beverly Hills Community
  • Alignments Evaluated
  • Seismic Conditions
  • Location of Construction Activities
  • Haul Trucks
  • Construction Noise
  • Oil Wells
  • Subsurface Gas
  • Air Quality and Health Risks
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2007</td>
<td>Start of environmental analysis</td>
</tr>
<tr>
<td>September 2010</td>
<td>Draft Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) released for public comment</td>
</tr>
<tr>
<td>October 2010</td>
<td>Metro Board of Directors selects Locally Preferred Alternative for further analysis in Final EIS/EIR</td>
</tr>
<tr>
<td>May 2012</td>
<td>Metro Board certifies Final EIR</td>
</tr>
<tr>
<td></td>
<td>City of Beverly Hills (COBH) and BHUSD file lawsuit against Metro arguing EIR is not in compliance with CEQA</td>
</tr>
<tr>
<td>August 2012</td>
<td>Federal Transit Administration (FTA) approves Project by issuing Record of Decision (ROD)</td>
</tr>
<tr>
<td>November 2012</td>
<td>COBH and BHUSD file lawsuit against FTA arguing the EIS is not in compliance with National Environmental Policy Act (NEPA)</td>
</tr>
<tr>
<td>May 2014</td>
<td>Federal Transit Administration (FTA) awards federal matching funds for Section 1</td>
</tr>
<tr>
<td>July 2014</td>
<td>Metro awards Section 1 Design/Build contract</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 2014</td>
<td>Section 1 groundbreaking</td>
</tr>
<tr>
<td>December 2015</td>
<td>State lawsuit concludes; EIR is found to be in compliance with California Environmental Quality Act (CEQA)</td>
</tr>
<tr>
<td>August 2016</td>
<td>Federal Judge orders Supplemental EIS, did not vacate ROD</td>
</tr>
<tr>
<td>January 2017</td>
<td>FTA awards federal matching funds for Section 2 and Metro awards Section 2 Design-Build contract</td>
</tr>
<tr>
<td>June 2017</td>
<td>Draft Supplemental EIS for Section 2 released for public comment</td>
</tr>
<tr>
<td>July 2017</td>
<td>Public hearing on the Draft SEIS for Section 2 held in Beverly Hills</td>
</tr>
<tr>
<td>November 2017</td>
<td>FTA publishes Final Supplemental EIS and Supplemental ROD for Section 2</td>
</tr>
<tr>
<td>February 2018</td>
<td>Section 2 groundbreaking</td>
</tr>
</tbody>
</table>
Alignments Evaluated

- The FEIS and SEIS evaluated 20 alignments in addition to the Project
Alignments Evaluated

- Constellation and Santa Monica alignments were evaluated using the same set of criteria
- Santa Monica Boulevard Alignment infeasible due to Santa Monica Fault
- Other alignments eliminated due to:
  - Failure to meet minimum design criteria for curve radius
  - Increased travel time
  - Tunneling under a greater number of residences
  - Tunneling under a greater number of historic or recreational properties
  - Greater potential to encounter abandoned oil wells
  - Higher construction costs
- The SEIS concluded that there is no feasible and prudent alternative that would avoid use of an historic or parklands property
In addition to significant seismic analysis provided in 2012, Metro has conducted or reviewed 11 additional studies confirming:

- Numerous fault strands in the vicinity of Santa Monica Boulevard could pose a surface rupture hazard at this station location.
- Fault strands along Santa Monica Boulevard alignment do not extend farther south to Century City/Constellation station.
Southern California is a seismically active region
Subway tunnels have been built to cross faults and require special design
Metro Red Line tunnels were not impacted by 1994 Northridge Earthquake
In contrast, subway stations cannot be designed to accommodate fault rupture without collapse
Metro does not build *underground stations* in active fault zones
The SEIS reaffirmed the 2012 recommendation to locate the station at Century City/Constellation where there is no evidence of faulting

“Absolute no brainer. There is no way you can safely build a subway station on Santa Monica Boulevard,” said USGS seismologist Lucille Jones. 4/26/2012
Century City Construction Staging Yards

- Multiple staging and laydown areas required to launch the TBM's and support tunneling activities
- NE corner of Constellation and Avenue of Stars cannot be used due to planned development
- Other construction scenarios considered in SEIS, but determined to be infeasible due to:
  - Greater traffic impacts
  - Displacement of commercial and/or residential properties
  - High acquisition costs
Construction Noise

- Noise will not interfere with academic or recreational activities on the BHHS campus and BHHS will be able to continue operating as it does under current conditions.
- Noise control measures are committed to in the Mitigation Monitoring and Reporting Plan.
- Committed to a minimum 20-foot-high sound wall and use hospital-grade engine silencers for rough terrain and long boom cranes.
- Noise levels will be monitored by Metro and the Independent Compliance Monitor (ICM) throughout construction to ensure adherence to noise limits.
- The Memorandum of Agreement (MOA) between Metro and the City of Beverly Hills, identifies mitigation measures specifically for BHHS, including:
  - Special noise limits for BHHS
  - Limits construction activities during school hours
  - Use of an Independent Compliance Monitor (ICM) to ensure project compliance with MOA
Construction Requirements

- Adherence to Metro’s Green Construction Policy
- Cleaner trucks and equipment, and emission control equipment
- Control of idling equipment
- Dust control and street watering
- Tunnel exhaust vented through scrubbers
- Particulate filters to be installed at the air intakes of the temporary classrooms at BHHS
Haul Trucks

- Truck loading areas will be dispersed throughout construction zone.
- The closest truck loading area is over 100 feet from BHHS, and 20 foot sound walls are around the staging site.
- All trucks must obey idling regulations (less than 5 minutes).
- Haul trucks (for deliveries and excavated material) will use designated routes on major streets that minimize noise, vibration, and other possible impacts.
- Hauling is not allowed during peak traffic hours (7am to 9am and 3:30pm to 6pm, M-F) and special events.
- Most hauling will occur in the evening and overnight hours.
- Hauling trucks will be dispatched in a manner to avoid stacking.
- All hauling trucks are required to be model year 2012 or newer to reduce emission burdens.

Metro
Haul Truck Routes

<table>
<thead>
<tr>
<th>Launch Box and Shaft</th>
<th>Station Excavation</th>
<th>Tunnel Excavation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area 2/4</td>
<td>Area 4</td>
<td>Area 2/3</td>
</tr>
<tr>
<td>Max 80-120 trips/day</td>
<td>Max 80-120 trips/day</td>
<td>Max 90-130 trips/day</td>
</tr>
<tr>
<td>Off-peak hours</td>
<td>Off-peak hours</td>
<td>Off-peak hours</td>
</tr>
<tr>
<td>Approx. 12 months</td>
<td>Approx. 18 months</td>
<td>Approx. 16 months</td>
</tr>
<tr>
<td>Started fall 2018</td>
<td>Start fall 2019</td>
<td>Start Summer 2019</td>
</tr>
</tbody>
</table>
Potential for Encountering Methane Gas During Tunneling at BHHS

What is methane gas?
Potential for Encountering Methane Gas During Tunneling at BHHS

What is methane gas?

- Methane gas is a naturally-occurring combustible gas with the chemical formula CH₄.
- It is formed by the biodegradation of organic matter in an oxygen-free environment.
- It is commonly found at low to moderate concentrations in shallow soils.
- It is not toxic or carcinogenic.
Potential for Encountering Methane Gas During Tunneling at BHHS

What is methane gas?

- It can present potential risks with respect to the migration to the interiors of buildings if

  (1) it is present at high concentrations (>55,000 ppm) and volumes; and

  (2) it is present at an elevated pressure (psi range).

- Methane gas has not been found at high concentrations, volumes, or pressures along the subway alignment at BHHS.
Potential for Encountering Methane Gas During Tunneling at BHHS

What is methane gas?

- Methane migration to interior spaces is rare but has occurred at landfills and at the locations of leaking oil wells.

- I am not aware of any documented cases of methane migration to interior spaces due to tunneling activities.
Potential for Encountering Methane Gas During Tunneling at BHHS

What has been done?
Potential for Encountering Methane Gas During Tunneling at BHHS

What has been done?

- Extensive subsurface exploration and testing has been performed to screen for methane and other gases along the alignment.
Schematic of Typical Gas Probe Installations

- Gas-Tight Quick Connect Fittings
- 8 Inch Diameter Hollow-Stem Auger Boring
- Native Soil
- #3 Monterey Sand
- Bentonite Seal
- Flush-Mount Water-Tight Vault With Secured Cover
- Ground Surface
Beverly Hills High School Site Plan with Test Locations
Potential for Encountering Methane Gas During Tunneling at BHHS

What has been found?

- High concentrations of methane has been found along Wilshire Boulevard to the northeast of BHHS.
Area of High Soil Gas Concentrations Far To The East of BHHS
Potential for Encountering Methane Gas During Tunneling at BHHS

What has been found?

- High concentrations of methane have been found along Wilshire Boulevard to the northeast of BHHS.

- In contrast, high concentrations of methane gas with elevated pressures HAVE NOT been found along the alignment at BHHS.
Site Plan with Test Locations and Methane Levels
Site Plan with Test Locations and Hydrogen Sulfide Levels

Legend
- Yellow: Approximate Limits of BHHS Site

Note: All Concentrations Shown in ppm

Approximate Scale

[Diagram showing the site plan with various locations marked, including Subway Alignment, Gymnasium, Basketball Courts, Class Rooms, Science & Technology, Peters Auditorium, Sailor Wing, Main Class Rooms, Food Services, and Century Park East.]
Potential for Encountering Methane Gas During Tunneling at BHHS

What other precautionary measures will be taken?
What other precautionary measures will be taken?

A. Additional monitoring will be performed before and during the tunneling operations to screen for the presence of subsurface gases.

B. Gas concentration / emission monitoring at ground surface
What other precautionary measures will be taken?

- In the unlikely event that elevated concentrations and/or pressures of methane gas are detected along the alignment, mitigative measures will be taken. These will include one or more of the following:

  C. Interior air monitoring

  D. Interior air ventilation
Potential for Encountering Methane Gas During Tunneling at BHHS

Does the project create significant health or safety risks at BHHS associated with the presence of methane gas?

No
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What has been done?
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What has been done?

- Records from the State Department of Conservation - Division of Oil, Gas, and Geothermal Resources (DOGGR) have been obtained and evaluated for all wells in the vicinity of the subway alignment.
Mapped Oil Well Locations In Proximity of BHHS
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What has been done?

- Records from the State Department of Conservation - Division of Oil, Gas, and Geothermal Resources (DOGGR) have been obtained and evaluated for all wells in the vicinity of the subway alignment.

- The documented wells near the alignment have been previously abandoned under DOGGR (previously DOG/State Mining Bureau) oversight and have cement plugs below the depth of the tunneling. Some of the well casings have been removed.
Oil Production Zones Along Tunnel Alignment at BHHS

- **Empire State Building at Scale (1454 Feet)**
- **Wolfskill Oil Production Zone (2062’ - 2720’)**
- **Hauser Oil Production Zone (3955’ - 9447’)**

Approximate Ground Surface

Approximate Alignment of Proposed Subway Tunnel

Scale for Elevation (Feet): 0 to 1500
What has been done?

- Aerial photographs of the BHHS area dating back to 1922 have been obtained and evaluated to identify / confirm well locations.
1922 Historic Aerial Photograph With Oil Wells
1926 Historic Aerial Photograph With Oil Wells
1929 Historic Aerial Photograph With Oil Wells
1930 Historic Aerial Photograph With Oil Wells
1937 Historic Aerial Photograph With Oil Wells
1939 Historic Aerial Photograph With Oil Wells
1947 Historic Aerial Photograph With Oil Wells

Note: Oil well locations based DOGGR Map 117 (2001)
1953 Historic Aerial Photograph With Oil Wells
1954 Historic Aerial Photograph With Oil Wells
1957 Historic Aerial Photograph With Oil Wells
1960 Historic Aerial Photograph With Oil Wells
What has been done?

- Other historic maps with oil well locations have been obtained and evaluated.
June 1912 - Prutzman Map

Subway Alignment

Approximate Limits of BHHS Site
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What has been done?

- Other historic maps with oil well locations have been obtained and evaluated.
- The subway has been aligned to avoid the documented oil well locations.
Mapped Oil Well Locations In Proximity of BHHS

Approximate Limits of BHHS Site

Legend
- Approximate Limits of Beverly Hills High School Site
- Approximate Documented Location of Abandoned Oil Well, Per DOGGR Map #117 (2001)
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What has been done?

- Other historic maps with oil well locations have been obtained and evaluated.
- The subway has been aligned to avoid the documented oil well locations.
- Magnetometer surveys have been performed along the alignment to screen for the presence of oil well casings.
Typical Magnetometer Survey
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What has been found?
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What has been found?

- No evidence or documentation of oil well casings along the alignment has been found.
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What other precautionary measures will be taken?
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What other precautionary measures will be taken?

- Additional magnetometer surveys will be performed using horizontal directional drilling equipment along the subway alignment under BHHS.
Horizontal Directional Drilling Rig
Magnetometer Surveys Performed in Casing

Metro will install three casings within 10 feet of the top of each tunnel. Magnetometer surveys performed in casings to detect potential metallic obstructions.
What will happen if a well is found along the alignment?
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

What will happen if a well is found along the alignment?

- The alignment may be adjusted slightly to avoid the well; or

- Supplemental cement plugs will be installed within the well casing beneath the tunnel alignment and the well casing at, and above, the tunnel alignment will be removed under DOGGR oversight.
Potential for Encountering Abandoned Oil Wells During Tunneling at BHHS

Does the project create significant health or safety risks at BHHS associated with the presence of abandoned oil wells?

No
Air Quality

- The project is expected to improve air quality
- The analysis focused on emissions from construction vehicles and equipment, and release of particulates
- Methodology and assumptions were developed in consultation with the South Coast Air Quality Management District
- Analysis concluded there are predicted to be no exceedances of the National or California Ambient Air Quality Standards for CO, NO₂ or PM₂.5
Air Quality

- Due to existing air quality conditions, the contractor will be required to model its operations and modify its equipment and operations, if necessary, to assure no exceedance of PM$_{10}$ emissions or other pollutants.

- Contractor is required to log construction equipment along with hours of operation for each specific piece of equipment.

Truck on left outfitted with diesel particulate filter. Truck on the right has no filter.
Compared to the BHHS Modernization plan, Metro peak day emissions are:

**Lower for:**
- VOC
- NOx
- PM2.5

**Higher for:**
- CO
- PM10
A major reason that the emissions are lower for the Metro project is Metro’s Green Construction Policy, which emphasizes the use of clean construction equipment.
Clean Equipment

- The standard fleet, as per CARB’s offroad model:
  - NOx = 1.5 to 1.2 grams/hp-hour
  - PM = 0.1 to 0.06 grams/hp-hour

- Metro Green Policy enforces the use of Tier 4 engines, which have the following emissions:
  - NOx = 0.26 grams/hp-hour (approximately 83-78% lower)
  - PM = 0.016 grams/hp-hour (approximately 84-73% lower)

Source: [https://www.dieselforum.org/policy/tier-4-standards](https://www.dieselforum.org/policy/tier-4-standards)
SEIS – Air Quality Analysis

- What about the local impacts of the project?
- What we looked at in the SEIS – over 5,000 receptors.
SEIS – Air Quality Analysis

NO₂ Levels - Modeled Results

- NAAQS NO₂ 1-Hour Value
- NAAQS NO₂ Annual Value

NO₂ 1-Hour Value

NO₂ Annual Value
SEIS – Air Quality Analysis

CO Levels - Modeled Results

- NAAQS CO 1-Hour Value: 35 ppm
- NAAQS CO 8-Hour Value: 10 ppm
SEIS – Air Quality Analysis

PM Levels - Modeled Result

μg/m³

NAAQS 24-Hour PM₁₀ Value

Significance Levels 24-Hour PM₂.₅ Value

PM10 24-Hour Value
PM2.5 24-Hour Value

Metro
Health Risk Assessment

- To account for sensitive populations, the most conservative analysis was performed, assuming a 70 year lifetime, 5-year exposure of 12 hours per day, 225 school days a year, and a constant maximum exposure level.

- A risk of one per million would mean that in a population of one million individuals, one additional cancer case would be expected.

- South Coast 2012/2013 MATES IV Study (ambient air quality) is 646 in a million.

- The SCAQMD threshold for excess cancer risk is 10 in a million.

- The calculated cancer risk at BHHS during construction of the Project did not exceed the SCAQMD threshold.
Health Risk Assessment

- Metro’s study is conservative, as the most intensive construction activities, such as tunneling and station excavation, are expected to last LESS than 5 years.
- Construction activities would start and stop, and pollutants would NOT occur at a constant maximum exposure.
- Most of the trucking activity will occur at night when students and staff are NOT on campus.
- Students and staff are likely to be on campus LESS than 12 hours per day.
- Cancer risk calculated based on exterior air conditions and does not account for the particulate filters on the temporary classrooms. These will reduce particulates in the classrooms by 95%.
Actual Staging Air Quality Assessment

- What we looked at for each phase of construction
  - 60 sensitive receptors
- Real pieces of equipment
- Pinpoint location
Technical Presenters

- Seismic - Martin Hudson
- Noise - Steven Wolf
- Oil and Gas - Glenn Tofani
- Air Quality - Alice Lovegrove
The Big Picture

- Reduces vehicle-miles-traveled (VMT) by 581,000 miles/day
- Reduces CO2 equivalent emissions by 2,850 metric tons/day
- Transit travel time from Wilshire/La Cienega to Century City would decrease from 20 minutes to 4.6 minutes – a 77 percent decrease in travel time
QUESTIONS
Stay in Touch

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