APPENDIX G.3

Community

Draft Final Geotechnical Summary Report
SR-710 Tunnel Technical Study
Community Comments and Responses
March 2010

First Name	Last Name	Title	City	Comments	Response in Geotechnical Report
Comments Received from the Glendale Community Meeting 1.20.10					
Nancy	Kent	Resident	Glendale	The Executive Summary Draft Geotechnical Report states " Each zone has some challenges that will need to be addressed during the design and/or construction phases." Please resolve these challenges by cancelling this project. Do not spend additional funds on this, Thank you.	Comment noted. Not within scope of Report.
Richard	Chogyoji	Resident	Los Angeles	The construction of the northbound 710 to any route to the 210 does not make any sense. Northbound 710 motorists going to Glendale and the East San Fernando Valley will divert to the I-5 FWY from the 710. Northbound 710 motorists going to Monrovia/Irwindale will divert from the 710 to I-10 to I-605 northbound.	Comment noted. Not within scope of Report.
Rye	Baerg	Resident	Montrose	Would have liked to learn about the exhaust systems and their impact, along with other technical things. What about a tunnel from Pasadena to the Red Line on northbound Hollywood for a light rail? Will there be feasibility for other congestion reduction methods?	Comment noted. Not within scope of Report.
Comments Received from the El Sereno Community Meeting 2.2.10					
Clyde	Williams	Resident	Los Angeles	See attached comments.	Responses are provided in a separate document.
Eric	Hagenson	Resident	Los Angeles	Zone 3 certainly looks best and now that we know each tunnel route is feasible using existing technology. From what I have seen, I consider this tunnel to be an exquisite solution to the massive traffic jams caused by an 8-lane freeway being reduced to a 2 lane residential street by the time its goes through South Pasadena. Air pollution should be greatly reduced and with a minimum of disruption to surface rights. Once completed, it should be as visually undetectable as the Red Line in Downtown Los Angeles.	Comment noted. Not within scope of Report.
Peter	Orona	Resident	Los Angeles	To Mr. Doug Failing: Is it possible to start the 710 Tunnel Southern portal just before the 10 FWY? Can the Southern portal be built between the 60 and 10 fwy's? Is it doable? Thank you so much for your help.	Comment noted. Not within scope of Report.
No Name				Rail please.	Comment noted. Not within scope of Report.
Casey	Reagan	Resident	Los Angeles	Requested Exploration boring results for the testing conducted on Pullman St in El Sereno.	Provided boring results of requested site.
Comments Received from the San Gabriel Community Meeting 2.10.10					
Sonia E.	McIntosh	Resident	Alhambra	We have a lot of semi-trucks and traffic on Meridian Avenue and Alhambra Avenue. Will the air and traffic be let out of the tunnel onto Concord Avenue? How will the fumes and particulates/diesel gases, as per newspaper articles be mitigated? Does the Alhambra Wash that extends to Zone 3 in Alhambra under Emery Park , Laguna Wash connect to the San Gabriel and Los Angeles Rivers. Why were so m any boring locations in Zone 3 so close together. I can see we need the Freeway completed- military needs it in Palmdale from Long Beach to Hawthorne.	The selected exploration locations are based on the existing data available within each zone and on our understanding of the geologic conditions such that a similar level of data is available for each zone. The primary focus was to characterize the various formations that were expected in each zone. Remainder of comment is noted, not within scope of Report.
Martin J.	Waterman	Resident	Pasadena	The 710 Freeway extension is a ludicrous proposal that, if undertaken, would solve no problems. It would turn the E-210 freeway into a parking lot and it could cost untold billions in tax payer dollars. There is no logical reason to proceed with this project. None, zip, zero, zilch. The current state of California's economy negates any consideration of this project.	Comment noted. Not within scope of Report.
Comments Received from the Ramona Hall Community Meeting 2.17.10					
Nan	Wollman	Resident	Los Angeles	What direction does the pretend 710 traffic need the tunnel to go? After an earthquake if the tunnel vault shifts how do you repair it and how will that affect the neighborhood that uses the tunnel.	Comment noted. Not within scope of Report.

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Lisa	Duardo	Resident	Los Angeles	I object to the spending of public funds toward this almost completed Study SR-710 Tunnel Technical Study, Alameda corridor was supposed to carry rail and truck freight. This area already has more than its share of major traffic arteries polluting our communities my expectation is that this tunnel idea ends with this Study on March 10, 2010.	Comment noted. Not within scope of Report.
Richard R.	Vasquez	Resident	Los Angeles	I understand that environmental concerns are not being addressed by this that may or may not be done later. However, I do not hear anyone asking about the property value impacts caused by the tunnel. As I understand there will only be one entrance and one exit for cars and gases, and noise. Those big jet engines are going to be loud and awful to live near (my home). On the "tail-end" of the thing all of the smog from all of that traffic will pile-up in one neighborhood. We either got noise or smog. Either one is unacceptable. What about the homeless occupying the escape hatches! That will happen.	Comment noted. Not within scope of Report.
Peter	Hirsch	Resident	Los Angeles	710 Alternative	Comment noted. Not within scope of Report.
Ann	Walnum	Resident	Los Angeles	I am terribly opposed to any "gap closure" route. The "gap closure" would not be helpful to local residents. We would be profoundly impacted permanently by air quality and noise. Construction impacts would be difficult. It is unfair for us to be penalized to help the trucking industry.	Comment noted. Not within scope of Report.
Comments Received from faxes, emails, or mail					
Thomas	Keiser	Resident	Arcadia	Submitted three- page letter is in support of reducing the traffic congestion in Alhambra using other alternatives besides considering a tunnel. A tunnel does not make any sense. Extend the 710 through South Pasadena by building on a scale to match the Pasadena Freeway parkway. See also attached letter to Ron Kosinski and Terry Abbott. Letter submitted 1.15.2010, see attached letter.	Comment noted. Not within scope of Report.
Rody	Stephenson	Resident	La Canada	I thought the two presentations were well done. I would have understood the tunneling constraints better if you had the Jacobs person speak first, followed by the geotechnical guy, Yoga. It is too bad that you could not eliminate any of the zones. But the tunnel guy said they could tunnel through anything, so that result may have been a forgone conclusion. I suggest you do a rough estimate of tunneling costs for a typical route through each of the 5 zones. There must be rules of thumb for cost per foot in the different kinds of soils and rocks. And what extra costs there are when you encounter water or gas. Zone 5 is nearly twice as long as zone 3, so it must be much more expensive. I go to Long Beach about three times per year. I would get some SLIGHT convenience if there was a short connection through zone 3. That would avoid the bottleneck downtown on the I-5. However, I am strongly against any of the zones/routes because of the increased traffic, noise, and wear and tear on the 210 in La Canada. Our section of 210 is already beat up, and the trucks won't even drive in the right-most lane. I think this tunnel is mainly being pushed to get trucks out of the port area and on their way. Here are some ideas that might mitigate the concerns over trucks: Require that all cargo from the ports leave by train. The Alameda Corridor has enough capacity to handle it all. But the freight should stay on the trains at least until it is out of the basin. Say one transfer point in Bakersfield for stuff going North, and another near Victorville for cargo going East. But it would be best if the cargo stayed on the train until near its destination. Ban all trucks on the 710 north of the I-10. Please include these options if you should go the next step to an EIR. This is not a step in the right direction for air pollution and Green House Gas emissions. These, of course, must be included in any EIR. Going to trains for cargo would be a step in the right direction and reduce pollution and GHGs.	Comment noted. Not within scope of Report.

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Casey	Reagan	Resident	Los Angeles	If you can tell me where I can find the other boring site results it will be extremely helpful. The information I'm interested in is the amount of groundwater which was found on average throughout the test areas compared to the Pullman St. location. Specifically I need to know if the Pullman Street location has a higher watertable that might indicate an underground spring or some kind of Artesian well or stream, or any kind of underground water source that would set this location apart from the rest of the results found in your study. If you can offer your expert analysis of my specific question I will be most appreciative and genuinely grateful. I do have many suggestions that might help with the public relations aspect of your project from the John Q Public point of view like finding the areas that are overburdened by the non existence of a finished freeway including the residents along Collis Ave who deal with over 35,000 cars a day on their little two lane street because it acts as part of the link between the 710 at Valley Bl and Hermon, Highland Park, Eagle Rock, Pasadena and South Pasadena and inform them how much more peaceful their lives will be as soon as your project is finished. I think you'll find that targeting some of the most affected areas would bring more supporters to your outreach meetings to balance out the lynch mobs that I've witnessed at same. Just a thought. Why is there so much focus on groundwater contamination? Is it harder to drill through contaminated ground? Is it a matter of spreading the contamination by drilling through these superfund areas? What exactly is a superfund site?	Requested information was provided via email. Other comments are noted. Not within scope of report.
John	Bednarski, PE	Resident	Altadena	Submitted a one-page letter in support of the gap closure on 2/8/10. Resident of Altadena who commutes the gap each day and supports the tunnel option to minimize community impacts to South Pasadena, Pasadena, and Alhambra. Has concerns with the design, construction and maintenance of ventilation shafts. Traffic rush hour patterns must be carefully studied, and additional interchange modifications must be included to mitigate additional traffic that will be created by tunnel. Make the tunnel a car only facility and deny access to trucks. Letter submitted 2.8.10	Comment noted. Not within scope of Report.
Charles	Woolf	Resident	Los Angeles	Faxed over comment card 2/18/10. Has any member of the SR-710 Tunnel Technical Study Steering Committee or Technical Advisory Committee received any financial contributions from design or engineering firms that might benefit from construction contracts? If they have, who received the money, how much and who contributed it? How many decades of objection to this poorly considered proposal to extend the SR-710 does it take to make you realize the public rightly considers its destructive of our communities and a monument waste of our money. I look forward to your answer. Submitted 2.18.10	Comment noted. Not within scope of Report.
David	Cota			Submitted email on 3/2/10. We don't want this thing in our back yard. See attached email.	Comment noted. Not within scope of Report.
Harvey	Zirler	Resident	La Canada	Submitted email on 3/2/10. I am firmly opposed to the 710 extension. There must be other ways that are far more economical to relieve our freeway traffic. This monstrosity is not the answer, and it will only result in more traffic congestion for the foothill communities. Furthermore, I do not understand where the money will come from during such economic times. In my opinion there are many other priorities where the money should be spent. Submitted follow-up email on 3/3/10. What do we need to do to kill the funding for the project? Who pays for the Final Draft and where is the money coming from? See attached email.	Comment noted. Not within scope of Report.

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Miriam	Ellis	Resident	La Canada	Submitted email on 3/2/10. I believe that the 710 Tunnel is a very bad idea and a waste of taxpayer money. Boring a giant tunnel underground has all the makings of another boondoggle for people living in the area. Has everyone taken into account how traffic from a tunnel would impact residents along it's path? I live in La Canada, and the major increase of traffic running through our small town will cause a large elevation in noise from the hundreds of extra big rigs that will use the road, air quality will comprised and when there is an accident along the route through our city, it will cause total gridlock on Foothill Blvd which is the only major route through the city. Please look at other ways to work out this issue. I doubt that it would have gotten this far if any of the planners lived along it's proposed route. There are much better ways to spend the millions of dollars this tunnel would use. How about in education? See attached email.	Comment noted. Not within scope of Report.
Melissa	Michelson	Resident	Alhambra	Submitted email 3/2/2010 I'm a homeowner in Alhambra and I will sell my house and move elsewhere if this tunnel gets built. I am opposed to this tunnel, even if it is supposedly a safe alternative. See attached email .	Comment noted. Not within scope of Report.
Nancy	Nickerson	Resident	Los Angeles	Submitted email 3/2/10. As a resident of Northeast Los Angeles, I strongly oppose the proposed tunneling extension of the 710 freeway on many levels, including increasing the truck travel in an era when we should be finding alternatives to freeway congestion. I think the money could be better spent on exploring such alternatives. I am disheartened that this project which has been opposed by neighborhoods for years is still receiving funding and consideration. I urge you to pull the plug on a wasteful and environmentally unfriendly project. See attached email.	Comment noted. Not within scope of Report.
Lacey	Wagner	Resident		Submitted email 3/2/10. My name is Lacey Wagner and I oppose the 710 Tunnel project. This tunnel, if completed, would absolutely destroy the character of our neighborhood, would greatly reduce the value of my home and would pose significant health hazards to the stakeholders of this community. I find it deeply disturbing that you would seek to put an unwanted freeway tunnel in our developing and historic neighborhood, when it makes no sense logistically and serves the sole purpose of increasing truck traffic from the port of Los Angeles. As a community we embrace greener forms of transportation: public transportation, walk able neighborhoods and a thriving bike culture. Our pockets may not be as deep as San Marino and South Pasadena but we will fight this tooth and nail. We will NOT allow this freeway to come through our neighborhood. See attached email.	Comment noted. Not within scope of Report.
Vinh	Tran	Resident	La Canada	Submitted email 3/3/10. The noise from the 210 is already so great that we hear it night and day, and we live over ½ a mile from the freeway. When we take walks closer to the freeway, the noise is maddening. If someone did a study on damage to one's hearing at that decibel level over time, I'd bet damage would be documented. It would be unconscionable to increase that noise pollution level with the 710 connection on an already bad situation. We totally oppose the freeway extension project through our neighborhood! See attached email.	Comment noted. Not within scope of Report.
Daniel	Stubbs	Resident	La Crescenta	Submitted email 3/3/10. Not in support of the proposed tunnel. See attached email.	Comment noted. Not within scope of Report.
Frank	Pasker	Resident	Los Angeles	Submitted letter via mail on 3/3/10. Does not support the proposal to extend the SR-710. He believes the extension will destroy the historic communities in this area and strain the state budget. Urges Caltrans to initiate a study that looks at all possible alternatives parallel without giving priority to the tunnel. He wants this study has to be conducted by a neutral third party to warrant it's validity. See attached letter.	Comment noted. Not within scope of Report.
Susan	Bolan	La Crescenta	La Crescenta	Opposes tunnel extension. Submitted letter 3.8.10. See attached.	Comment noted. Not within scope of Report.
Carol	Teutsch	Resident	Los Angeles	Submitted letter on 3.8.10. Opposes extension and thinks that endless exploring is wasteful. See attached letter.	Comment noted. Not within scope of Report.

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Janet	Ervin	Resident	South Pasadena	Submitted letter on 3.8.10. See Attached. Suggests that in order to determine feasibility, it is necessary to look beyond soil samples and all environmental concerns need to be evaluated. Believes that the Study failed to determine if a tunnel would solve commuter and/or freight traffic issues.	The geotechnical study was performed in a route-neutral manner. Other comments are noted. Not within scope of Report.
Sharon	Lilly	Resident	Los Angeles	Submitted letter on 3.9.10 Resident is requesting a Feasibility Study that evaluates cost and environmental impacts. See attached letter.	Comment noted. Not within scope of Report.
Judy	Bergstresser	Resident	South Pasadena	Submitted letter on 3.10.10. See attached. Believes the limited scope of the Study did not meet certain legal requirements. Has a few comments regarding the Geotechnical Study report. Please review attached letter.	Comment 1 is not correct: The factors to be considered have been discussed and did not change during the study. Comment 2 is not correct: This has been the scope all along. Comment 3 is not true: This was in original scope of work. Comment 4: These are discussed from a feasibility perspective with the details to be addressed in a future phase. Comment 5 is noted. Comment 6 is not correct: The significant fault displacement is discussed. Comment 7: It does. The fault rupture is related to AP Zone. Comment 8: Seismicity is more important to be evaluated during design phase. Tunnels generally perform better than structures at the surface during seismic events. Rest of the comments: The follow up studies to be determined by Caltrans and Metro. Additional feasibility tasks were proposed and Task No. 5, which was turned down by TAC and SC.
Waynna	Kato	Resident	South Pasadena	Submitted a letter on 3.10.10. Please see attached letter. States Draft Geotechnical Report did not cover earthquakes in depth. Has the following questions: How much does the boring machine cost? How do you know it is capable of boring through all the geological terrain? How can a tunnel be safely built if a boring machine of this magnitude has never been manufactured? see attached letter.	Comment 1: Faulting and seismicity were evaluated and discussed.
Steve	Pierce	President Crescenta Valley Town Council	La Crescenta	We [Crescenta Valley Town Council] support the alternate plan, proposed by Supervisor Michael Antonovich more than ten years ago, which would move containers from LA Ports to an inland site in Lancaster via rail. This would alleviate traffic congestion from many parts of Los Angeles as well as our community.	Comment noted. Not within scope of Report. Comment 2: Forwarded to Caltrans and Metro for consideration. Comment 3: Previous project experience and current tunnel technologies indicate boring through all the geological terrain is feasible.
Cheryl	Davis	Crescenta Valley Town Council	La Crescenta	The Crescenta Valley Town Council is resubmitting a correspondence submitted in June 2009 with regard to 710 Tunnel project last year in June 2009. Please include this correspondence and the attached as part of the final geotechnical report. The Crescenta Valley Town Council is strongly opposed to the 710 Tunnel Project and the technical study which is underway. While the first letter sent, May 12, 2007, has not had a response, let us be clear in this correspondence. As elected representatives of the unincorporated area in La Crescenta, we have recently held a public meeting in which there was strong opposition to the 710 Tunnel Project. We request our opposition be acknowledged and file along with other Foothill Communities. It is estimated by experts that the 210 freeway thru the Crescenta Valley would bear the brunt of the traffic and congestion resulting from the completion of the 710 tunnel. This is not acceptable to us and we cannot see any type of mitigation that would ease this unequal burden that our community is asked to bear. Congestion, noise, and pollution from the additional traffic is unacceptable to our community. Additionally, we are strongly opposed to the study in progress. Studying five zones, at an approximate cost of $10 million, is wasteful and irresponsible, with funds that could be better used elsewhere in our state, especially during this time of budget crisis. More consideration should be given to the way taxpayer money is spent and the way taxpayer concerns are addressed. It appears that this project has been decided upon and the "study" is merely a way to waste our money on a project, not supported by a majority of municipalities.	Comment noted. Not within scope of Report.

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Bill	Clintworth	Resident	Los Angeles	Submitted hand written letter via fax on 3.10.10. Writing is not legible. Concerned with the safety of the tunnel in terms of earthquakes, fires and accidents. Believes that the tunnel option will not alleviate traffic in the area. Health concerns are also outlined in the letter. See attached letter.	Comment noted. Not within scope of Report.
Jan	Soohoo	Resident	La Canada Flintridge	Submitted a letter via fax on 3.10.10. Wrote letter in response to "lack of detailed, specific information that the public demands by integrating information [she] learned at various public meetings with public questions and responses." Unsatisfied with responses to questions that would be answered in an environmental document. See attached letter.	Comment noted. Not within scope of Report.
Mary Ann	Parada	Resident	South Pasadena	Submitted letter on 3.10.10. See attached letter. Comments were related to health concerns on having a freeway 500 feet from a school. Her comments also included news article statement made in 1997 by former Caltrans Director District 7, Robert Sassaman and Pete Hathaway, Chief Deputy Director, California Transportation Commission.	Comment noted. Not within scope of Report.
Bill	Graham	Board Member of Communities Against the 710 Freeway	Burbank	Submitted letter on 3/10/10 and 3,000 petitions to "neutralize the Study, the Report, and the Project."". See attached letter. Believes Study was a not route neutral because they believe the report showed "bias in favor of Zone 3, the Meridian Route." Letter also states that the report does not address damage that seismic shacking and accidents can cause. See attached letter with petitions.	The geotechnical study is not biased towards Zone 3. No conclusions were presented in the report. Other comments noted. Not within scope of Report. The scope of work has been discussed in detail and was adhered to. Scope items were not added.
Nancy	Campeau	Member of United Against the 710	Los Angeles	Submitted a letter on 3.10.10. Please see attached letter. Letter requests "a complete feasibility Study that is portal and route neutral."	Comment 1: Gassy conditions and hazardous materials were part of the original scope. Comment 2: It is not correct. Tunnel alignments and portals are not known. Comment 3: Fault displacement is more critical. Tunnels generally perform better than structures at the surface during seismic events. Comments 4, 5, and 6 are noted. Disagree with the statement that "the report is not route and portal neutral."
Carol	Kramer	Resident	Midway	Submitted letter on 3.10.10. Interested in impacts and increase of traffic to the surrounding communities. Concerned with the safety of the tunnel in cases of terrorist attacks and accidents. Believes cargo rail is a better solution alternative. See attached letter.	Comment noted. Not within scope of Report.
Claire	Bogaard	Resident	Pasadena	Submitted letter on 3.10.10. Urges Caltrans to reject the current Geotechnical Study and begin another thorough Geotechnical Study that includes cost, funding and reviews other forms of public transit. See attached letter.	Comment noted. Not within scope of Report.
Joanne	Nuckols	Resident	South Pasadena	Submitted letter on 3.10.10. Wants a credible answer on whether the tunnel should be built before it moves into environmental. Resident stated that "the project costs, on both social and fiscal are too great." See attached letter.	Comment noted. Not within scope of Report.
Coralie	Galey	Resident Sun Valley		Submitted email 3.10.10. I live in Sunland and would like to see this extension finally completed, we really need it. I have 2 kids that attend Cal State LA and it takes so long to get there due to where the freeway ends. My kids say that the drive in traffic on surface streets, adds an hour to their commute. The tunnel sounds like the best solution. Thank you, The Galey Family in Sunland.	Comment noted. Not within scope of Report.
Clarisse	Knapp	Resident		Submitted letter on 3/10/10. Please see attached. Has concerns about the Elysian fault and would like this fault to be added to the report. Included is a copy of the City of South Pasadena's General Plan and Safety, which contains information about faulting in the area and a copy of a letter written by the EPA in 2000 opposing the freeway extension. Cost of Study: If $11.8 Billion was allocated only $5.6 Billion was used. Why was the actual cost of the Study reduced?	Elysian Park fault is discussed in the Geotechnical Summary Report. Other comments are noted. Not within scope of Report. This community member quoted a statement supposedly made by Mr. Doug Failing at the San Marino community meeting in June 2009. However, according to Mr. Failing these quotes are inaccurate.

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Harry	Knapp	Former Mayor of South Pasadena		Submitted letter 3/10/10. See attached letter. Letter states that the purpose and need statement for the project determines the project and a lead agency would know by this statement if CEQA regulations apply. Caltrans negates that tunnel will open at Level F Service and claim performance efficiencies but this has never been fully explained to the public. Supports the "ACE" project in the San Gabriel Valley.	The comments are not related to the current study. However, these comments are being noted and will be addressed, as appropriate, in future phases if it is determined to move forward with this project. This community member quoted a statement supposedly made by Mr. Doug Failing at the Highland Park community meeting (during the investigation phase of the study). However, according to Mr. Failing these quotes are inaccurate.
Julieta	Gilbert	Resident		Submitted letter on 3/10/10. See attached letter. Letter states opposition for the tunnel extension. Concerned about pollution, poverty, and truck traffic that will be caused by the tunnel. Tunnel will also have impact on the indigenous flora and fauna.	Comment noted. Not within scope of Report.
Liz	Amsden	Resident	Los Angeles	Submitted letter 3/10/10. See attached letter. Opposes a tunnel extension connecting the 710 freeway to the 2 freeway. The 710 should be extended along the original route to the 210 freeway. The tunnel would relieve noise and pollution issues. Advises Caltrans to look at the transit systems in Boston, New York, Montreal, and Paris to learn more about tunnels. Public Meeting hours should be staggered to make it accessible to all citizens who can't make the regular scheduled meetings.	Comment noted. Not within scope of Report.
Joseph	Potts	Resident	South Pasadena	Submitted email on 3/9/10. Found Draft Geotechnical Summary Report to be fatally flawed. The Study was unable to detect potentially catastrophic conditions which may lead to tunnel collapse. Provided examples of tunnel collapses around the world.	It is true that there have been a handful of tunnel failures scattered around the world over the last decade or so. Many more projects have been completed without incident, conservatively more than 100. In several cases, the failures occurred in developing countries, and they can be attributed to operator errors--likely due to a lack of adequate training and skilled labor. The types of machines where these failures occurred are very sophisticated, and they have to be operated properly to be effective. The report focuses on local projects in similar geologic formations as the SR-710 tunnel, such as Metro's Eastside Extension where these sophisticated machines were operated properly and were very successful.
Peter	Orona	Resident	Los Angeles	Submitted 3 emails on 3/6/10. Each email has between 10-24 questions all relating to the EIR. All questions related to ventilation, portals and tunnel design. See attached emails.	Comment noted. Not within scope of Report.
Tom	Williams	Resident	Los Angeles	Submitted 52 page letter. See attached	Responses are provided in a separate document.

COMMENT FORM

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

SR-710 Tunnel Technical Study 2010 Community Meetings

Wednesday, January 20, 2010

NAME: RICHARD CHOGYOJI DATE: 1/20/10

ADDRESS: 2517 HINES DR- PHONE: 323 258-5665

CITY, STATE, ZIP: L.A., CA 90065-3522

E-MAIL ADDRESS: DCHOGYOJI@EARTHLINK.NET

My Comments:

THE CONTINUATION OF THE NORTHBOUND 710 TO ANY ROUTE BY TO THE 210 DOES NOT MAKE ANY SENSE. NORTHBOUND 710 MOTORIST GOING TO GLENDALE AND THE EAST SAN FERNANDO VALLEY WILL DIVERT TO THE I-5 FROM THE 710. NORTHBOUND 710 MOTORISTS GOING TO MONROVIA/ IRWINDALE WILL DIVERT FROM THE 710 TO I-10 TO I-605 NORTHBOUND

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☐ Newspaper ☐ Flyer

☐ SR-710 Office ☒ Other: BUSINESS BULLETIN BOARD

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

COMMENT FORM

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

SR-710 Tunnel Technical Study 2010 Community Meetings

Wednesday, January 20, 2010

NAME: Nancy Kent DATE: 1-20-10

ADDRESS: 1121 Raleigh St PHONE: 818-242-4320

CITY, STATE, ZIP: Glendale CA 91205

E-MAIL ADDRESS: nnbbkk@att.net

My Comments: The Executive Summary of the Draft Geotechnical Summary Report/SR-710 Tunnel Technical Study states "Each zone has some challenges that will need to be addressed during the design and/or construction phases." Please resolve these challenges by cancelling this project. Do not spend additional funds on this. Thank you.

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☑ Email ☐ Newspaper ☐ Flyer

☐ SR-710 Office ☑ Other: announced at 1-19-10 Glendale City Council meeting

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 : Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

COMMENT FORM

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

SR-710 Tunnel Technical Study 2010 Community Meetings

Wednesday, January 20, 2010

NAME: Rye Baerg DATE:

ADDRESS: 4120 Rincon Ave PHONE:

CITY, STATE, ZIP: Montrose, Ave. CA 91020

E-MAIL ADDRESS: rbaerg@gmail

My Comments:

Would have liked to learn about the exaust systems + Their impact + other tech.

What about a tunnel from Pasadena to the red Line in North Hollywood for a light rail?

Will there be feasibility studies for other congestion reduction methods?

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☐ Newspaper ☑ Flyer

☐ SR-710 Office ☐ Other:

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COMMENT FORM
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
SR-710 Tunnel Technical Study 2010 Community Meetings
Tuesday, February 2, 2010

NAME: Peter A. Orona DATE: 02-02-10

ADDRESS: 5472 Allan St. PHONE:

CITY, STATE, ZIP: Los Angeles, CA 90032

E-MAIL ADDRESS: porona2060@aol.com.

My Comments:

To Mr. Doug Failing – Is it possible to start the 710 Tunnel Southern portal just before the 10 Frwy? Can the Southern portal be built between the 60 and 10 Frwys? Is it doable? Thank you so much for your help! ☺

How did you hear about the meeting?
☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☐ Newspaper ☐ Flyer
☐ SR-710 Office ☐ Other:

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Rail please!

COMMENT FORM

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

SR-710 Tunnel Technical Study 2010 Community Meetings

Tuesday, February 2, 2010

NAME: ERIC HAAGENSON DATE: 2/2/10

ADDRESS: 2737 CHADWICK CIR PHONE: 213 974-0790

CITY, STATE, ZIP: LOS ANGELES CA 90032

E-MAIL ADDRESS: erichaagens@yahoo.com

My Comments: ZONE 3 CERTAINLY LOOKS BEST —

AND NOW THAT WE KNOW EACH TUNNEL ROUTE IS FEASIBLE USING EXISTENT TECHNOLOGY:

FROM WHAT I HAVE SEEN, I CONSIDER THIS TUNNEL TO BE AN EXQUISITE SOLUTION TO THE MASSIVE TRAFFIC JAMS CAUSED BY AN 8-LANE FREEWAY BEING REDUCED TO A 2-LANE RESIDENTIAL STREET BY THE TIME IT GOES THROUGH SOUTH PASADENA. AIR POLLUTION SHOULD BE GREATLY REDUCED, AND WITH A MINIMUM OF DISRUPTION TO SURFACE RIGHTS. ONCE COMPLETED, IT SHOULD BE AS VISUALLY UNDETECTABLE AS THE RED LINE IN DOWNTOWN L.A.

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☒ Email ☐ Newspaper ☐ Flyer
☐ SR-710 Office ☐ Other: _____

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 : Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

COMMENT FORM
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
SR-710 Tunnel Technical Study 2010 Community Meetings
Wednesday, February 10, 2010

NAME: Sonia E. McIntosh DATE: 2-10-10

ADDRESS: 2725 Mimosa St. PHONE: —

CITY, STATE, ZIP: Alhambra, Calif. 91803

E-MAIL ADDRESS: —

My Comments:

We have a lot of semi trucks & traffic on Meridian & Concord Ave. Alhambra Ave.
Will the air be let out & traffic at the ~~Concord Ave.~~ tunnel opening.
fumes/particulate/diesel gases as per newspaper drawings ~~Stay away~~
Alhambra Wash extends to Zone 3 too, Alh. under Emery Park Park
Laguna Wash - all connect to San Gabriel & L.A. River
Many boring locations at Zone 3 so close together.
It seems we need the Freeway completed — military needs it from
in Palmdale

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☐ Newspaper ☐ Flyer
☐ SR-710 Office ☒ Other: ~~Flyer~~ CalTrans put in Newspaper or Mail

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 : Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

COMMENT FORM

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

SR-710 Tunnel Technical Study 2010 Community Meetings

Wednesday, February 10, 2010

NAME: MARTIN J. WATERMAN DATE: 2-10-10

ADDRESS: 1659 N. LAKE AV. #6 PHONE: 626-296-6551

CITY, STATE, ZIP: PASADENA, CA. 91104

E-MAIL ADDRESS:

My Comments:

THE 710 FREEWAY EXTENSION IS LUDICROUS PROPOSAL THAT, IF UNDERTAKEN, WOULD SOLVE NO PROBLEMS. IT WOULD TURN THE 210 FREEWAY EAST INTO A PARKING LOT AND COST UNTOLD BILLIONS IN TAXPAYER DOLLARS. THERE IS NO LOGICAL REASON TO PROCEED WITH THIS PROJECT. NONE, ZIP, ZERO, ZILCH. THE CURRENT STATE OF CALIFORNIA'S ECONOMY NEGATES ANY CONSIDERATION OF THIS PROJECT.

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☐ Newspaper ☐ Flyer

☐ SR-710 Office ☐ Other: KPCC RADIO

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

COMMENT FORM

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

SR-710 Tunnel Technical Study 2010 Community Meetings

Wednesday, February 17, 2010

NAME: PETER HIRSH DATE: 2-17-10

ADDRESS: 830 TERRACE 49 PHONE:

CITY, STATE, ZIP: L.A 90042

E-MAIL ADDRESS:

My Comments:

710 ALTERNATIVE

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☐ Newspaper ☐ Flyer

☐ SR-710 Office ☐ Other:

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

COMMENT FORM

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

SR-710 Tunnel Technical Study 2010 Community Meetings

Wednesday, February 17, 2010

NAME: Richard R. Vasquez DATE: 2/17/10

ADDRESS: 5235 Ithaca Ave. PHONE: (323) 806-2716

CITY, STATE, ZIP: L.A., CA 90032

E-MAIL ADDRESS: rrsquez@yahoo.com

My Comments:

I understand that environmental concerns are not being addressed by this study (that may or may not be done later). However, I do not hear anyone asking about the property value impacts caused by the tunnel. As I understand, there will only be ONE entrance and ONE exit for cars & GASES & NOISE. Those BIG jet engines are going to be loud and awful to live near (my home). On the "Tail-End" of the thing, all of the smog from all of that traffic will pile-up in one neighborhood. We either get noise or smog! Either one is unacceptable. What about the Homeless occupying the escape hatches! That will happen.

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☐ Newspaper ☐ Flyer

☐ SR-710 Office ☒ Other: Yahoo news. You sneaky bastards!

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

COMMENT FORM
STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION
SR-710 Tunnel Technical Study 2010 Community Meetings
Wednesday, February 17, 2010

NAME: Lisa Duardo DATE: Feb. 17, 2010

ADDRESS: 5556 ½ Echo St. PHONE:

CITY, STATE, ZIP: Los Angeles 90042

E-MAIL ADDRESS: Liska-fish@yahoo.com

My Comments:

I object to the spending of public funds toward this almost completed study (SR-710 Tunnel Technical study) Alameda corridor was supposed to carry rail & truck freight.. This area already has more than it's share of major traffic arteries polluting our communities My expectation is this tunnel idea ends with this study in March 10th

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☐ Newspaper ☐ Flyer
☐ SR-710 Office ☐ Other: HHPNC

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

COMMENT FORM
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
SR-710 Tunnel Technical Study 2010 Community Meetings
Wednesday, February 17, 2010

NAME: Ann Walnum DATE: Feb 17 2010

ADDRESS: 755 Crane Blvd PHONE: 323-222-8327

CITY, STATE, ZIP: LA CA 90065-4038

E-MAIL ADDRESS: —

My Comments:

I am unalterably opposed to any "gap-closure" route. The "gap closure" would not be helpful to local residents. We would be profoundly impacted permanently by our quality and noise. Construction impacts would be difficult. It is unfair for us to be penalized to help the trucking industry.

How did you hear about the meeting?
☐ SR-710 Website ☒ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☒ Newspaper ☒ Flyer
☐ SR-710 Office ☒ Other: other meetings

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

COMMENT FORM

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

SR-710 Tunnel Technical Study 2010 Community Meetings

Wednesday, February 17, 2010

NAME: Nan Wollman DATE: 2/17/10

ADDRESS: 4500 ½ Homer St PHONE: 323.343.1098

CITY, STATE, ZIP: 90031

E-MAIL ADDRESS: NAN@WOLLMANSTUDIOS.COM

My ~~Comments~~: Questions

WHAT DIRECTION DOES THE PRESENT 710 TRAFFIC NEED THE TUNNEL ~~TO~~ GO?

AFTER AN EARTHQUAKE, IF THE TUNNEL VAULT SHIFTS HOW DO YOU REPAIR IT & HOW WILL THAT AFFECT THE NEIGHBORHOOD & TUNNEL USE?

How did you hear about the meeting?

☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☒ Email ☐ Newspaper ☐ Flyer

☐ SR-710 Office ☒ Other: Call from Caltrans

Comment cards may be mailed to 3412 N. Eastern Ave, Los Angeles, CA 90032 Fax: 323-222-9710 Email: 710outreach@710tunnelstudy.info

Glenda Silva

From: CJ Reagan [cjreagan@adelphia.net]
Sent: Friday, February 05, 2010 2:00 PM
To: _Glenda_Silva
Cc: 'Abdi Saghafi'; CYoga.Chandran@CH2M.com; 'Rebecca Barrantes'
Subject: Re: Boring Logs for Boring Z2-B4 Pullman St.

Hi, and thanks again for the info regarding the bore results from Pullman St. (Z2-B4). While the data contained in this report is helpful, I'm now faced with another obstacle and that is I can't find the rest of the results from other borings on-line. They were accessible when I started my inquiry and now I can't access any of them and I can't figure out why.

The information I'm interested in is the amount of groundwater which was found on average throughout the test areas compared to the Pullman St. location. Specifically I need to know if the Pullman Street location has a higher watertable that might indicate an underground spring or some kind of Artesian well or stream, or any kind of underground water source that would set this location apart from the rest of the results found in your study. If you can tell me where I can find the other boring site results it will be extremely helpful and if you can offer your expert analysis of my specific question I will be most appreciative and genuinely grateful.

I am a proponent of your project and feel that finishing the 710 Fwy should be a priority and receive whatever support the public can offer to make it happen. Perhaps if I owned a business on Fremont Ave I would feel differently, but I don't.

I do have many suggestions that might help with the public relations aspect of your project from the John Q Public point of view like finding the areas that are overburdened by the non existence of a finished freeway including the residents along Collis Ave who deal with over 35,000 cars a day on their little two lane street because it acts as part of the link between the 710 at Valley Bl and Hermon, Highland Park, Eagle Rock, Pasadena and South Pasadena and inform them how much more peaceful their lives will be as soon as your project is finished.

I think you'll find that targeting some of the most affected areas would bring more supporters to your outreach meetings to balance out the lynch mobs that I've witnessed at same. Just a thought.

I also have a mountain of questions that I'd love to know the answers to simply from a curiosity standpoint, one example is why is there so much focus on groundwater contamination? Is it harder to drill through contaminated ground? Is it a matter of spreading the contamination by drilling through these superfund areas? And what exactly is a superfund site?

These are just a few of the many questions I have and would be very happy if I could get answered here, by e-mail rather than having to attend your outreach meetings and take up public time asking there.

I'd like nothing more than to establish a contact on your end who might be able to answer some or all of my questions at their leisure and save everybody their valuable time.

I know this is a pretty big request but like I said I'll sure appreciate any help you can offer.

Thanks again,

Casey Reagan
4633 Harriman Ave
LA Ca 90032
cjreagan@roadrunner.com
www.youtube.com/musicucansee
www.saveelephanthills.blogspot.com

Glenda Silva

From: Rody Stephenson [rodys@earthlink.net]
Sent: Thursday, January 21, 2010 1:54 PM
To: 710 Outreach; _Glenda_Silva
Subject: FW: 710 - tunnel - Comments from 20 Jauary community meeting

Importance: High

Resending.

Please RSVP when you get it.

Rody

R. Rhoads (Rody) Stephenson
4455 Rockland Pl., Unit 10
La Canada, CA, 91011, USA
(818) 248-7472
rodys@earthlink.net

-----Original Message-----
From: Rody Stephenson [mailto:rodys@earthlink.net]
Sent: Thursday, January 21, 2010 9:44 AM
To: '710outreach@710study.info'
Cc: Ann Wilson (awilson@lcf.ca.gov); Steve Del Guercio (stevedelguercio@aol.com); Anthony Portantino (anthonylcf@aol.com)
Subject: 710 - tunnel - Comments from 20 Jauary community meeting
Importance: High

I did not have time to fill out a form last night, so please add these comments to the official record.

My comments are below:

1. I went to your website first. Lots of info there. But there was not a link to submit comments. I suggest you add one.

2. I thought the two presentations were well done. I would have understood the tunneling constraints better if you had the Jacobs person speak first, followed by the geotechnical guy, Yoga.

3. It is too bad that you could not eliminate any of the zones. But the tunnel guy said they could tunnel through anything, so that result may have been a forgone conclusion.

4. I suggest you do a rough estimate of tunneling costs for a typical route through each of the 5 zones. There must be rules of thumb for cost per foot in the different kinds of soils and rocks. And what extra costs there are when you encounter water or gas. Zone 5 is nearly twice as long as zone 3, so it must be much more expensive.

5. I go to Long Beach about three times per year. I would get some SLIGHT convenience if there was a short connection through zone 3. That would avoid the bottleneck downtown on the I-5.

6. However, I am strongly against any of the zones/routes because of the increased traffic, noise, and wear and tear on the 210 in La Canada. Our section of 210 is already beat up, and the trucks won't even drive in the right-most lane.

7. I think this tunnel is mainly being pushed to get trucks out of the port area and on their way. Here are some ideas that might mitigate the concerns over trucks:

a. Require that all cargo from the ports leave by train. The Alameda Corridor has enough capacity to handle it all. But the freight should stay on the trains at least until it is out of the basin. Say one transfer point in Bakersfield for stuff going North, and another near Victorville for cargo going East. But it would be best if the cargo stayed on the train until near its destination.

b. Ban all trucks on the 710 north of the I-10.

c. Please include these options if you should go the next step to an EIR.

8. This is not a step in the right direction for air pollution and Green House Gas emissions. These, of course, must be included in any EIR. Going to trains for cargo would be a step in the right direction and reduce pollution and GHGs.

Please RSVP that you have received my comments.

Rody

R. Rhoads (Rody) Stephenson
4455 Rockland Pl., Unit 10
La Canada, CA, 91011, USA
(818) 248-7472
rodys@earthlink.net

Caltrans Metro

COMMENT FORM
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
SR-710 Tunnel Technical Study 2010 Community Meetings
Wednesday, February 17, 2010

NAME: Charles Woolf
DATE: February 18, 2010
ADDRESS: 349 Mt. Washington Dr.
PHONE: (323) 221-1296
CITY, STATE, ZIP: Los Angeles, CA 90065-3148
E-MAIL ADDRESS: none

My Comments:
Has any member of the SR-710 Tunnel Technical Study Steering Committee or Technical Advisory Committee received any financial contributions from any Design or Engineering firms that might benefit from construction contracts? If they have, who received the money, how much and who contributed it? How many decades of objection to this poorly considered proposal to extend the SR 710 does it take to make you realize the public rightly considers it destructive of our communities and a monumental waste of our money.

I look forward to your answer.

How did you hear about the meeting?
☐ SR-710 Website ☐ SR-710 Steering or Technical Advisory Committee Member ☐ Email ☐ Newspaper ☒ Flyer
☐ SR-710 Office ☐ Other: _____

State Route 710 Study
3412 North Eastern Ave
Los Angeles, CA 90032

February 8, 2010

Support for Route 710 Extension/Closure

To whom it may concern:

I would like to take this opportunity to provide my voice of support to your current efforts which are aimed at determining a preferred route for the closure of the 710 freeway gap. I am not able to attend your public meetings which are currently being held in the region, so hopefully this letter will suffice to convey my support and concerns.

As a resident of Altadena, I have commuted to downtown Los Angeles for the last 20+ years. Each day, I have negotiated the series of freeways and surface streets that must be used to eventually wind my way to the Downtown area of Los Angeles. The closure of the long-time 710 freeway gap is long overdue. It would appear that the tunnel options which are currently being studied provide a prudent way to avoid/eliminate most of the objectionable surface impacts. From my perspective, the preferred route that should be adopted is the one that would pass beneath Pasadena, South Pasadena and Alhambra.

For the past five years, I have worked on a successful large tunnel project in San Bernardino Mountains which included the use of two 20-foot diameter tunnel boring machines. From this experience, I know that TBMs can successfully mine these tunnels as long at the geologic and hydro-geologic conditions along the tunnel alignment are thoroughly investigated before the start of construction.

My concerns with the tunnel approach are three-fold, and I hope that these issues are being carefully studied. First, ventilation shafts must be constructed in several locations along the alignment. Careful consideration must be given to the design/construction and maintenance of these ventilation facilities as they will most likely be located in populated regions. Caltrans or the tunnel operating authority must be committed to properly maintaining these facilities for the life of the project (in excess of 100 years?). Secondly, if the north end of the tunnels daylight just south of the present junction of the 710/210/134 interconnection in Pasadena, the traffic flow patterns during rush-hour should be carefully studied. Additional modifications to this congested interchange should be included in the overall tunnel project to mitigate the additional burden of traffic that will be dumped into this interchange when the tunnels are placed on-line. Finally, Caltrans should consider making the tunnels a "car only" facility, thereby denying heavy trucks access to the tunnels, both for safety considerations and to alleviate traffic congestion at the north-end of the tunnels as they daylight near the 710/210/134 interchange.

Thank you for taking the time to consider my comments. I can be reached at: Bednarskiboys@sbcglobal.net if you have any questions.

John Bednarski, PE
1200 Sonoma Drive
Altadena, CA 91001

From the desk of ... Thomas Keiser
550 W. Duarte Rd. #6
Arcadia, CA 91007
(626) 447-3318; Fax (626) 447-1124
tomkeiser@juno.com

Jan. 15, 2010

State Route 710 Tunnel Study Office
3412 N. Eastern Avenue
Los Angeles, CA 90032

Re: State Route 710 Extension

I am not able to attend any of the "Community Meetings". My comments are as follows:

Enclosed is a copy of my letter sent to Ron Kosinski on November 27, 1995.

Enclosed is a copy of my letter sent to Terry L. Abbott on August 6, 2009.

The solution to the congestion through Alhambra because of State Route 710 ending at Valley Boulevard is, and has been for years, the extension of the 710 north to Huntington Drive, for all the reasons in my letters. That should be the priority. Do what can be done, a significant contribution to transportation eliminating congestion on Alhambra surface streets and Interstate 10.

About a tunnel. The concept of a tunnel through South Pasadena is not worth considering and is not worth the millions being spent to study it if it involves overbuilding, 8 or 10 lanes. If the 710 is ever extended from Alhambra through South Pasadena, the way to do it is by designing and building the extension on a scale to match the Pasadena Freeway. That is, a parkway.

The monstrosity that is the 210 coming south to California Avenue in Pasadena would effectively destroy South Pasadena, with or without a tunnel. With appropriate, thoughtful design, the extra, unnecessary lanes would be dropped as "exit only lanes" as the 210 approaches South Pasadena from the north.

Coming from the south, the 710 would be narrowed to 2 or 3 lanes by "exit only lanes" for Mission, Poplar or Commonwealth, and Huntington Drive. A "smaller" 710 would then make the connection without either interfering with the transportation needs of the area or the community that is South Pasadena.

People needing to get to Huntington Memorial Hospital would no longer be delayed. The burden that South Pasadena has, selfishly, imposed on its neighbors would be lifted. Just extending the 710 from the south to Huntington Drive would accomplish most of what is needed, without a tunnel.

Thank you for considering my ideas.

Very truly yours,

Tom Keiser

THOMAS KEISER

TK/t/Encls.(noted)

November 27, 1995

Ron Kosinski
Department of Transportation
District 7
120 S. Spring Street
Los Angeles, CA 90012-3606

Re: 710 Freeway extension

Dear Mr. Kosinski:

Enclosed is a map showing the extension of the Long Beach Freeway to Huntington Drive. No "historic homes" would be involved.

By the short extension shown on the map, and with the on and off ramps as shown, the problem with traffic congestion through Alhambra would be solved. The congestion at the 710/10 interchange would be eased.

Huntington Drive is a large enough road to accommodate the traffic from offramps and serve as access to the southbound on ramp. Huntington Drive is the north terminus of the 605 Freeway. Huntington Drive is suitable to serve the same purpose for the 710 Freeway.

Additionally, a busway/carpool lane down the center median of the extension can begin with its own on and off ramps at Huntington Drive, connecting to the busway/carpool lane at Cal State L.A., from there a direct link to downtown.

I urge you to extend the 710 Freeway up to Huntington Drive now and regardless of whatever may or may not be decided about any further extension. It makes sense, is not controversial, and solves a serious transportation problem. The extension to Huntington Drive will solve the problem of congestion through Alhambra and may make further extension unnecessary.

Very truly yours,

THOMAS KEISER

TK/t
cc: Michael Burch
and,
State Historic Preservation Officer
and,
Assemblywoman Diane Martinez

550 W. DUARTE RD. #4, ARCADIA, CA 91007-7331 (818) 447-3539

From the desk of ... Thomas Keiser
550 W. Duarte Rd. #6
Arcadia, CA 91007
(626) 447-3318; Fax (626) 447-1124
tomkeiser@juno.com

Aug. 6, 2009

Terry L. Abbott
Chief, Division of Design, CalTrans
1120 N. Street, MS-49
Sacramento, CA 95814-5680

COPY

Re: 710/Auxiliary Lanes

Dear Chief Abbott:

Thank you for your letter dated July 27, 2009.

I read last week that the La Canada Flintridge City Council went "on record" as opposing the extension of the 710 Freeway to the 210. I doubt there will ever be a "consensus with the affected communities" regarding the extension of the 710 through South Pasadena.

Rather than continue "studies" that will not persuade anyone, why not look at doing what is possible, which is, extending the 710 to Huntington Drive? Since South Pasadena would be unaffected there is a definite possibility of "consensus". Extending the 710 to Huntington drive would be a major achievement and help solve decades long congestion through Alhambra.

Thank you for referring me to the CalTrans Highway Design Manual. By re-writing 501.3 Spacing, you could require what is needed - auxiliary lanes - at all interchanges.

"To improve operations of interchanges, the use of auxiliary lanes shall be included in all interchange design. In addition, grade separated ramps, collector distributor roads, and/or ramp metering may be warranted."

New construction would be mandated to include auxiliary lanes. Retrofitting interchanges to include auxiliary lanes should then be a priority.

First, pave out where existing right of way permits (i.e., Baldwin Avenue on ramp westbound 210 to Rosemead Boulevard off ramp; San Fernando Road on ramp to southbound 5 to Burbank Boulevard), Second, add auxiliary lanes where bridge widening is required (i.e.,Riverside Drive on ramp to eastbound 134 to Forest Lawn Drive; Alameda Avenue on ramp to northbound 5 to Olive; most on ramps, Antelope Valley Freeway).

Auxiliary lanes would do more to improve safety and relieve congestion than anything else you could do, and at the least cost, and you'd have tangible results within months, not years or decades. Traffic would begin to flow more smoothly as each new auxiliary lane is opened. (The 101 through Newbury Park is a good example of how auxiliary lanes allow traffic to flow uninterrupted by merging.)

Thank you, again, for your letter, and your consideration of my ideas.

Very truly yours,

710 Outreach

From: David Cota [dahveed619@gmail.com]
Sent: Tuesday, March 02, 2010 12:57 PM
To: 710 Outreach
Subject: please stay out of EAGLE ROCK

We don't want this thing in our backyard.

710 Outreach

From: Harvey.Zirler@sce.com
Sent: Tuesday, March 02, 2010 1:18 PM
To: 710 Outreach
Subject: No to the 710 Tunnel

I am firmly opposed to the 710 extension..

There must be other ways, that are far more economical to relieve our freeway traffic. This monstrosity is not the answer, and it will only result in more traffic congestion for the foothill communities.

Furthermore I do not understand where the money will come from during such economic times. In my opinion there are many other priorities where the money should be spent.

Harvey Zirler
4832 Grand Ave
La Canada 91011

710 Outreach

From: Harvey.Zirler@sce.com
Sent: Wednesday, March 03, 2010 4:03 PM
To: 710 Outreach
Subject: RE: No to the 710 Tunnel

Thanks for your kind response.

Not good enough. What do we need to do to kill the funding for the project? Who pays for the Final Draft, and where is the money coming from?

Harvey

From: "710 Outreach" <710outreach@710tunnelstudy.info>
To: <Harvey.Zirler@sce.com>
Date: 03/03/2010 03:55 PM
Subject: RE: No to the 710 Tunnel

Good Afternoon Mr. Zirler,

Thank you for your comment. All comments and questions will be responded to in the Final Draft Geotechnical Summary Report (Final Draft Report). The responses will be contained in an Appendix to the Final Draft Report which will include responses to questions and comments on the Draft Report, received from Technical Advisory and Steering Committee members, the public and the elected officials.

Sincerely,

SR 710 Tunnel Technical Study Outreach Team

3412 North Eastern Avenue | Los Angeles, California 90032
T 323.222.1710 F 323.222.9710 | 1-877-710-4111 | www.710tunnelstudy.info

From: Harvey.Zirler@sce.com [mailto:Harvey.Zirler@sce.com]
Sent: Tuesday, March 02, 2010 1:18 PM
To: 710 Outreach
Subject: No to the 710 Tunnel

I am firmly opposed to the 710 extension..

There must be other ways, that are far more economical to relieve our freeway traffic. This monstrosity is not the answer, and it will only result in more traffic congestion for the foothill communities.

Furthermore I do not understand where the money will come from during such economic times. In my opinion there are many other priorities where the money should be spent.

Harvey Zirler

710 Outreach

From: Miriam Ellis [mims.e@charter.net]
Sent: Tuesday, March 02, 2010 4:40 PM
To: 710 Outreach
Subject: 710 Tunnel

I believe that the 710 Tunnel is a very bad idea and a waste of taxpayer's money. Boring a giant tunnel underground has all the makings of another boondoggle for people living in the area.

Has anyone taken into account how traffic from a tunnel would impact residents along it's path? I live in La Canada, and the major increase of traffic running through our small town will cause a large elevation in noise from the hundreds of extra big rigs that will use the road, air quality will be compromised and when there is an accident along the route through our city, it will cause total gridlock on Foothill Blvd which is the only major route through the city.

Please look at other ways to work out this issue. I doubt that it would have gotten this far if any of the planners lived along it's proposed route. There are much better ways to spend the millions of dollars this tunnel would use. How about in education?

Miriam Ellis
818-952-7147

710 Outreach

From: Melissa [melmiamich@yahoo.com]
Sent: Tuesday, March 02, 2010 10:10 PM
To: 710 Outreach
Subject: 710 tunnel comments

I'm a homeowner in Alhambra and I will sell my house and move elsewhere if this tunnel gets built.

I am opposed to this tunnel, even if it is supposedly a 'safe' alternative.

Melissa Michelson

710 Outreach

From: Nancy Nickerson [nancy@iproduce.com]
Sent: Tuesday, March 02, 2010 1:22 PM
To: 710 Outreach
Subject: Oppose the 710 tunnel

To who it may concern,

As a resident of Northeast Los Angeles, I strongly oppose the proposed tunneling extension of the 710 freeway on many levels, including increasing the truck travel in an era when we should be finding alternatives to freeway congestion. I think the money could be better spent on exploring such alternatives. I am disheartened that this project which has been opposed by neighborhoods for years is still receiving funding and consideration. I urge you to pull the plug on a wasteful and environmentally unfriendly project.

Sincerely,

Nancy Nickerson

900 Oneonta Dr.
Los Angeles, CA 90065
323.255.0089 (h)
323.255.2689 (w)
323.533.9444 (c)

710 Outreach

From: Lacey Wagner [lwagnero@gmail.com]
Sent: Tuesday, March 02, 2010 2:30 PM
To: 710 Outreach
Subject: Comment opposing the 710 tunnel project

My name is Lacey Wagner and I oppose the 710 Tunnel project. This tunnel, if completed, would absolutely destroy the character of our neighborhood, would greatly reduce the value of my home and would pose significant health hazards to the stakeholders of this community. I find it deeply disturbing that you would seek to put an unwanted freeway tunnel in our developing and historic neighborhood, when it makes no sense logistically and serves the sole purpose of increasing truck traffic from the port of Los Angeles.

As a community we embrace greener forms of transportation: public transportation, walkable neighborhoods and a thriving bike culture. Our pockets may not be as deep as San Marino and South Pasadena but we will fight this tooth and nail. We will NOT allow this freeway to come through our neighborhood.

Lacey Wagner

710 Outreach

From: Vinh Tran [vinh.tranmd@charterinternet.com]
Sent: Wednesday, March 03, 2010 7:15 AM
To: 710 Outreach
Subject: No on freeway

Dear Sir,
The noise from the 210 is already so great that we hear it night and day, and we live over ½ a mile from the freeway. When we take walks closer to the freeway, the noise is maddening. If someone did a study on damage to one's hearing at that decibel level over time, I'd bet damage would be documented. It would be unconscionable to increase that noise pollution level with the 710 connection on an already bad situation. We totally oppose the freeway extension project through our neighborhood!
Joyce Show Tran, MD
440 Georgian Road
La Canada 91011

Frank Pasker
4260 Via Arbolada #320
Los Angeles, CA 90042

2010-03-01

710 Freeway Technical Study
3412 North Eastern Avenue,
Los Angeles, CA 90032

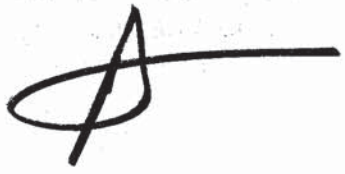
Comments to the study for the 710 Freeway tunnel extension through North East Los Angeles County

Dear Madam or Sir,

The 710 tunnel study that is being authorized by Caltrans and MTA with the purpose of extending the 710 freeway, a relic of the cold war era, has raised more questions and concerns than it has answered.
The residents of the communities in North East Los Angeles along with the communities of South Pasadena, La Canada Flintridge and Glendale are very concerned about the recent development of the study to extend the 710 freeway. Several city councils have already adopted resolutions to oppose any extension of the freeway, and so have many neighborhood associations. With this letter, I would like to submit my own opposition to the project as well.
The 710 freeway extension will destroy historic communities in this area and strain the state budget (= OUR MONEY) with its several billion dollars of projected cost even further, not to mention the loss of quality of life and health, pollution and noise from the truck traffic to and from the ports of LA and Long Beach.
The solution to LA's transportation problem has been seen in the freeway system for too long- and it has become part of the problem we are in right now. No other city in the developed world has so few rail transit lines as the LA region. Instead of constructing even more freeways that don't solve the problem, officials need to start thinking about the future and study alternate means of transportation.

I feel, that this project is in stark contradiction to president Obama's goal to a more environmentally oriented economy and I therefore urge you to initiate a study that looks at ALL POSSIBLE ALTERNATIVES parallel without giving priority to the tunnel. This study has to be conducted by a neutral third party to warrant it's validity.

Sincerely,



710 Outreach

From: DANIEL G STUBBS [dansherr@pacbell.net]
Sent: Wednesday, March 03, 2010 9:31 AM
To: 710 Outreach
Subject: 710 tunnel geotechnical study

We wish to submit our comments on the 710 tunnel geotechnical study findings and request that they be included in the final report.

First of all, both in general terms and as they apply to the 710 tunnel proposal, studies have been inherently flawed and/or insufficient. This study is no different. Specifically regarding the 710, $3.4 million was previously allocated for a route neutral feasibility study which ended up in a fatally flawed report. Millions more were allocated for further studies. This geotechnical study has now been completed at a cost of approximately $7 million but it is also insufficient, admittedly not going far enough. On January 28, 2010, the MTA voted to allocate millions more of our taxpayer dollars to 6 public private partnership studies, including the 710. Just how much more money is going to be spent and how many more studies are going to be done? And that does not even begin to address actual building costs. We continue to throw taxpayer dollars into a black hole/ a money pit for contract studies and increases in contract studies.

It is a known fact that studies, as well as other like vehicles, are regularly and continually skewed to favor a certain viewpoint or outcome. This "tunnel" study is no exception. An independent, non-governmental agency did not perform this study. Caltrans, a state agency employing state employees, did the study. Caltrans has a vested interest in doing a study favorable to the tunnel option, as well as to any extension of the 710. This alone, engenders skepticism on the validity of the study.

Having attended the "outreach" meeting at Wilson Middle School, nothing was either heard or seen at that meeting that changed our minds on the uselessness of this study or the project as a whole.

Building more freeways and/or tunnels is merely a bandaid solution that does not address the real traffic problem. The basic premise is wrong. We need to address the "root" of the problem in order to solve it and achieve a worthwhile, long lasting solution. You can build freeways and tunnels "till the cows come home" and there will continue to be gridlock. By the time this project is completed it will already be outdated. It has even been noted that should this tunnel be built, it would receive an "F" service grade on the day it opens.

Because the basis for the study is wrong, its findings and results, including the various options, are meaningless.

Rail is the only real solution for truck/container traffic. Why do you suppose Warren Buffett just invested billions of dollars in the railroad? In addition, it is our understanding that the U.S. has allocated $8 billion in grants for high speed rail in California.

We would liken building more freeways, and/or tunnels in this case, to a pyramid of medication in treating an illness. Use one medication to treat one symptom, then pile on another and then another and another until they all have to be thrown out and you have to start all over again because they did not work. They might alleviate a problem in one area, but create another problem in another area.

The 710 freeway problem is a result of truck traffic from our ports. The Alameda Corridor was built to address this issue. It was built at a cost of $12.4 billion but it has only 40% usage. And we should spend billions more to build another boondoggle? Or build it only to have 40% or less usage because other ports and/or rail are by then carrying more of the load? (See following paragraph.) It seems only logical that the first situation needs to

be fixed before embarking on a second. The idea of an inland port somewhere in the Antelope Valley has also been floated and should be pursued.

In addition, our ports may see reduced container traffic in the not too distant future due to the availability of other, larger ports on the west coast. The Panama Canal is currently being widened, Seattle is also being expanded as are ports in Mexico. In view of such expansions, the need to provide travel options for trucks/containers may be substantially reduced.

The quality of life for residents would be drastically and negatively impacted. According to USC studies, ultra fine particles (UFPs) from trucks get into our lungs. What about our children? 2 dozen schools are located within 500 feet of the 210 freeway. Adverse health effects could be discussed ad infinitum. We live only 6 blocks from the 210 freeway. Since the extension of the 210 all the way out to the 15 freeway and beyond, traffic has already increased enormously. We can't imagine the additional traffic, pollution and other associated problems we would be subjected to with a 710 extension and its impact on the 210 and local arterial streets.

Tolls are another issue that is currently being downplayed. Tolls of at least $20 are the reality based on an $8 billion median building cost. That is the minimum amount which would allow for repayment of bonds, operation, maintenance and other costs. Just who is going to pay that kind of toll to go 4-5 miles? That's right, no one. As a result, no traffic problem will be resolved. Gridlock on side, arterial, service streets will continue as if the project had never been built in the first place.

Any argument that the project would create jobs is weak. Is creating jobs why a Spanish firm is set to come in to do the boring? How does contracting with a foreign company create jobs? Even if the company was to use American workers, since it is a public project, they would be union workers. What happens to the majority non-union workers in the private sector? Where are their jobs?

The people are entitled to the best bang for their buck. Paying $54+ an hour for a unionized heavy equipment operator is hardly a competitive or even equitable pay rate. A union Laborer 1 is $40+ an hour. Paying such high rates is certainly not giving the people the best bang for their buck, especially since $16+ an hour of those rates go into the union coffers where much of it is spent on political issues and politicians, not the union members.

The entire project is ill advised and short sighted. It is a boondoggle that should stop NOW before throwing more of our taxpayer dollars down the drain. Quit throwing good money after bad. California is virtually bankrupt. All the money spent on this study/project would be better appropriated to other, more urgent and/or better serving transportation needs for the people of California.

Dan and Sherry Stubbs
3200 Fairesta Street, No. 11
La Crescenta, CA 91214
818-957-8563

CITY OF GLENDALE, CALIFORNIA
Office of the Mayor

613 East Broadway, Suite 200
Glendale, California 91206-4391
Tel. 818 548-4844 Fax 818 547-6740
www.ci.glendale.ca.us

March 3, 2010

Abdi Saghafi
Project Manager
SR 710 Tunnel Technical Study
Community Office
3412 North Eastern Avenue
Los Angeles, CA 90032

Dear Mr. Saghafi:

This letter is in response to a request for public comment on the SR 710 Draft Geotechnical Summary Report. The position of the City of Glendale remains consistent with Resolution No. 09-111 as approved by the Glendale City Council on July 28, 2009, which addresses the tunnel feasibility specifically and the general subject of "gap closure" alternatives for the SR 710 freeway from I-10 to SR 134/I-210. On behalf of my colleagues and the citizens of Glendale I want to reiterate our opposition to the SR 710 tunnel alternative or any "gap closure" alternative that has or could be developed. I would like to express our opposition as well to the continued effort and expenditure of tax payer monies in exploring, studying or developing any type of "gap closure" project. We do not believe that any type of "gap closure" alternative is in the best interest of the City or the region. I would like to once again state our belief and desire to instead look at other alternatives in addressing the concerns of mobility, congestion and the movement of freight from our ports. These alternatives would include the expansion of mass transit systems, upgrades and improvements to existing infrastructure and limiting the long distance movement of cargo/freight from the ports to only rail.

I would like to thank you for the opportunity to comment of the Draft Geotechnical Summary and to express the position of the City of Glendale.

Frank Quintero
Mayor

COMMENT FORM
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
SR-710 Tunnel Technical Study 2010 Community Meetings
Wednesday, January 20, 2010
and Wednesday, February 17, 2010

Susan Bolan
3528 Prospect Avenue
La Crescenta, CA 91214
sbolan1@aol.com

March 1, 2010
818-249-6672

My comments:

Thank you for taking the time and tax payer dollars to do this geotechnical study. What a waste of resources. While I realize that your organization is being pressured by stakeholders who hold a great deal of influence and who want to extend the 710 freeway northward for their own benefit, I am **highly opposed** to throwing any more money at this project. The communities of El Sereno, South Pasadena, and Pasadena have let their voices be heard for sixty years. They don't want their homes and communities split apart with the construction of the largest tunnel ever built. Now after decades of outrage, the other communities of Cypress Park, Mt. Washington, Glassell Park, Highland Park, Eagle Rock, Glendale, La Canada Flintridge, La Crescenta, Montrose, Sunland-Tujunga, Lake View Terrace, Sylmar, Pacoima, San Fernando, San Marino, San Gabriel, Arcadia, Monrovia, Temple City, El Monte, Baldwin Park, Irwindale, and plenty more are joining the opposition. **WE DON'T WANT IT IN ANYONE'S BACK YARD!**

This study is narrow in scope and answers only one question. **Can** we build it? Yes, we can. But we already knew that, didn't we? It is "technically feasible" to build a very large tunnel anywhere with enough money and expertise. However, the question that should be addressed is: **Should** we build it? That answer becomes very clear when you actually look at other responsible options to move people and goods. The answer is a resounding, "No!" The cities at the end of the current I-710 need some traffic relief; there is no question. The port traffic and commuters using surface streets are causing bottlenecks in their communities. It is expected that this will only worsen in future years as the amount of cargo increases and there are more trucks on the road. But instead of spending at least $12 billion on a road that will not fix the problem, especially when the 605 is right next to it, **alternative solutions must at least be explored**. No one seems to be interested in doing this even with complete community opposition to the extension. There are countless smaller, less expensive projects that will help with the traffic problem. We won't need the entire $780 million from Measure R, just part of it. And these smaller, less time consuming projects will employ local workers, not expert tunneling companies from outside of the Country. We need to look at moving goods by rail in an effective manner. Southern California Association of Governments states that it is expected that the number of import containers will triple by the year 2030. What about "CargoRail"? **We need to employ 21st century technology to solve our cargo issues.**

The statistics about freeway air and noise pollution and its effect on people, especially children, is well documented. Traffic in our communities will exponentially increase as trucks take advantage of the new route, and it will disburse fine particles throughout the region, out the portals and seeping from the ventilation shafts. How will the tenants of the Caltrans houses feel about living next to a row of 150 foot ventilation shafts? That is, if the houses are not completely destroyed by "cut and cover" tunneling processes. But that aside and more importantly, are the inherent dangers of road tunnels. Three hundred vehicles in a 4 mile tunnel mean that one wrong move could ignite all the 20 gallon gas tanks and some large diesel tanks. Add to that the occasional truck carrying fuel and there could be one powerful explosion. There was an incident only last week on the I-710 involving a big rig truck and a passenger vehicle. The collision resulted in a firey fatality. Now imagine that times 300. As a La Crescenta resident, I am well aware of our city's problem with water flow during the rainy season. During the recent heavy rains, the news showed footage of a flooded I-710 freeway. There was only standing water. Doug Failing said that this is a normal condition when it rains. If a tunnel is built, where will all that water flow? And again, 300 cars afloat in the tunnel. Imagine it and fear it.

In closing, I would have to commend Caltrans and MTA on a good fight. It has lasted sixty years. But it is time to throw in the towel. You will not win this battle. You underestimate the power of community and our determination to bring this insanity to light. It needs to end now so my grandchildren will not have to hear the 800 trucks per hour driving past their house. It needs to end now because the State has no extra money to spare and any "Private Partners" will lose their investments on a poorly planned route. People will not pay $20 tolls to go 4 miles. They will spill out into the streets once more. It needs to end now because all of the affected communities do not support this project and **there are other better, cheaper, faster, more efficient solutions. Please do not build this tunnel. It is just too expensive and it doesn't make sense for the people of Los Angeles.**

How did you hear about the meeting?
710tunnelstudy.info

Carol Teutsch, M.D.
841 Moon Ave
Los Angeles, Ca 90065
March 5, 2010

State of California Department of Transportation
SR-710 Tunnel Technical Study,
2010 Community Meetings
3412 North Eastern Avenue
Los Angeles, CA 90032

Dear Cal Trans,

I have attended several of your community meetings about the 710 in northeast Los Angeles. The technical study information does not appear to be informing decision making. You have tested all 5 sites (although to differing degrees of rigor) and seemed to have concluded all is possible without ranking the sites by difficulty, cost, gas, faults, water tables, etc. The point is to come to some engineering recommendation which you have not shared with the public. This process is not transparent and seems like a sham. Constantly making believe you don't have a site preference makes it hard to get down to the specifics needed to approach the project in detail.

I am distressed by many things you are NOT discussing such as the fact that the dirt you will need to remove for the tunnel will fill a football field to the height of 228 floors or 2000t (essentially twice the height of Mt. Washington where I live). The ventilation chamber discussions are also quite vague and yet these will be quite striking (and not positive) additions to the landscape.

I am also bothered that all options for moving cargo do not appear to have been comprehensively evaluated for unclear reasons. For example, I would like to know what happened during the evaluation of MegaRail.

The medical and technical literature is increasingly filled with reports about the health risks of being near freeways and tunnels. I don't know if you have your own special air supply in LA, but we will all be breathing these options. It is critical to find alternatives to fossil fuel cargo movement.

You current plans expand the 710 south and build a tunnel for the 710 north are not a sustainable solution and they are likely to lead to further degradation of the LA environment.

Shipping needs may drastically change by the time these road infrastructures are completed. Look at today's Wall St Journal where Maersk took a 1.3 billion dollar loss for 2009 and think what that could mean. I am not sure we can afford the options you are proposing ....and the process of endlessly exploring is wasteful.

Carol B. Teutsch, M.D.

A very unsatisfied citizen

Carol B Teutsch

801Meridian Ave. Unit H

South Pasadena, CA 91030

March 8, 2010

CALTRANS SR710 Tunnel Technical Study

3412 North Eastern Ave.

Los Angeles, CA 90032

The recently conducted Tunnel Technical Study failed to determine if a tunnel would solve commuter and /or freight traffic issues. It simply reconfirmed what was already known, that a tunnel can be built anywhere.

No honest attempt was made to equally study the five geographic zones; they were included only to attempt to convince the public that the study was route neutral.

In order to determine feasibility, it is necessary to look beyond soil conditions. No mention was made of design, construction or maintenance costs. Before it is known if any project is feasible, all environmental concerns must be evaluated.

This study is really a soils report and should be presented as such. Please include this letter in the public comments section of your final document.

Yours truly,

Janet H. Ervin

State of California Department of Transportation, SR-710 Tunnel Technical Study,
3412 North Eastern Avenue
Los Angeles, CA 90032

Re: Geo Technical Study for 710 tunnel construction

Dear Dept of Transportation: March 7, 2010

The Geotechnical Study tells us nothing about the relative costs of tunneling through the differing soils of each zone.

The study makes no recommendation as to a best and worst zone through which to tunnel.

The study tells us of earthquake indestructibility, but not a word about the potential soft tissue damage and deaths that may occur inside the tunnel during a large seismic event, and how this differs in each zone.

The Geotechnical study told us what we already know, that we can successfully dig anywhere and spend billions of taxpayer dollars.

The study is a sham, a shell game presenting itself as proof of total feasibility. True feasibility includes monetary cost, social cost, ecological cost, and projected effects after building. Where is our complete feasibility study?

I do expect this letter to be included in the final geotechnical report, rather than just agency comments made in response to this letter.

Sincerely,

Sharon A. Lilly
659 Oleander Dr
Los Angeles, CA 90042
323.258.2555
salilly@earthlink.net

Judy Bergstresser

March 8, 2010

State of California Department of Transportation
SR-710 Tunnel Technical Study
3412 North Eastern Avenue
Los Angeles, CA 90032

Re: Geotechnical Technical Study for 710 North Extension Tunnel Study, Comments

To Whom It May Concern,

I am writing to exercise the public comment requirement for the SR-710 Tunnel Technical Study. I request that this letter and all other public input be included in the final geotechnical report[i], rather than agency comments made in response to this letter.

Firstly, within the limited scope of a geotechnical study, the following legal requirements have not been met.

1. The State of California Department of Transportation (Caltrans) started with ten parameters, reduced them to three, and then added two parameters for a Report total of five parameters. Caltrans at the very end of the current efforts attempted to resurrect the earlier parameters in Task Order 5 including portals and alignments.

2. Caltrans had to add potential contamination during project drilling but never requested/received concurrence of the Steering and Technical Advisory Committees for Hazardous Materials.

3. Caltrans did not mention or propose to add Gassy Ground but just included it in the Draft Study Report.

4. The Report does not deal with seismic shaking and earth-wave movements and their impacts on drivers, accidents, fires, and deaths that may occur inside the tunnel during a large seismic event, and how this differs in each zone.

5. The Study states that all zone are feasible for tunneling but changes the tunneling methods from very complicated rotating shields, to simple rotating shield, to typical shields with road-headers, and finally to NATM/SEM methods.

1945 Meridian Avenue ※ South Pasadena, CA ※ 91030

6. The Study Report is not "route neutral." It describes earthquake fault displacement primarily for the Raymond Fault at the portal area of Zone 2 and at the deep tunnel portion of Zone 3. Such discussions indicate that Caltrans has already established where tunnels and portals will be located.

7. Although the Report focuses on faulting rather than seismology, the Report does not relate any of the zones to existing Alquist-Priola Fault Zones and thereby is deficient.

8. The Report does not provide information regarding the differing seismicity in each Zone and their impacts for the most-likely largest road tunnel ever constructed, or their connections with portals, cross-passages, and emergency shafts.

Secondly, the legal requirements of funds earmarked by Congressman Adam Schiff in 2005 under the 109th Congressional item 2193[ii] have not been met.

That $2.4 million requires that the "***technological feasibility**, seismic compatibility, and **environmental impacts** of this option must be established before this proposal can be considered a viable alternative.*"

In fact, the mislabeled "SR-710 Tunnel Technical Study" is limited in scope to geotechnical conditions only. It cannot be used as a tool with which to determine the feasibility of a tunnel option because it does not address technological feasibility or environmental impact.

It would be fraudulent to consider the SR-710 Tunnel Technical Study, or any other similarly limited study, to be a full feasibility study. Feasibility must also be studied, at minimum, for the following parameters to be comprehensive:

- Project cost
- Project duration
- Construction methods and technology
- Public health impact
- Air and noise pollution
- Fire and safety hazards
- Public safety during construction
- Impact of construction on the route traversed
- Impact on surface route traffic
- Impact of vehicular traffic at egress points
- Damage to existing communities and infrastructure, some of which is under protection of historical preservation

Lastly, I request that this letter and all other public comments be incorporated into the Final Geotechnical Study Tunnel Technical Report.

(continued, page 2 of 3)

Sincerely,

Judy Bergstresser
1945 Meridian Avenue
South Pasadena, CA 91030

cc: South Pasadena City Council
Congressman Adam Schiff, CA District 29
SR-710 Tunnel Technical Study Steering Committee Members
SR-710 Tunnel Technical Study Technical Advisory Committee

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[i] FR Doc. E8–19247 Filed 8–19–08; 8:45 am] BILLING CODE 4910–22–P "Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State, Participating Agencies, tribal governments and local agencies, and to private organizations and citizens who have previously expressed or are known to have interest in this proposal. It is anticipated that the Draft EIS will be available for public and agency review and comment in mid-2010. Public meetings will be held in study area communities in the summer of 2010. In addition, public hearings will be held. Public notice will be given for the time and place of the public meetings and hearings. The EIS will be available for public and agency review and comment prior to the public hearing. To ensure that the full range of issues related to this proposed action is addressed and all significant concerns are identified, comments and suggestions are invited from all interested parties. Comments or questions about this proposed action and the EIS should be directed to Caltrans at the address provided above. (Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.) Nancy E. Bobb, Director, State Programs, Federal Highway Administration, Sacramento, California. "

[ii] House TEA LU - FHWA High Priority Project Earmarks - 2005 (109th Congress) item 2193 "710 Freeway Study to Evaluate Technical Feasibility and Impacts of a Tunnel Alternative to Close 710 Freeway Gap"

(continued, page 3 of 3)

March 8, 2010

State of California Department of Transportation
SR-710 Tunnel Technical Study
3412 North Eastern Avenue
Los Angeles, CA 90032

Re: Comment Card - for inclusion of the final Geotechnical Report

Dear Dept of Transportation,

The Geotechnical Report has been released. Soil samples were taken in the proposed five tunnel zone areas; studied and some analysis made.

However, earthquakes were not covered in depth. Only a few fault lines were mentioned. There was no analysis made of earthquake damage effect to the infrastructure or the hazard remedies for trucks, cars and people after the earthquake. The act of the natural disaster can shake, move and crack the earth. Given the chosen tunnel zones, several go right through known earthquake faults, this is unacceptable because it is unknown if the manufactured tunnel would crumble into pieces.

This is a SR-710 Tunnel Technical Study. The Geotechnical part is only part of the process. The Study calls for more than this. The Geotechnical part does not have comparisons of each zone with the costs?

The granddaddy question has not been asked and answer. Because you need to bore under and through one of the five zones which contains different geology, groundwater and seismology problems and the fact a boring machine of this magnitude has never been manufactured,

- HOW MUCH DOES THE BORING MACHINE COST?
- HOW DO YOU KNOW IT IS CAPABLE OF BORING THOUGH ALL THIS GEOLOGICAL TERAIN?

Sincerely,

Waynna Kato

Waynna Kato
1036 Hope Street
South Pasadena, CA 91030
WaynnaKato@sbcglobal.net

State of California Department of Transportation
SR-710 Tunnel Technical Study
3412 North Eastern Avenue
Los Angeles, CA 90032

March 9, 2010

Re: Geotechnical Technical Study for 710 North Extension Tunnel Study, Comments/Geotechnical Comment Cards

Dear CalTrans,

It appears your primary feasibility analysis is flawed. Your report focused on geotechnical issues based on sparse core samplings, and failed to tell us anything about project costs, traffic, noise, and air quality issues (due to the planned expansion of the ports and their projected addition of 92,000 daily trucks) through the different Zones which had been part of the original federally funded scope of work, you also missed the inability of any tunnel to stay open 100% of the time.

Your feasibility report needs to cover "plans" on how to best deal with any tunnel closings due to earthquake inspection closures, accidents, repairs etc. How are the cities in the area through which the tunnel runs going to cope with the overflow of excess traffic spilling onto our city streets from one of these full or partial closings when the surface streets in the surrounding areas are already expected to be gridlocked upon, and due to, completion of the tunnel? (see SR-710 Tunnel Performance Information – SCAG METRO and USC Studies Analysis). And where is the discussion of the impact on the surrounding streets due to the planed "toll" aspect of the tunnel??

I'd like to know if there are any tunnels in existence of equal scope to this one that you propose that have already suffered a major earthquake? What about a terrorist act? Shouldn't security against a terrorist act be considered in the feasibility/cost? Are chemicals, nuclear material and other potentially dangerous materials going to be banned from the tunnel? How will this be achieved? What would the estimated "casualties" be from a catastrophic event, including the results of fire and toxic fumes, and what about the impact of such an event on the surrounding areas? What would the result on the water tables/drinking water of the region be for future generations in the event an earthquake occurs and the water finds its way to the tunnel?

Also, why is it that your study doesn't honestly address the influx of pollution to the whole LA region that a tunnel built for transporting goods from the ports of LA and Long Beach will bring? The projected traffic from the ports to the tunnel area will only increase congestion. Since traffic accidents are proportional to congestion, your suggestion that this tunnel will somehow improve traffic, pollution, and safety is contrary to common sense and reality.

CargoRail is an excellent non-polluting alternative solution to the coming cargo crisis from the ports. It is an electric tram like truck, which can run on grade, separated guideways and can also go seamlessly off rail (using CNG & batteries) and move around the ports and on streets like a truck. The CargoRail guideways can run along existing freeways and railroad right-of-ways from the shipping ports to the inland port, taking no houses, removing congestion, and adds no pollution. CargoRail is a better, cheaper, more efficient, more profitable, non-polluting, solution to moving cargo and protecting the people of this region. I'd like to see an alternative such as CargoRail pursued instead of wasting our taxpayer dollars on feasibility studies for a tunnel that will only set us up for a disastrous non-solution to the cargo issue from the ports.

I expect this letter to be incorporated into Final Geotechnical Study Tunnel Technical Report.

Sincerely,
Carol Kramer
14812 Harper St.
Midway City CA 92655
durst24235@mypacks.net

Attach.
cc: Various Federal, State, Regional, and Municipal representatives and agencies

CLAIRE W. BOGAARD
311 CONGRESS PLACE
PASADENA, CALIFORNIA 91105
TEL. (626) 799-9819
FAX (626) 799-4725
cwbogaard@earthlink.net

9 March 2010

Department of Transportation
State of California
3412 North Eastern Avenue
Los Angles, California 90032

RE: SR- 710 - Geotechnical Study for 710 Tunnel

To Whom It May Concern:

For many years, I have followed the saga of the 710 Freeway Extension. More recently, I served as a representative of the Pasadena Design Advisory Group (DAG). I have attended several community meetings relating to the Geotechnical Study for the 710 North Extension Tunnel Study.

I write now to urge you to reject the current Geotechnical Study as inadequate and to begin again with a complete and thorough Geotechnical Study. Before any decisions are made on the tunnel proposal or any work begins on an EIS, an impartial and more thorough feasibility study must be completed for the decision makers in our State. The current document only concludes that the tunnel can be built in any of the zones that were tested.

There is no real information in the current document about the cost of building tunnels in each of the zones. Where and when will the State of California be able to find funds for any of these costly tunnels? Are there other forms of public transit which are more reasonable and sensible for our State?

Further information is needed about the firms likely to be involved in a 'public-private partnership.' The Spanish firm which has indicated a strong interest in the tunnel proposal has never completed a project as complex as the 710 Extension. The Spaniards point to their completed project in Madrid, which is very different, and much less challenging than the 710. With family living in Madrid, I have had the opportunity to see and experience the completed projects there.

There is no information as to which zones would be safer during seismic disturbances. How will motorists in the tunnels be protected during an earthquake? How costly will the tunnels be when constructed in seismically active areas?

There is no information as to how groundwater issues will be resolved and at what price.

The public needs to know the cost of the towers/ventilation buildings that will be designed to help clean some of the pollution. The public needs to know how much additional pollution will be released into the air and into what neighborhoods. The Los Angeles Times and other publications have recently published studies that show the negative impacts to the health of people – especially children - living near freeways.

The public is confused about the number of tunnels under consideration. Will there be one or two tunnels? Will there be separate – and additional – tunnels for trucks? How many? At what cost? What happened to the agreement that was crafted by Caltrans and a number of communities during the Mitigation Meetings (during the 1990s) that trucks would not be allowed north on any 710 Extension?

In conclusion, these are just a few of the questions that have been asked during the public meetings. The response from Caltrans and other government officials is always the same: these questions will be explored at a later time and/or during the environmental review. That is not an acceptable answer. We – the public and the decision-makers – need a complete and honest feasibility study for the 710 Tunnel Project now.

Sincerely,

Claire W. Bogaard

Claire W. Bogaard

cc: The Honorable Adam Schiff

Joanne Nuckols
1531 Ramona Avenue
South Pasadena, CA 91030
626 799-1014
Joanneno710@aol.com

March 10, 2010

California State Department of Transportation
SR 710 Technical Study
3412 Eastern Ave
Los Angeles, CA 90032

RE: Comments on Final Report

To Whom it May Concern:

A controversy has surrounded the SR 710 Extension since 1949 when the City of South Pasadena passed the first resolution against the project, at the time, a proposed surface route. At this time, the proposed twin bored tunnels has become just as controversial, since it was first proposed in January of 2003, with negative impacts--some the same and some different--as the surface route.

We all know this project can be built, but, before this project proceeds to the next step--presumably environmental review--there must be a credible answer to the question, "should it be built".

With the widely varying estimates of $3.5 BILLION from the 2006 PB Feasibility Assessment to the 2007 SCAG estimate of $11.8 BILLION, it would be fiscally irresponsible, to put it mildly, with the financial crisis gripping the world to proceed at this time and probably ever with this project. The projects costs, both social and fiscal are too great.

Sincerely,

Joanne Nuckols

Crescenta Valley Town Council

www.crescentavalleytowncouncil.org
P.O. Box 8676
La Crescenta, CA 91224-0676
(818) 248-9387
contact@thecvcouncil.com

March 10, 2010

State of California Department of Transportation
3412 North Eastern Avenue
Los Angeles, CA 90032

Re: SR-710 Tunnel Technical Study, 2010 Community Meetings

Dear Sirs,

The Crescenta Valley Town Council is resubmitting a correspondence submitted in June 2009 with regard to 710 Tunnel project.

Please include this correspondence and the attached as part of the final geotechnical report.

Respectfully,

Cheryl Davis
President

enc: Letter dated June 11, 2009
2 pages

Crescenta Valley Town Council

www.crescentavalleytowncouncil.org
P.O. Box 8676
La Crescenta, CA 91224-0676
(818) 248-9387

June 11, 2009

California Department of Transportation
District 7
100 S. Main Street
Los Angeles, CA 90012

Dear Sirs,

The Crescenta Valley Town Council is strongly opposed to the 710 Tunnel Project and the technical study which is underway.

While the first letter, sent May 17, 2007, has not had a response, let us be clear in this correspondence. As elected representatives of the unincorporated area in La Crescenta, we have recently held a public meeting in which there was strong opposition to the 710 Tunnel Project. We request that our opposition be acknowledged and filed along with other Foothill Communities.

It is estimated by experts that the 210 freeway thru the Crescenta Valley would bear the brunt of the traffic and congestion resulting from the completion of the 710 tunnel. This is not acceptable to us and we cannot see any type of mitigation that would ease this unequal burden that our community is asked to bear. Congestion, noise, and pollution from the additional traffic is unacceptable to our community.

Additionally, we are strongly opposed to the study in progress. Studying five zones, at an approximate cost of $10 million, is wasteful and irresponsible, with funds that could be better used elsewhere in our state, especially during this time of budget crisis. More consideration should be given to the way taxpayer money is spent and the way taxpayer concerns are addressed. It appears that this project has been decided upon and the "study" is merely a way to waste our money on a project not supported by a majority of municipalities.

Crescenta Valley Town Council

www.crescentavalleytowncouncil.org
P.O. Box 8676
La Crescenta, CA 91224-0676
(818) 248-9387

We support the alternate plan, proposed by Supervisor Michael Antonovich more than ten years ago, which would move containers from LA Ports to an inland site in Lancaster via rail. This would alleviate traffic congestion from many parts of Los Angeles as well as our community.

Sincerely,

Steve Pierce
President

CC:
NEIGHBORING COUNCILS:
City of Glendale
City of La Canada-Flintridge
City of Los Angeles – Neighborhood Council
-Wendy Gruel, Councilwoman

COUNTY OFFICIAL:
Michael Antonovich, Los Angeles County Supervisor

STATE OFFICIALS:
Arnold Schwarzenegger, Governor
Bob Huff, Senator
Carol Liu, Senator
George Runner, Senator
Anthony Adams, Assemblyman
Cameron Smyth, Assemblyman
Paul Krekorian, Assemblyman

FEDERAL OFFICIALS:
Barbara Boxer, Senator
Dianne Feinstein, Senator
Adam Schiff, Congressman
David Dreier, Congressman

March 10, 2010

State of California Department of Transportation
SR-710 Tunnel Technical Study
3412 North Eastern Avenue
Los Angeles, CA 90032

Re: Geotechnical Technical Study for SR-710 North Extension
Tunnel Study. Comments/Geotechnical Comment Cards

Dear Caltrans and Metro:

Recent state legislation states that you cannot build a school 500 feet from a freeway, but you can build a freeway 500 feet next to a school. What nonsense is that?

In 2004, USC's Children's Health Study established that thousands of children living near freeways in Southern California were contracting higher levels of asthma and children living in smoggy areas had lost I5% of their lung function. In fact, USC Environmental-Health Researcher Rob McConnell states: "The very smallest particulate matter pass right into the brain". Who is going to pay for the human health costs on our children living adjacent to freeways? Walmart? Evergreen? The Goods Movement Authority?

In the 2lst Century when federal transportation policies strongly support multi-modal transportation solutions to gridlock and the preservation and strengthening of communities and neighborhoods, Caltrans pushes a 60-year-old freeway project that would do the opposite.

In an article in the Daily News on September 29, 1997, Robert Sassaman, Director of Caltrans, District 7 stated:"We can't build our way out of congestion. You can't add enough lanes....." In that same article, Pete Hathaway, Chief Deputy Director, California Transportation Commission, stated: "The whole (freeway) system is clogged on both sides. If you open up one bottleneck so people can get more quickly to the next bottleneck, all you're doing is building some very expensive parking lanes."

Mary Ann Parada

Mary Ann Parada
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COMMUNITIES AGAINST THE 710 FREEWAY

State of California Department of Transportation
SR-710 Tunnel Technical Study,
3412 North Eastern Avenue, Los Angeles, California 90032

Subject: SR-71 0 North Extension Tunnel, Tunnel Technical Study March 10, 2010
Re: Geo technical Summary Study Report, Commen ts

Dear Dept of Transportation:

For more than 20 years, Communities Against the 710 have monitored Caltrans activities for the 710. During the last three years, we have monitored efforts of Caltrans and Metro to extend the SR 710 north. The above study appears to be just one more example of a fundamental approach, get something through El Sereno, South Pasadena, and Pasadena no matter what others or the facts say. We have participated in the numerous committee meetings, presentations, and discussions in hope that Caltrans and Metro's approaches would become "route neutral", but they don't appear to have change as reflected in this very important study and Report. We have tracked the changing scope, the original of which has not been seen, from a wide ranging feasibility study to a narrowly defined geotechnical study. But then Caltrans issued Task Order 5 without review by the Technical Advisory and Steering Committees and expected to issue a "feasibility study" without the considerations of the Committees or participation of the public, fortunately Caltrans has supposedly withdrawn the Task Order 5.

We understand from Caltrans that moneys are still available...$4.4 million...because the original defined scope of work was not completed and some federal and regional funding may still exist as the originally funded... $11.4 million... scope was not completed.

When the Report was issued, we had hoped that sound thorough research and technical evaluations would be presented but they weren't. Caltrans added new different "screening parameters" and clearly distorted reviews and comparisons to favor "Zone 3" and that tunneling was feasible anywhere and anytime, as long as money was available without regard to compliance with the original Federal funded scope of work.

The Study Report tells us that tunneling can do anything/any time/any place but the least worst Zone is Zone 3, the old Meridian Route, and the Report therefore destroys Caltrans' myth of "route neutral". T he Report does not deal with seismic shaking and earth-wave movements and their impacts on drivers, accidents, fires, and deaths that may occur inside the tunnel during a large seismic event, and how this differs in each zone. We had hoped for a more fact-based evaluation with responsible use of the results of the investigations rather than appeal to well-worn paths backed to the "Meridian Route" through Zone 3.

The Study and Report are shams and utter distortions of "feasibility", "sound research", and "route neutral", a continuation of Caltrans' and now Metro's shell-game of presenting the Report as proof of total feasibility of tunneling. A fter the wasting of money, our time, and our officials' efforts and expense, we still ask: "Where is our complete feasibility study?" The current report is not it.

The Study and Report did do one thing; the Report clearly shows that the Zone 2 is a valid alternative to Zone 3. The residents of Northeast LA, with over 3,000 signatures on petitions collected in six weeks, have now joined with the Communities of the "Meridian Route" to neutralize the Study, the Report, and the Project.

The Report is not based on the Study and thereby is seriously flawed, is not "route neutral" and definitely not "portal neutral", and clearly is bias in favor of Zone 3, the "Meridian Route". We expect this letter shall be incorporated into the Final Geotechnical Summary Study Report, changes made and the Report recirculation in a "revised report".

We have serious concern regarding compliance and changes made to the scope and the basis of funding for the entire study as reflected in the Draft Report.

Sincerely,

Bill Graham BOARD MEMBER

cc: Various Federal, State, Regional, and Municipal representatives and agencies

UNITED AGAINST THE 710

991 TERRACE 49
LOS ANGELES
CALIFORNIA 90042

State of California Department of Transportation,
SR-710 Tunnel Technical Study,
3412 North Eastern Avenue Los Angeles, CA 90032

SUBJECT:
SR-710 North Extension Tunnel, Tunnel Technical Study
RE:
Geotechnical Summary Study Report, Comments

10 MARCH 2010

Dear Dept of Transportation:

We have have participated in the numerous presentations and discussion regarding this very important study. We have seen it change from a wide ranging feasibility study to a more narrowly delineated geotechnical study only to be presented with a resumption of a more wide ranging study, under Task Order 5. We received no defined scope of work other than that provided through the federal funding elements.

When the Report was issued, we had hoped that it would be the factual and focused analyses of geotechnical aspects based on sound thorough research and technical evaluations which we could trust. Un fortunately we found that Caltrans added both "Gassy Ground" and "Hazardous Materials" as "screening parameters" in the Draft Study Report but without criteria for assessing the feasibility without regard to compliance with the original scope of work and focus of the Federal funding goals and objectives.

The Study Report tells us of earthquake fault displacement at two locations: portal area of Zone 2 and deep tunnel portion of Zone 3, but such statements appear to recognize that tunnel design has already established where tunnels and portals will be and therefore destroys Caltrans' myth of "route neutral".

The Report does not deal with seismic shaking and earth-wave movements and their impacts on drivers, accidents, fires, and deaths that may occur inside the tunnel during a large seismic event, and how this differs in each zone. The Report does not provide information regarding the differing seismicity in each Zone, only expected fault displacement.

The Study states that all zone are feasible for tunneling but changes the tunneling methods from very complicated rotating shields, to simple rotating shield, to typical shields with road-headers, and finally to NATM/SEM methods.

The Geotechnical Study told us what everyone already knew, that Caltrans and Metro want to establish Zone 3 and the old Meridian Route as the "most feasible". The Study and Report are shams and utter distortions of "feasibility", "sound research", and "route neutral", a continuation of Caltrans' and now Metro's shell game of presenting the Report as proof of total feasibility. Aft er the wasting of money, our time, and our official time in this desperate economy, we still ask: "Where is our complete feasibility study?" The current report is not it.

The Study and Report did do one thing; the Report clearly shows that the Zone 2 is a valid alternative to Zone 3, whereas Zones 1, 4, and 5 were added as confusion/snow factors. However, the residents of Northeast LA rose up (see attached petitions with over 3,000 signatures which demonstrates opposition to tunneling in Northeast Los Angeles) and were recognized by the City Council of Los Angeles through their resolution that Caltrans should not further consider the Zones 1 and 2 for future consideration and that a portal should finish south of Valley Blvd since Caltrans had already located portals in Zones 1-3 of the Study Report, although this was suppose to have been a "route neutral" (thereby "portal neutral") study.

As indicated in the above comments, the Report is seriously flawed, is not "route neutral" nor "portal neutral", and appears bias in favor of Zone 3 against Zones 1-2 and 4 and 5. We expect t his letter and all pages of our attached petitions be incorporated into Final Geotechnical Summary Study Report.

We are now considering further actions regarding compliance and changes made to the scope and the basis of funding for the entire study as reflected in the Draft Report.

Sincerely,

Nancy Campeau

Nancy Campeau

ATTACHED: Various Federal, State, Regional, and Municipal representatives and agencies

March 10, 2010
3983 College Crest Drive
Los Angeles, CA. 90065

State of California Department of Transportation
SR-710 Tunnel Technical Study
2010 Community Meetings
3412 North Eastern Avenue
Los Angeles, CA. 90032

To Whom it May Concern:

I am a resident of Glassell Park in Los Angeles, CA. and having learned of the plans to extend the 710 freeway, I began attending meetings and trying to inform myself on the issues. What I have learned has clearly made me realize that this is an ill-conceived, dangerous, and financially irresponsible way to deal with the transit issues facing the Los Angeles area. And yet, Cal Trans and the MTA continue to push this concept through at any cost completely ignoring not only the negative consequences that it will create but also ignoring the opposition to it expressed by citizens and government agencies in all communities affected. I am also deeply concerned about the efforts Cal Trans [redacted] makes to "appear" to be providing educational materials about the project and engaging community input when, in fact, it provides only one-sided PR information and is honestly not seeking community involvement. As an example, I stopped by the 710 Cal Trans office on Eastern Avenue one day to obtain information and to find out if there were going to be any meetings coming up for the community to hear about the project. I was told that there would be some meetings scheduled several months in the future. However, I learned from a neighbor that a meeting was being held that night and so I attended. The same person who said nothing was coming up for several months was one of the Cal Trans presenters at that meeting — three hours after I had been to their office. Incredulously, she spoke on what a big effort they were making to involve the community!

It is obvious that the proposed tunnel extension is not going to diminish traffic problems in this corridor and, in fact, will do the opposite. Along with that will bring a marked increase in air pollutants at the portals and through any vents that may or may not be added. It is a scientific certainty that residents in these areas will be subjected to a much higher incidence of respiratory and cardiovascular disease than the general population. The health effects alone will be devastating to countless people.

The unknown effects of constructing a tunnel of this magnitude through areas of toxic waste and active earthquake faults (let alone unknown faults that may yet have been discovered) is absolutely not worth the risk. Despite the geotechnical feasibility study results, no assurances can be provided that the tunnel will not be adversely affected by future seismic activity.

Mixing automobile and truck traffic in an underground tunnel with flammable gas tanks is a clear invitation to disaster. It is only wishful thinking to promote the "safety" issues that are intended for the tunnel. One only needs to look at the history of tunnel accidents locally, nationally, internationally, and at our own above-ground freeways to see that the question is not "if" there will be a catastrophe, but rather 1) when 2) how often and 3) how many lives will be lost?

Perhaps the most galling aspect of this project is the determined effort Cal Trans and the MTA are making to spend <u>billions</u> on constructing the world's largest tunnel! Despite their claims of financing through a "public/private" partnership, the truth is that they are committing BILLIONS of federal and state dollars to this project. And with almost any project estimate, the reality (particularly when it involves) one of the world's most extensive tunnel projects – and especially through terrain with toxic and seismic issues) is going to be even <u>more</u> billions of dollars to complete it. As I understand it, over one billion has been authorized for these preliminary "feasibility studies" and yet the alternate multi-modal approach that is much more desirable is estimated to cost <u>half</u> of that amount to be implemented. It is <u>unconscionable</u> that California (via Cal Trans) is freely committing this amount of money while at the same time California is struggling to avoid bankruptcy declimating the educational system, putting people out of work, eliminating critical social service benefits, mandating furloughs, and diminishing the State's budget for emergency response systems. These are only a few of the many economic trade-offs California is empowering Cal Trans to make for its citizenry. My question is simple: What planet are these people living on??

Bill Cleitworth
wclintwo@usc.edu

State of California Department of Transportation, SR-710 Tunnel Technical Study,
3412 North Eastern Avenue
Los Angeles, CA 90032

Re: Geotechnical Technical Study for 710 North Extension Tunnel Study, Comments

To Whom It May Concern: March 8, 2010

As a taxpaying citizen of California for the last thirty-eight years, and someone who has followed the SR-710 tunnel proposal, I am writing you to express my steadfast opposition to extension of SR-710 in any form whatsoever -- surface freeway or tunnel. The reasons for my opposition are many and varied, but result from my conviction that extending SR-710 in any form represents a decades-old, outdated idea to solve problems that have surpassed those that existed at the time of the design of the freeway system in southern California and fails to recognize and/or acknowledge more recent ideas and technological advancements for transporting both people and cargo. Caltrans will state that it is a transportation agency and as such, does not deal with movement of goods, but in reality, the two are inextricably linked in our region. Responsible planning must take both passenger traffic and cargo traffic into consideration, and it must do so in a forward-thinking manner.

I have read most of the Draft Geotechnical Feasibility report as well as commentary from all communities where the initial round of meetings was held with the exception of the El Sereno meeting. While a link to the El Sereno summary is listed on the study website, the link is broken and readers cannot view the summary from this meeting. (I brought this to the attention of your agency at the Feb. 17 meeting at Ramona Hall and was assured it would be fixed). In doing so, I was not at all surprised by the consistency of themes in the questions and comments from the public. Their questions reflected what all of us in the region want to know:

- Size
- Route
- Cost
- Efficacy
- Pollution
- Impact on other roads and freeways
- Seismic risks
- Risk of terrorism

None of these questions were addressed by, nor answered by, the State Route 710 Draft Tunnel Geotechnical Study Report. After your agency spent 3.9 million dollars conducting the Geotechnical Feasibility Study and preparing the Draft Report, the Feb. 17, 2010, the same questions were still being asked at the public meetings being held to present the results of the study, and your agency was still offering the same pat responses that did nothing to satisfy the public.

Since that report really contains nothing substantive to answer the questions being asked, I have chosen to make my comments about the process and the lack of detailed, specific information that the public demands by integrating information I learned at various public meetings with public questions and Caltrans responses.

From 2/25/09 South Pasadena:
Caltrans' statement that *"We are trying to find the easiest and most cost-effective route through our geotechnical research"* cannot be substantiated by either the study or the draft report. The Geotechnical Feasibility Study, by Caltrans' own admission, makes no such findings and nowhere was cost-effectiveness even addressed. In fact a consistent response at each of the community meetings when asked about these issues was that cost could not be determined yet from the present study and that it would be addressed should you reach the EIR phase. In fact, in a response to another attendee at same meeting, you say, *"We are only studying whether this is a possibility or not. We haven't addressed cost yet."*

In response to questions of whether or not the tunnel would accommodate trucks, and whether trucks would be allowed in the tunnel, Caltrans' responses were, *"The further environmental study will determine whether the tunnel should accommodate trucks."* and *"Ultimately, trucks being allowed in the tunnel depend(s) on further environmental study."* As I mentioned in

my first paragraph, Caltrans takes the stance that it does not deal with movement of goods, and yet movement of goods is a major contributing factor to our region's congestion and pollution. For your agency not to get involved in the responsible movement of cargo by collaborating with the Ports of Los Angeles and Long Beach is inexcusable. I want to see further study of better options for transporting cargo outside our region. Caltrans needs to study MegaRail's CargoRail system as a viable option. It is clean, effective and affordable.

The audience wanted to know what happens if the tunnel is constructed? Will it be very congested? Will the state pay? Will there be tolls? How will this solve congestion and be financially feasible? Caltrans' response was: *"These questions are great but cannot be answered in a tunnel technical feasibility study."* But in fact, they can be answered. Studies conducted by SCAG, MTA and USC and summarized by the City of La Cañada Flintridge address these concerns and found that upon completion of the tunnel:

- 75% of local surface streets would still be congested.
- There would be significant detrimental traffic and truck impacts on the I-210 through the cities of Glendale, Pasadena, La Cañada Flintridge, La Crescenta and other Foothill communities, with more than a 25% increase in daily traffic volume and an increase of 2,500 additional trucks per day.
- The tunnel itself would be gridlocked soon after completion. In the peak northbound direction, the tunnel would operate at Level of Service "F" – the worst possible rating.
- Due to gridlock, those residents south of the tunnel would continue to be impacted by respiratory problems associated with pollution and those residents along the 210 freeway would see an increase in pollution-related respiratory problems.

From 5/28/09 Monterey Park:
In response to a question as to why Zone 5, which runs parallel to I-10 was being considered in spite of the existence of I-10, you responded, *"As part of our evaluation process, all of these options will be narrowed down to one or two. If we proceed to the environmental phase, those one or two options will be further studied."* You have failed to narrow the options to one or two. Your final report states that all the zones studied are feasible – a conclusion that most would agree was predictable given your own assertions about state-of-the art boring equipment, techniques for tunneling through fault zones and dealing with groundwater and hazardous materials at Superfund sites. At a special city council meeting of the City of South Pasadena, Dr. Gary Brierley, a Ph.D. with more than 39 years of experience with both the technical and non-technical aspects of underground engineering and construction management and a geotechnical consultant to the City of South Pasadena, reported your finding that zones 4 and 5 were composed primarily of alluvium, making them undesirable. In fact, I think his words were, "No one would choose to tunnel through alluvium." The inability of your study to narrow the options only emphasizes the waste of 3.9 million of taxpayers' dollars that were spent on this study.

From 6/2/09 San Marino:
In response to a question about why you considered routes to the east instead of to the north, you replied *"We included the zones to the east because we did not want to be criticized for not maintaining tunnel neutrality."* Similarly, at the 6/04 Alhambra meeting, someone asked that given that the goal was to connect the 710 to the 210 – a distance of 6 miles – why you are considering going 20 miles to the east or west? Your response was: *"We are looking at all possible alternatives, so that no one will come back to us and say that we did not consider all possibilities at a later stage. That could set us back a few years."* In other words, you are working from a perspective of doing what you need to do to protect yourselves rather than taking an approach that has the best interests of the region as its priority. True route neutrality was a condition of Adam Schiff contributing money to this study. The absurdity of this answer lies in wasting taxpayer dollars and effort to study certain zones or routes for the sake of appearances

From 6/04/09 Alhambra:
An attendee asked a question about a USC Institute for Public Finance and Infrastructure Policy study concluding that a public-private partnership project would necessitate tolls of up to $10, and questioning if this wouldn't mean that traffic would exit the 710 in Alhambra to avoid the tolls and result in increased traffic to Alhambra? Your response was *"We have not seen this study and cannot comment."*
We live in a region with several top-ranked universities and public policy institutes. As an agency responsible for making decisions about the current welfare and future of California, you have fiscal responsibility and moral obligation to the people of California to be aware of all relevant research, and to incorporate that research into your planning and study efforts.

Someone wanted to know if the proposed tunnel would alleviate Alhambra's traffic problems caused by termination of the 710 at Valley Blvd. Your response was, *"The scope of the study if(s) fairly limited. It is limited to analyzing geotechnical*

and geological issues. Due to this, we have not done any traffic studies to determine if an alternative can be chosen and potential impact to surrounding traffic. The simple answer is "we don't know."" Then what is the purpose? How can you justify the money you have already spent, the money that will need to be spent, the disruption, inconvenience, and the increased health risks?

Another person wanted to know if the tunnel is not built, what would Caltrans do to fix the traffic problems caused by the 710 freeway? The response was, *"...If the tunnel is not built, the only alternative would be to work with local entities to reconfigure and direct the traffic differently."* These are not the only alternatives. What about putting time, effort and money into alternatives that provide better rail transportation for our commuters? We lag behind other metropolitan areas such as Washington, D.C. and the Bay Area of California in providing commuter rail systems. Surely these are more responsible and beneficial to our region that building more freeways that only perpetuate our dependence on (mostly) single passenger automobile traffic during peak hours.

Finally, I want to say that Caltrans has a lot to learn about the citizens of southern California. As a reasonably intelligent and well-educated person, I found the responses to the many, very valid and penetrating questions and suggestions of those that attended the public meetings and the attitudes of the officials presenting the study to be condescending to the point of being insulting. You will never gain public support by treating the public as though we aren't smart enough to understand.

I expect to see my comments, in their entirety, included in the Final Report as promised by Caltrans.

Jan SooHoo

Jan SooHoo
1339 El Vago St.
La Cañada Flintridge, CA 91011

State of California Department of Transportation
SR-710 Tunnel Technical Study
3412 North Eastern Avenue
Los Angeles, CA 90032

Re: Geotechnical Technical Study for 710 North Extension Tunnel Study,
Comments/Geotechnical Comment Cards

Dear Caltrans and METRO:

Health Consequences:

While your agencies' EIR would address air quality in the most speculative and positive light, the negative and serious health consequences of adding another freeway to our air basin would most likely be left to more recently reported health studies. It was with great interest that we discovered the following statement from Doug Failing, CalTrans CEO District 7, at the San Marino community meeting in June, 2009: **"That cancer and emphysema rates are higher near tunnels is absolutely a true statement."** http://www.sanmarinotribune.com/tribune/read/publisher_02/2009-06-04.02
It has become common knowledge in the last decade that health risks are found near highways and other transportation facilities and the toxins are produced by diesel, rubber particulate matter and brakes. Reports from USC Keck Institute have examined children's lung capacity, asthma, and other respiratory distresses and found long term negative consequences from living near the 710. Adults face other serious health impacts:

"Traffic pollution speeds hardening of arteries" Margot Roosevelt
http://articles.latimes.com/2010/feb/14/local/la-me-freeway-pollution14-2010feb14
"Inhaling a heart attack" Greg Critser
http://articles.latimes.com/2009/jun/23/opinion/oe-critser23
"Black Lung Lofts" Patrick Range McDonald
http://www.laweekly.com/2010-03-06/news/black-lung-lofts/?utm_source=headgrabs&utm_medium=rss&utm_campaign=20100310

"To attain national air quality standards as required by federal law… this region needs every possible emission reduction from goods movement and other mobile sources." SCAQMD 2/17/09

"There are claims that the 710 extension would have positive air quality benefits and, therefore, is critical for demonstrating transportation conformity in the South Coast Air Basin…The main question is why not building the 710 hurts Southern California Association of Governments (SCAG) ability to demonstrate that the Region's Transportation Improvement Plan conforms with SCAQMD (i.e., conformity). Our view is that it does not affect conformity. The conformity regulations require that the analysis for a region includes all the projects and policies being proposed…Therefore, a single project is very unlikely to help meet the emissions budgets in order to show conformity. Moreover, any claim of air quality benefits of the 710 project are questionable because the proponents have not adequately considered long term impacts. Felicia Marcus, Regional Administrator, USEPA, 2000"

Elysian Fault

The South Pasadena General Plan Safety and Noise Element clearly shows the importance of this fault to the city. "It underlies most of the City, including the 710 Freeway extension through South Pasadena. The Elysian Park Fault is second to the Raymond Fault, only in that since it is buried, ground rupture is not expected. In consideration of earthquake size and activity of the fault, it must be considered at least as significant as the Raymond Fault. Two independent modelings of the strong motions on the Elysian Park Thrust System/93, Sacci/94, Heatman Wall, the behavior of the Thrust System is not well understood. However, if the 1994 Northridge Earthquake, which occurred on a similar structure, is an indication earthquakes and magnitudes of 6.5 to 7.0 range are reasonable."
Please address this situation in light of relatively scant information in the draft study.

Geotechnical

Dr. Gary Brierley, South Pasadena's independent consultant, has taken absolutely no position on the building of this facility. He has truly remained unjudgemental. However, he explained on 2/26/10 at a community forum the following: **"This tunnel is enormous. This tunnel is extremely large, one of the largest tunnels that have ever been built in the world."**

"The size of these tunnels is as large as anything that has been attempted anywhere on earth. These tunnels are enormous. What is being proposed here are very large openings and so the last of those is going to be huge. Is it feasible? Yes. Does it make sense? That is up to you."

Fiscal

The most relevant financial data was from the October, 2007 RTP workshop where the number of $11.8 Billion was divulged. METRO uses a figure of about half that, some $5.6 Billion. Please explain where the original figure came from and how it could be so significantly reduced in 2 years?

Community Outreach

It was repeatedly brought out that no outreach sessions were conducted in the 44th Assembly District and no meetings were held in Zone 3 other than El Sereno, which is the start point for all zones. The concerns of the communities of real interest, if Zone 3 is chosen for an EIR, were only slightly addressed.

Considering the growing public disfavor of this project in any of the zones, the alarming health consequences, the continuation of agencies suggestions to attempt to build ourselves out of traffic congestion, the enormous cost for a project that would conservatively consume approximately 1/10 of the national transportation budget of $124.5 Billion and the fact that more positive alternatives are available leads me to conclude that this is a project that will fail on all counts.

Please include these comments as well as your responses in the final draft that goes to decision makers.

Respectfully,

Clarice Knapp
South Pasadena

Attachments:

1) South Pasadena General Plan Safety & Noise Element – 2 pages
2) Letter from Felicia Marcus, Regional Administrator USEPA – 2 pages

8.2 EXISTING CONDITIONS

This portion of the Chapter discusses South Pasadena's readiness to cope with emergencies and the major natural and man-made hazards that confront us. Local hazards are identified and goals and policies that will mitigate the hazards are proposed.

8.2A Seismic and Geological Hazards

Geologic events, and seismic activity in particular, are the primary natural hazards of the community. Earthquakes are caused by violent and abrupt releases of strain built up along faults. When a fault ruptures, energy is released in all directions from the source, or epicenter, in the form of seismic waves. Earthquakes generate two types of hazards. Primary hazards are ground shaking and surface rupture along faults. Secondary hazards result from the interaction of ground shaking with existing ground instabilities and include liquefaction, settlement and landslides.

The City of South Pasadena is located in seismically active region, in an area of potential fault rupture, strong ground shaking and slope instability. These geologic and seismic hazards can affect the structural integrity of structures and utilities, and in turn can cause severe property damage and potential loss of life. In California, faults are common, ranging from small breaks of an inch or less, to the San Andreas fault which extends for hundreds of miles. In addition to size, the age of a fault has a direct bearing on the likelihood of generating an earthquake. Many large faults have not moved for millions of years and are considered "dead" or inactive. The Alquist-Priolo Zones Special Studies Act defines "active" faults as those that have experienced surface displacement, or movement during the last 11,000 years. Faults classified as potentially active have moved during the last 2 million years. Faults that have not moved within the last 2 million years are considered inactive.

Effective March 1999, the State Department of Conservation will be releasing twelve new seismic hazard zone maps covering 63 cities in Los Angles and Orange County, including South Pasadena. New legal requirements for local governments mandated by the State include requiring site investigation reports for certain properties prior to permitting development and providing copies of such site investigation reports to the State Geologist.

- **Regional Faults**

The seismicity of the Southern California region and its relationship to the City of South Pasadena are shown in Figures VIII-1 and VIII-2. The faults identified on the map are potential sources of ground shaking within the City. Principal among them are the Sierra Madre Fault system, the Whittier Fault, and the San Andreas Fault. An earthquake anywhere on any of these faults could trigger secondary impacts in the City.

- **Local Faults**

Three other faults influence the City of South Pasadena, the Raymond Hill Fault, the York Boulevard Fault, and the Elysian Park Fault. Between these three faults, much of the City is subject to earthquake hazard.

- **Raymond Hill Fault**

Raymond Hill Fault is the only active fault running through South Pasadena that is designated as an Alquist-Priolo Special Study Zone. This fault is a reverse, left-slip, 12 miles in length, and extends through the southern portion of South Pasadena. The Raymond Hill Fault is believed to have moved within the past 3,000 years and is classified as an Alquist-Priolo Special Study Zone.
According to a 1973 report, an earthquake of 7.5 magnitude is assumed along the Raymond Hill-Santa Monica-Malibu Coast fault on the average of about once in every 5,000 years. This rate suggests a recurrence interval of about 500 years for a 6.5 magnitude event, and 100 years for a 5.6 magnitude event. A seismic event along the Raymond Hill fault has the potential to generate surface rupture that would affect structures on and adjacent to the fault. In addition, a seismic event could generate ground shaking and associated secondary impacts that could affect areas beyond the immediate proximity of the fault.

- **York Boulevard Fault**

The York Boulevard Fault was initially documented by the Department of Conservation, Division of Mines and Geology, in a report prepared in 1970. The fault was believed to have run through the City of South Pasadena south of the Raymond Hill Fault.. The report was later rescinded in 1975 after discovering that it contained erroneous information. Today, the fault is commonly referred to as a parallel extension of the Raymond Hill Fault, and therefore, is not depicted on Figure VIII-1. It has not been designated as an Alquist-Priolo Special Studies Zone.

- **Elysian Park Fault**

The Elysian Park Fault has been identified as a seismically active plane fault buried at a depth of approximately 10 kilometers beneath the City. It underlies most of the City, including the 710 Freeway extension through South Pasadena. Because the Elysian Park Fault is buried and runs horizontally underground, it is not easily depicted on a map. As such, the fault is not included on Figure VIII-1. The Elysian Park Fault is second to the Raymond Fault, only in that since it is buried, ground rapture is not expected. In considerations of earthquake size and activity of the fault, it must be considered at least as significant as the Raymond Fault.

Two independent modelings of the strong ground motions on the Elysian Park Thrust System/93, Sacci/94, Heatman Wall, the behavior of the Thrust System is not well understood. However, if the 1994 Northridge Earthquake, which occurred on a similar structure, is an indication earthquakes and magnitudes of 6.5 to 7.0 range are reasonable.

- **Other Seismic Hazards**

Liquefaction of the soil, occurring during a quake and often caused by high water table, is of secondary concern. The Los Angeles County Safety Element, however, indicates that South Pasadena is at low risk for liquefaction.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

OFFICE OF THE
REGIONAL ADMINISTRATOR

August 22, 2000

The Honorable Adam B. Schiff
California State Senate
PO Box 942848
Sacramento, CA 94248-0001

Dear Senator Schiff:

Thank you for your letter concerning the proposed 710 freeway extension. You raise important questions about the project and statements being made about it. We will attempt to clarify the situation as you request.

As we understand it, there are claims that the 710 freeway extension would have positive air quality benefits and therefore is critical for demonstrating transportation conformity in the South Coast Air Basin. There are also claims that if the 710 extension is not built, transportation conformity could not be met thus resulting in the loss of federal transportation dollars. These claims are not true.

The main question is whether not building the 710 hurts Southern California Association of Governments' (SCAG) ability to demonstrate that the Region's Transportation Improvement Plan conforms with the South Coast Air Quality Plan (i.e. conformity). Our view is that it does not affect conformity. The conformity regulations require that the emissions analysis for a region include all the projects and policies being proposed (see, e.g. 40 CFR 93.122(a)). Only by analyzing the entire set of proposed projects and policies in the context of the overall transportation system can regional air quality impacts be determined. In SCAG's case, there are huge numbers of projects and a vast transportation system to consider. Therefore, a single project is very unlikely to help meet the emissions budgets in order to show conformity. Moreover, any claims of air quality benefits of the 710 project are questionable because the proponents have not adequately considered long term impacts.

We hope that this information answers your questions. We have discussed this issue with the Federal Highway Administration. If you have any further questions or we can assist you in any other way, please contact Mark Brucker of my staff at (415)744-1231.

Yours,

Felicia Marcus
Regional Administrator

cc: SCAG, Charles Keynejad
FHWA, Jean Mazur
Caltrans, Sharon Sherzinger

From: Knapp [mailto:hcknapp@earthlink.net]
Sent: Wednesday, March 10, 2010 4:49 PM
To: 710 Outreach
Subject: Comments on 710 Geotechnical Study

State of California Department of Transportation
March 10, 2010
SR-710 Tunnel Technical Study
3412 North Eastern Avenue
Los Angeles, CA 90032

Re: Geotechnical Technical Study for 710 North Extension Tunnel Study, Comments/Geotechnical Comment Cards

Dear Caltrans and METRO:

With respect to the Community Outreach Program and its meetings held during the compilation of the study and its subsequent draft release, there were significant statements made by Mr. Douglas Failing, currently of METRO, that contradict statements made by other officials and in some cases were particularly in error.

At the Highland Park meeting held during the investigative phase of the study, he directly answered my question about traffic diversion from Interstate 5 to the 710. He stated: "There would be no diversion from Route 5". At the San Marino meeting presenting the current draft report, he stated: "There would be no induced traffic on the 710" that would imply no induced truck traffic. This is in conformance with the 1992 Mitigation Advisory Committee Report which prohibited trucks from the extension (I was a member of that committee). It is also in conformance with statements of no truck traffic made by Messrs. Snoble and Pisano at their January 2003 presentation to the South Pasadena City Council. These statements changed to "allowing truck traffic" by the time they presented to the City of LaCanada-Flintridge later that year. Senator Gil Cedillo, in his presentation of his SB545 to the state legislature, argued that the purpose of the extension was primarily for goods movement which certainly would be induced truck traffic in the corridor some of which would be diverted from Route 5.

This all relates to the lack of an adequate "Purpose & Need" evaluation of this project. Mr. Failing, again at Highland Park at the draft presentation meeting, answered a citizen's question concerning the purpose and need for this project by stating that such purpose and need are determined in the environmental report. The Fall 2009 issue of the Caltrans/METRO newsletter "The Explorer" also states this same thing, "....the environmental study process, which determines purpose and need for a project". This is inherently false! The purpose and need for the project determines the project. The freeway extension is the project, the purpose and need of which would be the same for surface or tunnel. The purpose and need for a project must be determined first before a lead agency would know if CEQA even applies. The application of CEQA is dependent on whether a project is administrative or discretionary. The purpose and need may be defined in an EIR, but it is not determined there. Determination comes first and that has not been adequately presented.

This inadequacy is evident by Caltran's admission over the years that this extension would open at Level F service, negating their stated performance evaluations. SCAG's

latest mobility improvement is 0.6mph. Yet, they claim performance efficiencies and pollution reduction. These contradictions have never been explained or evaluated in the public domain.

Also, as it has been brought up, community outreach meetings were never held in the cities of South Pasadena, Pasadena, LaCanada-Flintridge or anywhere in the 44th AD, which would suffer the most environmental impacts in Zone 3 if this project would go forward.

Although not a direct comment on the report, Measure R monies would be far more well spent on the completing the ACE project in the San Gabriel Valley. This is a road project which would alleviate North-South congestion to a much greater degree than the 710 extension. I was on the original governing board of the San Gabriel COG from 1993 to 1995 and we implemented ACE in 1995. Fifteen years have gone by and this project has still not been funded completely.

Sincerely yours,

Harry A. Knapp
Former Mayor, South Pasadena
626-441-6147

03/03/10

To Whom It May Concern,

I am writing to inform you of my dissatisfaction with and opposition to the plan to construct a tunnel connecting the I-710 to the I-5.

While I like the idea of trying to relieve the congestion from our freeways, I think this will not be the right alternative since it seems to be a tunnel for trucks and not for individuals.

I'm really concern about all the pollution that this will bring to the communities. This tunnel will destroy communities and will kill small businesses. It will bring a lot of poverty to neighborhoods that already poor and have a lot of gang problems. Not to mention the impact that this tunnel will have in the indigenous flora and fauna.

I've read the reports, and it worries me even more that in time of financial crisis a big amount of money can be put on a transportation project that clearly will not help the freeway system, the average commuters, the communities and the environment.

Thank you for considering my opinion and including it in the public record before proceeding.

Julieta Gilbert

818.605.5936
julietagilbert@yahoo.com

710 Outreach

From: Liz Amsden [LizAmsden@hotmail.com]
Sent: Sunday, March 07, 2010 12:04 PM
To: 710 Outreach
Subject: Tunnel Study

As a resident near York Boulevard, I absolutely object to ANY extension of the tunnel through Highland Park. It makes NO sense to link the 710 west to the 2 which is already overloaded during rush hours and is itself a connector freeway ever since Beverly Hills refused its extension to the coast along the Santa Monica Boulevard corridor.

Furthermore, it would be highly disruptive of an interesting neighbourhood which is re-emerging in the wake of the real estate boom in the late 80s which led to investors buying up and then, when the market dropped, led to unsupervised rentals which destroyed the sense of community.

IF, the 710 is to be extended, it should be along its original axis to the 210 which would allow traffic to head east or west and relieve pressure on the 110 & 5 freeways.

A tunnel is a good idea in that it would relive noise and pollution issues which have been the concerns of Pasadena residents from the start. Plus a number of the properties along the proposed route are already controlled by the city or have been in limbo while the issue is settled meaning their would be less disruption during construction.

It would be advisable to look at the strategies, problems and histories of other cities who invested in tunnels to extend their transportation infrastructure - Boston, New York, Montreal, Paris - and learn from them.

Liz Amsden
5158 Almaden Drive
Los Angeles, CA 90042-1006

P.S. It might be advisable when you have public meetings in future to stagger times and dates to make them more accessible to ALL citizens, not just those who work 9 to 5 Monday to Friday.

710 Outreach

From: Joseph Potts [exorg@sbcglobal.net]
Sent: Tuesday, March 09, 2010 4:47 PM
To: 710 Outreach
Subject: Draft Geotechnical Summary Report

I find *the Draft Geotechnical Summary Report prepared for the* California Department of Transportation by CH2M HILL on October 2009 to be fatally flawed, in that it, or any geotechnical study, is unable to detect potentially catastrophic conditions which may lead to a tunnel collapse. Several such catastrophic collapses have occurred in recent years.These catastrophes include the EPBM collapse in Porto, Portugal that caused collapse of buildings and claimed a life; a sinkhole in Stuttgart that claimed the lives of nine; a sinkhole above the Mixshield working on the Brightwater sewer tunnels project in Seattle; an EPBM collapse in Toronto also caused by ground loss through the tailseal; and voids found behind the lining on the Mitsubishi EPB drives on the Beacon Hill transit tunnels in Seattle as well as a major collapse in the headrace tunnel on Ethiopia's newly inaugurated Gilgel Gibe II hydro project.

All of these projects were the subjects of intensive geotechnical studies prior to the commencement of construction, all of which failed to prevent massive tunnel collapses.

Joe Potts

806 Meridian Ave,

South Pasadena, CA 91030

Hui, Linda

From: POrona1060@aol.com
Sent: Wednesday, September 27, 2006 7:12 PM
To: 710Tunnel
Cc: webcenter@niehs.nih.gov; councilmember.reyes@council.lacity.org; councilmember.cardenas@council.lacity.org; councilmember.padilla@council.lacity.org; councilmember.parks@council.lacity.org; councilmember.zine@council.lacity.org; councilmember.labonge@council.lacity.org; councilmember.perry@council.lacity.org; councilmember.greuel@council.lacity.org; councilmember.rosendahl@council.lacity.org; councilmember.wesson@council.lacity.org; councilmember.huizar@council.lacity.org; councilmember.smith@council.lacity.org; councilmember.hahn@council.lacity.org
Subject: 710 TUNNEL EIR SUBMITTED QUESTIONS

Peter A. Orona
5472 Allan St.
Los Angeles, CA 90032
September 16, 2006

710 Tunnel EIR Questions, Request, & Concerns

The following inquiries, request, and concerns have been generated in order to ensure the health and welfare of my community. To all Federal, State, County, and Local governments who profess accountability when maintaining modern commercial productivity, it is your duty to find a balance between an individual's right to exist, and urbanization. Anything short of this is a travesty of the democratic process, and an abatement of our humanity. We did not choose to live near a freeway, or connector road. What is being proposed is an increase in traffic, toxins, and noise. Freeway pollution and noise increase the risk of developing asthma, cancer, hearing loss, and stress related diseases. Those of us who live in this neighborhood can only look forward to a future filled with illness. Let us create and develop our communities with resources to truly improve the standard of living for those of us that live in them. Let them continue to be a tax base, to provide education and services, to be a source of livelihood. Nurture our communities so they can thrive; please do not destroy what others fail to see, a proud and viable community. Do not subject our children to pollution, as it will prevent them from becoming our righteous leaders. For those who are, Thou shall be.

As elected officials, it is your responsibility in making sure that our community is not abused. Our community is holding you accountable. As honorable civil servants of our community, we respectfully request the following items be addressed rigorously, and competently.

1. Provide a number estimate of traffic that will move from the beginning southern part of the proposed 710 Tunnel to the exit in Pasadena. The number should include projected number of cars, commercial trucks, and other vehicles. Will truck traffic in the tunnel be limited?
2. What formulas/strategies are being used to measure risk acceptability in relation to the 710 Tunnel? Provide all information on how safety, and risk assessments of the proposed 710 Tunnel figure into human and environmental degradation within the affected local communities? How many additional lives will be lost prematurely due to the 710 Tunnel pollution and traffic

accidents? What are all the cost-benefit ratios? Is the risk of implementing the 710 Tunnel not greater than the level of pollution output currently used in modes of transportation?

Describe the potential biohazards that both tunnel construction, and ge bring.

4. Provide all information on any and all environmental studies, or reports that have been done and completed near, and around the proposed 710 Tunnel. Indicate what efforts have been made to provide this information to the community.

5. Provide information on studies done to measure simultaneously Particulate Matter contamination emanating at both portals (i.e., same weather/seasons/day/hour). How will the Air Quality Descriptor for PM 2.5 and PM10 be articulated in relation to the 710 Tunnel? Will PM 2.5 and PM 10 particles be eliminated in the process of being scrubbed? What contaminants will be left over and breathed by citizens? Where will the tunnel portals begin? Allen? Concord? Valley Blvd.? Del Mar? How will mitigation measures be addressed at the portal entrances, and tower sites when the technology to control pollution is not proven, or does not exist? How would authorities mitigate the noise pollution during the construction?

6. How is the construction company going to prevent Valley Fever from affecting people when digging, and clearing soil debris? Will there be limited hours of construction?

7. Provide any tangent plans that are being considered in conjunction to the 710 Tunnel in order to mitigate LA County traffic problems.

8. How much green space will be needed to offset the pollution that will be generated by the 710 Tunnel? How many fully mature trees will be needed absorb vehicle exhaust emanating from both the portals, and scrubber vers?

9. How will the 710 Tunnel benefit the community of El Sereno? How many scrubber towers will be located in El Sereno, and what will be their locations? How many Construction staging areas will be located in El Sereno, and what are the locations of the staging areas?

10. How many tons of waste will a "scrubber tower" hold prior to maintenance? Can a "scrubber tower" implode? If a "scrubber tower" fails or is destroyed, is there a back-up system, or replacement procedure in place?

11. What kind of security will merit monitoring the entire 710 Tunnel facilities? How will terrorist concerns be addressed? What will be done to safeguard the occupants in, and around the 710 Tunnel?

12. How will you recapture, and recycle water from any tunnel excavation encounters? Will authorities monitor noise levels, and pollution levels during construction? If levels exceed allowed limits, or the community's concern will they halt work for the day?

13. After tunnel construction and cost, how many years will it take to break even? When will L. A. County start making its profits?

14. Will authorities shut down the tunnel when too many hazardous PM2.5 and PM10 particles are detected on any given day?

15. How much smog will the 710 Tunnel's portals, and scrubber towers contribute to the local existing pollution?

16. Will authorities compensate the community, and individuals for any nesses related to PM2.5 and PM10 particles that would have originated from 710 Tunnel site? Will they be given health insurance, or monetary benefits?

17. Will MTA provide medical experts to begin a comprehensive health study

around the local communities that will be affected by the 710 Tunnel? Will an unbiased environmental overseer be hired to protect, and monitor the community's health and safety concerns during, and after construction?

18. How much will a toll road system cost to implement, and maintain?

19. Are current modes of production changing to prevent the harmful effects of pollution? Provide information that the Market Place will create alternative-affordable modes of transportation, and fuels by the time the 710 Tunnel is completed?

20. What are the current local industry hazardous emissions around the proposed 710 Tunnel? How can these materials interact with the new air pollution that the 710 Tunnel will bring? How will they mitigate truck pollution during construction? Where will all the trucks for hauling out debris be parked? How many trucks will be used to haul away dirt? Where will the excavated dirt be dumped? Again, can the dirt contain Valley Fever materials? Will the train system be used to haul out construction debris? How do authorities intend to mitigate, or address the noise problem caused by the train during the day, and night?

21. How many tons of air pollution will the proposed scrubbers capture? How often will the proposed scrubbers need to be cleaned? Provide low and high estimates.

22. How comprehensive and exhaustive will the 710 Tunnel EIR study be?

23. Will the 710 Tunnel engineers learn from all the errors that previous tunnel mishaps demonstrate? For example, people living around tunnel portals in Australia are suffering, and dying. The Big Dig in Boston is a fiasco. Will an independent panel of environmental experts review the 710 Tunnel EIR? Will a contact telephone number for all agencies, and government officials be provided to voice concerns and complaints during construction?

24. How many people concerned about the 710 Tunnel have read ADVICE & PLANNING by Martin H. Krieger?

710 Outreach

From: Peter Orona [porona1060@att.net]
Sent: Saturday, March 06, 2010 11:12 PM
To: 710 Outreach
Cc: Mayor.Villaraigosa@lacity.org; Mayor@lacity.org; citycouncil@montereypark.ca.gov; Councilmember.Alarcon@lacity.org; Complete710@aol.com; council@smgov.net; ctwiliams@yahoo.com; councilmember.reyes@council.lacity.org; councilmember.parks@council.lacity.org; Councilmember.Huizar@lacity.org; councilmember.rosendahl@council.lacity.org; chpr@ucla.edu; bdea@laweekly.com; bwatt@kpcc.org; eyanez@audubon.org; fpasker@yahoo.com; Ing.Jones@lacity.org; leafy1018@hotmail.com; Monica.Aleman@asm.ca.gov; Molina@bos.co.la.ca.us; publiceditor@sacbee.com; Reyneiro@yahoo.com; voicepub@gmail.com; JoanneNO710 @aol.com; yaroslavsky@bos.lacounty.gov; danfarkas@charter.net; SENATOR.ROMERO@SEN.CA.GOV; senator.boxer@sen.us.gov
Subject: 710 EIR QUESTIONS
Attachments: 710EIRQUESTIONSsc00009af4.pdf

Peter A. Orona
5472 Allan St.
Los Angeles, CA 90032
March 7, 2010

710 Tunnel EIR Questions, Request, & Concerns

Given the complexities that tunnel construction entails, once construction begins it will be too late for lessons to be learned. The following inquiries. request, and concerns have been generated in order to ensure the health and welfare of my community.

As elected officials, it is your responsibility in making sure that our community is not abused. Our community is holding you accountable. As honorable civil servants of our community, we respectfully request the following items be addressed rigorously, and competently.

In addition to these new EIR questions below, please see attached files for previously submitted EIR questions from September 2006. Both new and old questions must be appropriately answered by the Final 710 Tunnel EIR Study.

1. What kind of hazardous materials will be allowed to travel through the 710 Tunnel? For example, will commercial trucks be allowed to carry tankers with acids and flammable liquids through the 710 Tunnel?

2. What will be the vehicle capacity for the 710 Tunnel. How many cars would be able to fit within the 710 Tunnel during bumper to bumper traffic? Approximately, how many trucks will fit inside the 710 Tunnel?

3. Will homeowners who live directly over/adjacent to the 710 Tunnel have to relinquish their mineral rights?

4. Can Caltrans buy/build two tunnel boring machines? Having the boring machines simutaneously working at both ends could cut tunnel construction time in half. Why can't the boring machines be designed, and built by Americans within the United States?

5. What would it take to construct the southern portal between the 60 Frwy (Pomona), and the 10 Frwy (San Bernardino)? Can Freeway Interchanges be reconfingured? If yes, then would it be possilbe for the southern portal to begin just before the 10 Frwy. Can a tunnel be constructed to go underneath the San Bernardino Frwy?

6. Will there be a sprinkler system installed inside the 710 Tunnel in order to mitigate fires?

7. How much toxins/noxious gases/CO2/PM 2.5/PM 10 particles will cars and trucks release inside the 710 Tunnel per hour? Please provide low and high estimates.

8. How will a fire inside the 710 Tunnel be mitigated? Where there is fire there is smoke. How will untested scrubber towers filter all the hazardous smoke from inside a 710 Tunnel fire? Will the toxic smoke be allowed to escape through

the scrubber towers, vents, emergency exits, and portals? Should fire fighting foam be used to combat fire inside the tunnel? Can powerful fans be used to redirect the smoke above ground? Will there be double jeopardy during a fire? What kind of endangerment will inhabitants above ground face during a catasrophic fire within the 710 Tunnel?

9. Can the same, or better "scrubber" technology utilized in nuclear submarines and spacecraft be applied to 710 Tunnel Scrubber Towers? How will 710 Tunnel Environmental Authorities regulate/monitor the atmospheric conditions inside and outside the tunnel region?

10. Please see attached files for additional 24 comments that need to be answered by the 710 Tunnel EIR panel experts.

Hui, Linda

From: POrona1060@aol.com
Sent: Wednesday, September 27, 2006 7:12 PM
To: 710Tunnel
Cc: webcenter@niehs.nih.gov; councilmember.reyes@council.lacity.org; councilmember.cardenas@council.lacity.org; councilmember.parks@council.lacity.org; councilmember.padilla@council.lacity.org; councilmember.labonge@council.lacity.org; councilmember.zine@council.lacity.org; councilmember.greuel@council.lacity.org; councilmember.perry@council.lacity.org; councilmember.wesson@council.lacity.org; councilmember.rosendahl@council.lacity.org; councilmember.smith@council.lacity.org; councilmember.huizar@council.lacity.org; councilmember.hahn@council.lacity.org
Subject: 710 TUNNEL EIR SUBMITTED QUESTIONS

Peter A. Orona
5472 Allan St.
Los Angeles, CA 90032
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18. How much will a toll road system cost to implement, and maintain?

19. Are current modes of production changing to prevent the harmful effects of pollution? Provide information that the Market Place will create alternative-affordable modes of transportation, and fuels by the time the 710 Tunnel is completed?

20. What are the current local industry hazardous emissions around the proposed 710 Tunnel? How can these materials interact with the new air pollution that the 710 Tunnel will bring? How will they mitigate truck pollution during construction? Where will all the trucks for hauling out debris be parked? How many trucks will be used to haul away dirt? Where will the excavated dirt be dumped? Again, can the dirt contain Valley Fever materials? Will the train system be used to haul out construction debris? How do authorities intend to mitigate, or address the noise problem caused by the train during the day, and night?

21. How many tons of air pollution will the proposed scrubbers capture? How often will the proposed scrubbers need to be cleaned? Provide low and high estimates.

22. How comprehensive and exhaustive will the 710 Tunnel EIR study be?

23. Will the 710 Tunnel engineers learn from all the errors that previous tunnel mishaps demonstrate? For example, people living around tunnel portals in Australia are suffering, and dying. The Big Dig in Boston is a fiasco. Will an independent panel of environmental experts review the 710 Tunnel EIR? Will a contact telephone number for all agencies, and government officials be provided to voice concerns and complaints during construction?

24. How many people concerned about the 710 Tunnel have read ADVICE & PLANNING by Martin H. Krieger?

From: Coralie Galey [mailto:casagaley@ca.rr.com]
Sent: Wednesday, March 10, 2010 9:01 AM
To: 710 Outreach
Subject: 710 Fwy

I live in Sunland and would like to see this extention finally completed, we really need it. I have 2 kids that attend Cal State LA and it takes so long to get there due to the where the freeway ends, and they say it is the drive and traffic on the surface streets that adds an hour to the commute. The tunnel sounds like the best solution.
Thank You,
The Galey Family , Sunland, Ca

Response to the "StopThe710" comments cover letter by C.T. Williams

The study team appreciates the time and effort Mr. Williams committed in reviewing the subject report; however, we disagree with a number of the comments the reviewer has presented. The statements made by the reviewer regarding a change in scope without consent from TAC and SC are not justified. The evaluation of gassy conditions and hazardous materials was discussed in both TAC and SC meetings, as well as in a number of community meetings. This has been part of the original scope for this study and is essential in evaluating the subsurface conditions underlying the study area. As such, we believe that Mr. Williams is misinformed regarding his opinion of a varied scope of work. Task Order 5 was presented to both TAC and SC to be responsive to community feedback, to address many of the concerns raised during these meetings. However, the study team was asked not to begin this study by TAC and SC. Authorization to proceed was never issued to the study team for Task Order 5. Many of the reviewer's follow on comments are apparently related to tasks that were proposed in Task Order 5.

The reviewer states that a thorough study has not been performed. We strongly disagree with this statement. To the contrary, the team spent considerable effort collecting data and presenting it as requested by TAC and SC. As requested by TAC and SC, the study team did not provide recommendations and has not stated whether or not any of the zones are favorable. TAC and SC requested that the readers of the report make their own conclusions based on the data presented in the report. All of the information presented is based on data obtained and/or reviewed during the study.

The requirements for addressing seismic shaking are usually done during the design phase, after alignments have been selected for the study. It is premature to address these elements in detail during a geotechnical feasibility study. In addition, and as noted in the report, tunnels perform better than at-grade structures during a seismic event; fault displacement is more of a significant issue than seismic shaking. Similarly, addressing fire-life safety is a detailed design element and will be addressed in future phases.

We strongly disagree with the statement that this report is an "utter distortion of feasibility, sound research and route neutral." The focus of the study was to evaluate the geotechnical feasibility as discussed during TAC and SC meetings. Initial discussions during TAC and SC meetings included other elements, which were removed from the scope as determined at these meetings.

The study team stands by the Geotechnical Summary Report and has provided information based on the data collected as part of this study. The report is not biased and, in our opinion, is not flawed. The report was reviewed by Caltrans senior staff and by the Metro Tunnel Review Panel, both of which have provided positive feedback.

Responses to the reviewer's specific comments follow.

Response to "StopThe710" comments by C.T. Williams

The responses below have been numbered to correspond to the Comment Numbers shown in the "StopThe710" Comments, which is attached following these responses.

(1) No revision necessary. The study team disagrees with this comment.

(2) No revision necessary. The information collected during the field portion of the study has been analyzed and reviewed in preparation of the study. All of the data were analyzed and reviewed equitably.

(3) No revision necessary. The study team disagrees with this comment. Tunnel routes have not been established in the study, and boring locations were established to determine the geotechnical feasibility of the five zones. Each of the five zones was evaluated using a route-neutral approach.

(4) No revision necessary. The reviewer refers to boring "Zone1B9," we believe that this might be a typo and the reviewer is actually referring to boring R-09-Z1B8. Data collected from boring R-09-Z1B8 were used in evaluating the geotechnical conditions underlying the general area of the current terminus of SR-710, for all five zones. Precisely which zone a boring was actually located in is irrelevant as the data collected were used in evaluating the geotechnical conditions encountered in the formation(s) observed within the boring. The formations encountered are independent of the zone limits. Boring R-09-Z1B8 lies within the City of Los Angeles limits, as the reviewer points out.

(5) No revision necessary. Regional seismicity data, (including micro-seismicity data) was reviewed for all five zones in preparation of the study.

(6) Evaluation of contaminants has been planned since the beginning of the study. Section 3.3.2 and Appendix A.1 have been revised and include a discussion of the monitoring conducted during the field investigation.

(7) The study team disagrees with this comment, no revision necessary. The primary purpose of the field VOC screenings was to ensure the health and safety of field personnel. The headspace of soil and rock samples was screened using a MiniRAE 3000 multi-gas monitor for hydrogen sulfide, methane, carbon monoxide, oxygen, and VOCs. All of the gas monitor screenings yielded results that were well below threshold limits.

(8) The study team disagrees with this comment, no revision necessary. Evaluation of contaminants has been planned since the beginning of the study and was discussed in TAC/SC meetings. Hazardous materials and groundwater testing was not included in the scope of work for this study. This testing will be conducted in potential future phases of the project.

(9) No revision necessary. Detailed hydrogeological analysis was not included as a part of the scope of work for this report. The expansion potential of samples is not related to RQD. The study team disagrees with the remainder of this comment.

(10) The subject definitions have been revised in the reports Glossary of Terms. Certain Members of the formations encountered within the study area can be very similar in nature, as would tunneling through these similar Members. The characteristics of the specific rock types present within each of the Formations were considered in the study. Detailed hydrogeological analysis was not included as a part of the scope of work for this study. This analysis will be conducted in potential future phases of the project.

(11) The definition of "shear" has been added to the reports Glossary of Terms; the other referenced words were already included in the Glossary. The Caltrans logging manual (Caltrans, 2007) was used by the field personnel during logging of the borings. These terms are defined the Caltrans manual.

(12) No revision necessary. RQD as defined by ASTM is intended for use in hard rock and the majority of the borings excavated where in soft rock. Caltrans guidelines require the use of RQD. Presenting the RQD values for soft rock is still valuable because it gives a general representation of the fracture density of the soft rock. A number of the borings conducted in Zone 3 encountered hard rock, and, as such, the "disclaimer" is not presented on those logs.

(13) No revision necessary. "Fat clay" is defined in the Caltrans (2007a) manual, which follows ASTM guidelines. The Caltrans manual was used by the field personnel during logging of the borings and referenced in the report.

(14) The Glossary of Terms has been revised to include the subject words.

(15) No revision necessary. The definition of Geologic Structure, as provided in the Glossary of Terms is considered sufficient. The report includes faulting in a separate section than Geologic Structure to highlight the significance of faulting in the region.

(16) No revision necessary. Regional seismicity data, (including micro-seismicity data) was reviewed for in preparation of the study.

(17) p.18\ES-1/1

The report has been revised accordingly.

(18) p.18\ES-1/1

No revision necessary, the study team disagrees with this comment, the statement is based on SCAG's Regional Long-Term Plan.

(19) p.18\ES-1/2

No revision necessary. Hazardous materials and gassy conditions are inherently included in "geologic and groundwater conditions." The referenced paragraphs are consistent with the scope of work of the study.

(20) p.18\ES-1/3

No revision necessary. This was not included as a part of the scope of work for this study, and will be conducted in potential future phases of the project.

(21) p.19\ES-2/2

No revision necessary. The City of Los Angeles is listed in the referenced paragraph. All references used are appropriately listed in Section 16 of the report.

(22) p.19\ES-2/2

Reference to Section 2 of the report has been added to the paragraph.

(23) p.19\ES-2/2

No revision necessary. A geologic reconnaissance was conducted and is discussed in Section 3.2 of the report.

(24) p.19\ES-2/3

No revision necessary. Detailed geologic mapping was not included as a part of the scope of work for this study. A geologic reconnaissance was conducted as discussed in Section 3.2 of the report.

(25) p.20\ES-3/1

No revision necessary. Piezometer is defined in the reports Glossary of Terms and discussed in the report. Piezometer measurements and details are presented in Appendix B. In most cases, the groundwater levels observed within the piezometers represent local, perched water and not the groundwater table.

(26) p.22\ES-5/1

No revision necessary. Aquifer, as defined in the reports Glossary of Terms, is appropriate as used in the sentence, paragraph, and report as a whole.

(27) p.22\ES-5/1

No revision necessary. This is a suggestion to be considered during potential future phases of the project and is consistent with the scope of work of the study.

(28) p.22\ES-5/1

The subject sentence has been removed from the ES.

(29) p.22\ES-5/3

The word "limited" has been removed. The referenced sentence is consistent with the scope of work of the study.

(30) p.22\ES-5/5

The subject sentence has been revised accordingly. Also, see response to Comment 7. The study team disagrees with the remainder of this comment; the referenced sentence is consistent with the scope of work of the study.

(31) p.22\ES-5/5

No revision necessary. These are suggestions to be considered during potential future phases of the project. Soil contamination is discussed appropriately in the report.

(32) p.23\ES-6/1

Study team disagrees with this comment; no revision necessary. The referenced sentence is consistent with the scope of work of the study.

(33) p.23\ES-6/1 Item 4

Rock Mass has been added to the reports Glossary of Terms. The study team disagrees with the remainder of this comment. The referenced sentence is consistent with the scope of work of the study.

(34) p.23\ES-6/1 Item 7

The subject bullet has been revised accordingly. See response to Comment 7. The sentence is a suggestion to be considered during potential future phases of the project.

(35) p.23\ES-6/2 Item 1

The subject bullet has been revised accordingly and is suitable for use during potential future phases of the project.

(36) p.23\ES6-1 Item 4

The subject bullet has been revised accordingly and is suitable for use during potential future phases of the project.

(37) p.24\ES-7/1 Item 1

No revision necessary. The referenced sentence is consistent with the scope of work of the study.

(38) p.24\ES-7/1 Item 1

The subject bullet has been revised accordingly. No "preferred or practical" alignment has been established within the zones. The referenced bullet is suitable for use during potential future phases of the project.

(39) p.24\ES-7/1 Item 3

The subject bullet has been revised accordingly and is consistent with the scope of work of the study.

(40) p.24\ES-7/1 Item 3

The subject bullet has been revised accordingly. The statement is suitable for use during potential future phases of the project.

(41) p.24\ES-7/1 Item 6

The subject bullet has been revised accordingly. See response to Comment 7. The statement is suitable for use during potential future phases of the project.

(42) p.24\ES-7/2 Item 1-2

The subject bullet has been revised accordingly. The statement is consistent with the scope of work of the study.

(43) p.24\ES-7/2 Item 3

No revision necessary. The barrier effect of the faults is discussed in the report. The statement is consistent with the scope of work of the study.

(44) p.25\ES-8/1/Item 3

The subject bullet has been revised accordingly. The statement is suitable for use during potential future phases of the project.

(45) p.25\ES-10/2

No revision necessary. The subject title and bullet are consistent with the scope of work of the study.

(46) p.27-28\ES-10-11

The subject section has been revised accordingly. Zones 1 and 2, and Zones 4 and 5 have been grouped together because of the similar geologic conditions present within these zones.

(47) p.27-28\ES-10-11

No revision necessary. The referenced sections are suitable for use during potential future phases of the project.

(48) p.27-28\ES-10-11 and p.27\ES-10/3

The subject statement has been revised accordingly. The statement is suitable for use during potential future phases of the project.

(49) p.27\ES-10/4

The subject paragraph has been revised accordingly. The statement is consistent with the scope of work of the study.

(50) p.28\ES-11/1

No revision necessary. The referenced sentence is suitable for use during potential future phases of the project.

(51) p.28\ES-11/3-4

The subject sentence has been revised accordingly. The referenced sentence is suitable for use during potential future phases of the project.

(52) p.28\ES-11/3-4

The subject sentence has been removed from the ES.

(53) p.28-29\ES-11--12

No revision necessary. All of these factors were evaluated in preparation of the study. The referenced section is consistent with the scope of work of the study.

(54) p.28\ES-11/4

No revision necessary. All of the data obtained from the boreholes, as well as those listed as references, were evaluated in preparation of the report. The referenced section is consistent with the scope of work of the study.

(55) p.28\ES-11/6

The subject sentence has been revised accordingly. The referenced sentence is consistent with the scope of work of the study.

(56) p.29\ES-12/2

No revision necessary. All of the data obtained from the boreholes and seismic studies were evaluated in preparation of the report. The referenced section is consistent with the scope of work of the Study.

(57) p.29\ES-12/4

No revision necessary. See response to Comment 7. These are suggestions to be considered during potential future phases of the project.

(58) p.29\ES-12/4

No revision necessary. See response to Comment 7. These are suggestions to be considered during potential future phases of the project.

(59) p.29\ES-12/5

The referenced section has been removed from the ES.

(60) p.29\ES-12/5

The referenced section has been removed from the ES.

(61) p.29\ES-12/6

No revision necessary. The table presents comparisons to be considered during potential future phases of the project.

(62) p.29\ES-12/5

No revision necessary. This statement is consistent with the scope of work of the study.

(63) p.30\ES-13/1

Section 13 has been revised accordingly and is consistent with the scope of work of the study. A detailed evaluation of tunneling is premature because no alignment has been identified. The Concluding Remarks are based on the geologic conditions expected and our tunneling experience in similar conditions.

(64) p.30\ES-13/1

See response to Comment 63.

(65) p.31\S1-1/1-4

The report has been revised accordingly.

(66) p.31\S1-1/1

The study team disagrees with this comment. A summary of comparison of conditions of tunneling concepts has been included in the report. The report is consistent with the scope of work of the study.

(67) p.31\S1-1/4

The study team disagrees with this comment. No revision necessary. The sentence is appropriate for inclusion in the background of the report. Traffic studies will be conducted during potential future phases of work for the project.

(68) p.32-33\S1/Fig.1-1 to 1-3

The study team disagrees with this comment. No revision necessary. Figures 1-1 and 1-2 are appropriate for inclusion in the report. Figure 1-3 does not exist.

(69) p.34\S1-4/4

The study team disagrees with this comment. No revision necessary. The statements and zone limits are appropriate for the report. The boring program was revised based on the available data in Zones 4 and 5, and was discussed at TAC/SC meetings.

(70) p.36\S1-6/2

No revision necessary. The statements are consistent with the scope of work of the study.

(71) p.35\S1-5/1-2

The study team disagrees with this comment. No revision necessary. The statements are appropriate for the report. All items included in the scope of this study were discussed with TAC/SC. Financial feasibility was never a part of the study. TAC/SC suggested three parameters in previous meetings.

(72) p.35\S1-5/6

No revision necessary. The statements are consistent with the scope of work of the study.

(73) p.35\S1-5/7

No revision necessary. This report will be suitable for use during potential future phases of the project.

(74) p.S1-6/1

No revision necessary. The statements are consistent with the Scope of Work of the study.

(75) Section 2

No revision necessary. CalTech/JPL data are incorporated into the data reviewed for the report. The discussions of gassy conditions presented are consistent with the scope of work of the study. Microseismicity data were reviewed in preparation of the report, consistent with the scope of work of the study.

(76) p.S2-3/2-5

No revision necessary. The discussion of the aerial photograph source in Section 2.3 is sufficient. Review of aerial photographs is the standard of practice in geotechnical studies. Discussion of the aerial photograph review with respect to faulting is included within Section 2.3.

(77) p.S2-3/2-5

No revision necessary. See response to Comment 7. Testing for potential contaminants was not included as a part of the scope of work for this study.

(78) p.S3-1/3

The study team disagrees with this comment. No revision necessary. The statements are consistent with the scope of work of the study. The "SRT" surveys were successful, and the data were reviewed in preparation of the report. The bolded words in the comment are defined in any Standard English dictionary.

(79) p.S3-1/3

The study team disagrees with this comment. No revision necessary. The statements are consistent with the scope of work of the study. The "SWS" surveys were successful, and the data were reviewed in preparation of the report.

(80) p.S3-1/3 p.S3-2/1

The study team disagrees with this comment. No revision necessary. The statements are consistent with the scope of work of the study. The "LGR" was conducted, and the data were reviewed in preparation of the report.

(81) p.S3-4/1

No revision necessary. The statements are consistent with the scope of work of the study. Presenting the RQD values for soft rock is per Caltrans guidelines and is valuable because it gives a general representation of the fracture density of the soft rock.

(82) p.S3-6/2+7/1

The study team disagrees with this comment. No revision necessary. The title is consistent with the study contract with Caltrans.

(83) p.S3-7/1

No revision necessary. The statements are consistent with the scope of work of the study.

(84) p.S3-7/2

No revision necessary. The statements are consistent with the scope of work of the study.

(85) p.S3-7/5

The subject sentence has been revised accordingly. The statements are consistent with the scope of work of the study.

(86) p.50\S4-2/Fig.4-1

Figure 4-1 has been revised accordingly. The location of the Puente Hills Fault System with relation to the project area is discussed in Section 4.2.3.3

(87) p.52\S4-4/1 and P.59\S4-11/2

No revision necessary. The two statements are independent, and as such do not require revision.

(88) p.59\S4-11/3

No revision necessary. The statements are consistent with the scope of work of the study. The term "down-warp" is self explanatory, and presented in the singular form.

(89) p.59\S4-11/3

No revision necessary. The statements are consistent with the scope of work of the study.

(90) p.59\S4-11/4

No revision necessary. The statements are consistent with the scope of work of the study. Tunnel design and detailed seismic analysis were not included as a part of the scope of work of the study.

(91) p.60\S4-12/1

No revision necessary. The statements are consistent with the scope of work of the study. Detailed seismic analysis was not included as a part of the scope of work of the study.

(92) p.66+69\S4-18/5+-21/Fig.4-9

No revision necessary. Detailed seismic analysis was not included as a part of the scope of work of the study. Caltrans seismic guidelines dictate that the PGA of a site (as shown in Figure 4-9) be rounded upward to the nearest 0.1 g. In addition, the PGAs presented in Figure 4-9 take into account the thrust faults that underlie the region.

(93) p.73\S5-4/3

The study team disagrees with this comment. No revision necessary. The statements are consistent with the scope of work of the study and are based on our knowledge of these Formations.

(94) p.75-76\S5-6/6-7/1

No revision necessary. The permeability of these Formations, as observed during this study, is presented in Section 4.

(95) p.76\S5-7/5

The subject section has been revised accordingly. Contaminated groundwater and hazardous waste discussions are based primarily on the data available from the government agencies referenced in Section 6. Contaminant testing was not included as a part of the scope of work of the study.

(96) Section 6

No revision necessary. Refer to response to Comment 7. Contaminant testing was not included in the scope of work of the study. The intent of Section 6 is to identify known contaminated areas within the study area, to be considered during potential future phases of the project.

(97) p.77\S6-1\1

No revision necessary. Contaminant testing was not included in the scope of work of the study. The intent of Section 6 is to identify known contaminated areas within the study area, to be considered during potential future phases of the project.

(98) p.78\S6-2/8

No revision necessary. Contaminant testing was not included in the scope of work of the study. Considering that no alignment has been delineated, the intent of Section 6 is to identify know contaminated areas within the study area, to be considered during potential future phases of the project.

(99) p.79\S6-3/2

No revision necessary. Contaminant testing was not included in the scope of work of the study. The intent of Section 6 is to identify known contaminated areas within the study area, to be considered during potential future phases of the project.

(100) p.76\S5-7\4

The subject section has been revised accordingly. The statements are consistent with the scope of work of the study.

(101) p.79\S6-3/4-5

No revision necessary. Contaminant testing was not included in of the scope of work of the study. The intent of Section 6 is to identify known contaminated areas within the study area, to be considered during potential future phases of the project.

(102) p.80\S6-4/Fig 6.1

No revision necessary. Contaminant testing was not included in the scope of work of the study. The intent of Section 6 is to identify known contaminated areas within the study area, to be considered during potential future phases of the project.

(103) p.81\S7-1/2

The subject sentence and figures have been revised accordingly.

(104)

The subject sentence has been revised accordingly.

(105) p.81\S7-1/3

No revision necessary. The descriptions presented in the referenced section are suitable, considering there is only one Los Angeles River floodplain.

(106) p.S7-2/5

The subject statements have been revised accordingly.

(107) p.S7-3/2

No revision necessary. The statements are consistent with the scope of work of the study.

(108) p.83\S7-3/4

The study includes faulting in a separate section than geologic structure to highlight the significance of faulting in the region.

(109) p.83\S7-3/4

No revision necessary. The statement is consistent with the scope of work of the study.

(110) p.83\S7-3/5

The study team disagrees with this comment. No revision necessary. The statements are consistent with the scope of work of the study.

(111) p.84\S7-4/3

No revision necessary. The statements are consistent with the scope of work of the study.

(112) The study team disagrees with this comment. No revision necessary. The statements are consistent with the scope of work of the study.

(113) p.84\S7-4/3

No revision necessary. The statements are consistent with the scope of work of the study.

(114) p.85\S7-5/1

The study team disagrees with this comment. No revision necessary. The Soundings are presented in Appendix C of the report. The statements are consistent with the Scope of Work of the study.

(115) p.85\S7-5/4

No revision necessary. The statements are consistent with the scope of work of the study.

(116) p.85\S7-5/4/Fig.6-1 and p.86\S7-6/1

No revision necessary. The NPL site (tan areas) counts as 1, totaling 10.

(117) p.86\S7-6/2

No revision necessary. The statements are consistent with the scope of work of the study. As stated in the report, a tunnel invert of roughly 200 feet bgs was assumed for the study.

(118) p.86\S7-6/1

The subject statement has been revised accordingly.

(119) p.86\S7-6/3

Boring R-09-Z3B12 was mistakenly referenced, and has been removed from the statement. The tar noted in boring R-09-Z3B7 was not highlighted in the report because it was an isolated occurrence and the tar observed was very minor, consisting of a few specs of material. Based on experience, the Puente Formation is a petroleum source. Hydrocarbon testing results from boring R-09-Z1B7 are presented in Appendix E of the report. Zone 3 is underlain by limited amounts of Puente Formation versus Zones 1 and 2; thus, it has a lower potential.

(120) p.86\S7-6/4

No revision necessary. This statement is based on the known conditions encountered during construction of the NEIS tunnel.

(121) p.86\S7-6/5

No revision necessary. The statements are based on experience and are consistent with the scope of work of the study.

(122) p.86\S7-6/5

No revision necessary. The statements are based on tunneling experience in this area and are consistent with the Scope of Work of the study.

(123) p.87\S7-7/Item 5

The City of Los Angeles liquefaction maps were reviewed, and actually are the same as the CDMG liquefaction maps. No revision necessary. The statements are consistent with the scope of work of the study.

(124) p. 87\S7-7/Item 6

The subject statement has been revised accordingly.

(125) p. 87\S7-7/Item 7

The subject statement has been revised accordingly.

(126) p. 87\S7-7/2

The study team disagrees with this comment. No revision necessary. The statements are consistent with the scope of work of the study.

(127) p. 87\S7-7/3

The study team disagrees with this comment. No revision necessary. The statements are consistent with the scope of work of the study.

(128) p.87\S7-7/3

The subject statement has been revised accordingly and is consistent with the scope of work of the study.

(129) p.88\S7-8/1

The "existing tunnel" is the NEIS, which is discussed in the report and shown in Plate 1. No revision necessary. The statements are consistent with the scope of work of the study.

(130) p.88\S7-8/2

No revision necessary. The statement is based on previous tunneling experience and is presented as a general guide to be considered during potential future phases of the project.

(131) p.88\S7-8/4

The subject statement has been revised accordingly and is consistent with the scope of work of the study.

(132) p.83\S7-9/1

The study team disagrees with this comment. No revision necessary. The statements are consistent with the scope of work of the study.

(133) p.89\S7-9/1

The subject statement has been revised accordingly, and is consistent with the scope of work of the study.

(134) Section 8

The study team disagrees with this comment. Section 8 is consistent with the scope of work of the study. All of the data obtained during the study were utilized during preparation of the report.

(135) p.90\8-1/2 and p.90\S8-2/3

The subject statements and figures have been revised accordingly.

(136) p.91\S8-2/Stratigraphy

The study team disagrees with this comment. The subject section is consistent with the scope of work of the study. All of the data obtained during the study were utilized during preparation of the report.

(137) p.91\S8-2/5

The study team disagrees with these comments, no revisions necessary. The subject section is consistent with the scope of work of the study. Specific liquefaction investigations were not included in the scope of work for this study; however, state and city maps were reviewed and have been used to describe potentially liquefiable areas within the study zones. The information collected during drilling of the borings is presented on the logs; nothing is "hidden."

(138) p.91\S8-2/6

No revision necessary. The statements are consistent with the scope of work of the study. The statement is based on the conditions observed during the field portion of the study and based on previous experience.

(139) p. 91\S8-2/7

No revision necessary. The statements are consistent with the scope of work of the study and with the request by TAC and SC to keep the report simplified.

(140) p. 91\S8-2/7

No revision necessary. The statements are consistent with the scope of work of the study and with the request by TAC and SC to keep the report simplified.

(141) p. 91\S8-3/1

No revision necessary. The statements are consistent with the scope of work of the study and with the request by TAC and SC to keep the report simplified.

(142) p. 91\S8-3/3

The subject statement has been revised accordingly and is consistent with the scope of work of the study.

(143) p.92\S8-3/3

This has been noted by the study team and has been flagged for potential future phases of the project.

(144) p.92\S8-3/3

Comment noted; no revision necessary. The statements are consistent with the scope of work of the study.

(145) p.92\S8-3/4

The study team disagrees with the comments on bias. The subject statement has been revised accordingly and is consistent with the scope of work of the study.

(146) p. 92\S8-3/5

No revision necessary. The statements are consistent with the scope of work of the study.

(147) p.93\S8-4/3-6+-5/1

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. The displacements were estimated using standard of practice methods, as referenced in the report.

(148) p.93\S8-4/3

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study.

(149) p. 93\S8-4/3

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. The information obtained has been summarized in simple terms.

(150) p.93\S8-4/4

No revisions necessary. The subject section is consistent with the scope of work of the study. The discussion is stated in simple terms for the reasons stated by the reviewer.

(151) p.93\S8-4/5

The study team disagrees with these comments; no revisions necessary. The statements are consistent with the scope of work of the study. The Raymond fault is present in Zones 2, 3, and 4. Discussion of the fault in one zone based on data of the fault in another zone is completely acceptable.

(152) p.93\S8-4/5

The study team disagrees with these comments; no revisions necessary. The statements are consistent with the scope of work of the study. No tunnel routes have been specified.

(153) p.93\S8-4/6

The study team disagrees with these comments; no revisions necessary. The statements are consistent with the scope of work of the study. Plate 1 has been revised accordingly. A discussion of the "York Fault" is presented in Section 4. Discussion of the Raymond fault as presented in Section 4 is adequate. The Highland Park fault is not designated as active. The Alquist-Priolo maps were used in preparation of the maps and report.

(154) p.94\S8-5/2

The subject statement has been revised accordingly and is consistent with the scope of work of the study.

(155) p.94\S8-5/2

No revisions necessary. Details were not provided in order to keep the report simple.

(156) p.94\S8-5/6

The study team disagrees with these comments; no revisions necessary. These units are considered non-water bearing.

(157) p.94\S8-5/6

No revisions necessary. The statement is based on the packer tests, results of which are presented in Appendix D.

(158) p.94\S8-5/6

No revisions necessary. The subject section is consistent with the scope of work of the study. The statement is based on experience.

(159) p.94\S8-5/8

The study team disagrees with these comments; no revisions necessary. The statements are based on information gathered during this study and are consistent with the scope of work of the study.

(160) p.94\S8-5/9 and P.95\S8-6/1

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(161) p. 94\S8-6/1

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(162) p.95\S8-6/2

No revisions necessary. The subject section is consistent with the scope of work of the study.

(163) p.95\S8-6/3

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. See response to Comment 7.

(164) p.95\S8-6/4

The study team disagrees with these comments, no revisions necessary. See response to Comment 7. The statement is presented as a general guide to be considered during potential future phases of the project.

(165) p.95\S8-6/5

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. All of the data collected during the study have been reviewed in preparation of the report.

(166) p.95\S8-6/5

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(167) p.95\S8-7/1

The study team disagrees that these comments strayed from the route-neutral approach, and that the definition of shallow is "usually 5ft rather than 20ft." The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(168) p.96\S8-7/1 and 97\S8-8/3

No revisions necessary; the subject section is consistent with the scope of work of the study. See response to Comment 7.

(169) p.96\S8-7/2 and p.96\S8-7/2

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(170) p.97\S8-8/2

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(171) p.97\S8-8/3

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(172) p.97\S8-8/3

The subject statements have been revised accordingly and are consistent with the scope of work of the study. Puente Formation is mentioned in the paragraph.

(173) p.98\9-1/4

The subject statements have been revised accordingly.

(174) p.99\9-2/1

No revisions necessary. The subject section is consistent with the scope of work of the study.

(175) p.99\9-2/1

No revisions necessary. The subject section is consistent with the scope of work of the study. The presence of volcanic rocks is presented in this section. RQD is unrelated to the expansion potential of rock. Expansive soils were discussed in this section for Zone 2 to show that the necking that was observed within some of the Zone 2 borings was a result of sample extraction and not due to soil/rock expansion.

(176) p.100\9-3/3

The study team disagrees with this comment, no revisions necessary. The subject section is consistent with the scope of work of the study.

(177) p.100\9-3/4

No revisions necessary. The subject section is consistent with the scope of work of the study. The South Pasadena anticline is shown in Plate 7. A discussion of the faulting in this area is presented in Section 4.

(178) p.100\9-3/4

No revisions necessary. The subject section is consistent with the scope of work of the study. The Topanga Formation breccia makes up minor portion of the Topanga and is similar to the conglomerate member. The breccia is noted in Plates 1 and 2. Volcanics are discussed in the Key Ground Characteristics in Section 9.8

(179) p.101\9-4/1

No revisions necessary. The subject section is consistent with the scope of work of the study.

(180) p.101\9-4/4

No revisions necessary. The subject section is consistent with the scope of work of the study. More detailed fault and seismic information is presented in Section 4. The Alquist-Priolo fault zones were reviewed in preparation of this section.

(181) p.101\9-4/4

No revisions necessary. The subject section is consistent with the scope of work of the study.

(182) p.101\9-4/5

The study team disagrees with this comment; no revisions necessary. The discussion is clear. Detailed evaluation of the Raymond fault and all other faults will be required in potential future phases of the project.

(183) p.102\9-5/2

No revisions necessary. The subject section is consistent with the scope of work of the study. The basis for the magnitude estimate is provided. Detailed discussions of faulting and a discussion of faults designated as Alquist-Priolo Earthquake Fault Zones are presented in Section 4.

(184) p.102\9-5/3

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. These formations are non-water bearing.

(185) p.103\9-6/1-2

No revisions necessary. The subject section is consistent with the scope of work of the study.

(186) p.103\9-6/2 \9-6/3

No revisions necessary. The subject section is consistent with the scope of work of the study. Portal locations are not known.

(187) p.103\9-6/4

No revisions necessary. See response to Comment 7. The subject section is consistent with the scope of work of the study. The conclusion presented in the report is based on experience with conditions similar to that of the study zone.

(188) p.103\9-6/5, p.104\9-7/1 and \9-7/3

The subject statements have been revised accordingly and are consistent with the scope of work of the study. The log of the boring that encountered volcanic rock is available to the public as part of the previous Metro study.

(189) p.105\9-8/2

No revisions necessary. The subject section is consistent with the scope of work of the study. Discussions regarding constructing a potential tunnel across the Raymond fault are presented throughout the report.

(190) p.106\10-1/1

No revisions necessary. Boring R-09-Z1B8 is not located within the delineated limits of Zones 4 and 5.

(191) p.107\10-2/3

No revisions necessary. We concur with this comment, and this is reflected in the report.

(192) p.107\10-2/5

No revisions necessary. The descriptions presented are generalized for use in potential future phases of the project. The information provided is correct.

(193) p.108\10-3/2

No revisions necessary. The subject section is consistent with the scope of work of the study. The South Pasadena anticline is shown and labeled in Plates 7 and 8. A discussion of the faulting in this area is presented in Section 4.

(194) p.108\10-3/3

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. Data collected from the field portion of the study have been incorporated into the report.

(195) p.108\10-3/4

No revisions necessary. A discussion of faulting and seismicity is presented in Section 4.

(196) p.109\10-4/3

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study.

(197) p.110\10-5/1

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(198) p.111\10-6/1

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. See response to Comment 7.

(199) p.111\10-6/2

No revisions necessary. The subject section is consistent with the scope of work of the study. The items discussed in the comment are all discussed in the report.

(200) p.111\10-6/2

No revisions necessary. The subject section is consistent with the scope of work of the study. Liquefaction hazards zones produced by state and local agencies are based on the historically highest groundwater levels. The statement assumes a tunnel invert of 200 feet bgs.

(201) p.111\10-6/2

No revisions necessary. The subject section is consistent with the scope of work of the study. Liquefaction hazards zones produced by state and local agencies are based on the historically highest groundwater levels.

(202) p.112\10-7/1

The subject statements have been revised accordingly, and are consistent with the scope of work of the study. Because it is not clear where in Zone 4 or 5 the tunnel will be located, it is not known how, if at all, the Superfund site will affect potential tunnel operation and excavation.

(203) p.112\10-7/5

This statement has been made based on previous tunnel experience. While the expected tunnel and diameter of the proposed tunnel are not known, the necessary cover is expressed in terms of the expected tunnel diameter. Furthermore, the tunnel profile may be deeper than two tunnel diameters in some places; this section states that it is desirable to have at least two tunnel diameters of cover when tunneling. While the excavation method has not been chosen, the method mentioned and explained is an example of a feasible method.

(204) p.112\10-7/7

No revisions necessary. The subject section is based on the data collected and reviewed and is consistent with the scope of work of the study.

(205) p.114\11-1/2

The subject statement has been revised accordingly.

(206) p.116\11-3/1-2

No revisions necessary. The subject section and overall geologic evaluation of this portion of Zone 5 are consistent with the scope of work of the study.

(207) p.116\11-3/3 and /5

The study team disagrees with these comments; no revisions necessary. The subject section and overall geologic evaluation of this portion of Zone 5 are consistent with the scope of work of the study. Alquist-Priolo Earthquake Fault Zone Maps were reviewed and discussed in Section 4 and Section 11.4. Microseismicity was evaluated as part of the study. Details have not been included to keep the report simple, in accordance with the request by TAC and SC.

(208) p.116\11-3/4

No revisions necessary. The subject section is consistent with the scope of work of the study. Little is known regarding the Alhambra Wash fault, and it was out of scope to do a detailed evaluation of the fault. The information provided is based on the current standard of practice and included review of relevant documents

regarding the fault. Details have not been included to keep the report simple, in accordance with the request by TAC and SC.

(209) p.117\11-4/2

The unnamed fault has been labeled in Zones 2 and 3. The subject section is consistent with the scope of work of the study. The referenced area is described in the report and on the map as "structural bedrock discontinuity." Little is known regarding the "structural bedrock discontinuity," and it was out of scope to perform a detailed evaluation of the discontinuity.

(210) p.118\11-5/3 and p.119\11-6/2

No revisions necessary. The subject section is consistent with the scope of work of the study. The section is written in general terms, conveying the amount of contamination in this portion of Zone 5.

(211) p.119\11-6/4

No revisions necessary. The subject section is written in accordance to the Alquist-Priolo Earthquake Fault Zoning Act. The statement is consistent with the scope of work of the study. All areas delineated by the state as Alquist-Priolo Earthquake Fault Zones are subject to the associated Act.

(212) p.126\12-5/1

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(213) p.126\12-5/2

No revisions necessary. The referenced documents did not indicate the presence of cobbles or boulders.

(214) p.128\1 12.1.3

The study team disagrees with these comments; no revisions necessary. We are aware that the size difference plays a role in the comparison; however, we wanted to point out that there are things we can learn from the case history of the MTA Red Line project in terms of similar geologic conditions, etc.

(215) p.128\1 12.1.3

The study team disagrees with these comments; no revisions necessary. The report is not stating that naturally occurring gas is expected because it was encountered in the Red Line excavation. Rather, the MTA Red Line was a project in which gas and contamination were challenges that were mitigated.

(216) p.139\3 12.4

No revisions necessary. A ventilation or traffic study is not within the scope of this study. This specific section is provided to compare some of the elements of a road tunnel with tunnels that may have different final uses.

(217) p.140\13-1

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(218) p.140\13-1/3

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(219) p.140\13-1/6

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(220) p.114\13-1/6- -2/1 and p.142\13-2/2

The study team disagrees with these comments; no revisions necessary. The subject statements are consistent with the scope of work of the study.

(221) p.141\13-2/2

The study team disagrees with these comments; no revisions necessary. The subject statements are consistent with the scope of work of the study. The statement is based on the geologic conditions generalized for the zones; alignments and portals are not known.

(222) p.141\13-2/3

The study team disagrees with these comments; no revisions necessary. The subject statements are consistent with the scope of work of the study. These conditions are not unique to the study area and have been addressed successfully in the past.

(223) p.141\13-2/4

The study team disagrees with these comments; no revisions necessary. The subject statements, as well as the overall faulting and seismicity sections of the report, are consistent with the scope of work of the study.

(224) p.141\13-2/4 /5

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. Fault information provided is based on the current standard of practice and included review of relevant documents regarding the faults provided by government agencies.

(225) p.141\13-2/7 /9 /8

The subject statements have been revised accordingly and are consistent with the scope of work of the study. Potential tunnel routes have not been established.

(226) p.141\13-2/7

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. The discussion of contaminated sites is based on our review of published documents, which are listed in Section 16.

(227) p.142\13-3/1

No revisions necessary. The subject section is consistent with the scope of work of the study. See response to Comment 7.

(228) p.142\13-3/4

No revisions necessary. The subject section is consistent with the scope of work of the study. Examples of feasible tunneling option are provided, but a comprehensive review of feasible options was not part of the scope of this study.

(229) p.142\13-3/5

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(230) p.142\13-3/6 and p.143\13-4/2

The subject statements have been revised accordingly. The statement is presented as a general guide to be considered during potential future phases of the project.

(231) p.143\13-4/3-5

The study team disagrees with these comments. The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(232) p.143\13-4/4

The subject statements have been revised accordingly and are consistent with the scope of work of the study.

(233) Appendix A

The boring logs have been revised accordingly and are consistent with the scope of work of the study. Also, see response to Comments 7 and 12.

(234) p.3\A1-1/3 /4

The samples were logged according to the material types and features observed in the field. Also, see response to Comment 12.

(235) p.4+5-16\1-12, p.4\a1-2/, p. 5-1\12, p.16\12/12

The subject log has been revised accordingly. This boring was drilled at an angle of 60 degrees from horizontal. As such, elevations had to be modified accordingly versus the depth of the borehole.

(236) p.5\1/12

The subject log has been revised accordingly.

(237) p.3-4\A.1 p.A1-1, -2/Report+Table A-1, p.5-16\1-12/12

VOC readings inadvertently were not measured at this boring.

(238) p.16\1-12/12

The subject log has been revised accordingly

(239) p.5-14\1-10/12

No response necessary; the samples were logged according to the material types and features observed in the field.

(240) p.17-27\1-11/11, p.17\1/11, P.23\7/11

The subject log has been revised accordingly.

(241) p.18-19\2-3/11

See response to Comment 7, as well as revised Section 3 and Appendix A.

(242) p.17-27\1-11/11

The samples were logged according to the material types and features observed in the field.

(243) p.28-39\1-12/12

The subject log has been revised accordingly. The samples were logged according to the material types and features observed in the field. The RQD note is valid for all soft rock encountered during the study; see response to Comment 12.

(244) p.28-39\1-12/12

No revisions necessary; see response to Comment 7.

(245) p.30\3-12/12

The subject log has been revised accordingly. The samples were logged according to the material types and features observed in the field.

(246) p.40-57\1-18/18

No revisions necessary; see response to Comment 7.

(247) p.58-71\1-14/14

No revisions necessary; see response to Comment 7.

(248) p.276-285\1-10/10

No revisions necessary; see response to Comment 7.

(249) p.278\3/10, 279-285\4-10/10

No revisions necessary, the Fernando Formation Siltstone Member is a very fine-grained sedimentary unit. Just because a unit is mapped as a siltstone (i.e., Tfsl) does not mean that the unit can vary locally to a claystone.

(250) p.2\B-1/1

No revision necessary; the piezometers were placed in the vicinity of the anticipated tunnel. Obviously a tunnel would not have a consistent depth bgs in areas with variable topography, such as the study area.

(251) p.2\B-1/1

The subject statement has been revised accordingly.

(252) p.2\B-1/Table B-1 and Footnote

See response to Comment 250.

(253) 3\B-2\Fig. B-1

See response to Comment 250.

(254) p.33\C.2/Table 5

No response necessary. The groundwater depth was estimated using downhole geophysical and MASW data.

(255) p.10\C1-8/4

No revision necessary. These tasks will be conducted during potential future phases as the project proceeds.

(256) p.35 Table 3

No revision necessary. These discrepancies are typical as the downhole equipment could not be lowered to the total depth of the borings drilled because of sloughing or caving after casing removal.

(257) p.2\C2-1/Table C-1

No revision necessary. All of the data were reviewed in preparation of the report. Per the request of TAC and SC, the report was written with a less technical approach; thus, some of these details were omitted from the report. The seismic lines conducted for "subsurface evaluation" were conducted for just that, a general subsurface evaluation.

(258) p.6\1/1, /2

The study team disagrees with these comments; no revisions necessary. See response to Comment 257. Numerous faults were identified on the surveys and are discussed in the report. The surveys were "strategically" placed along areas where faulting or anomalous geologic conditions were suspected. The surveys were used as a tool to aid in interpreting the subsurface geology of the study area.

(259) p.13\8/3

No revisions necessary. See response to Comments 257 and 258.

(260) p.13\8/4

No revisions necessary. See response to Comments 257 and 258.

(261) p.14\9/5, p.15\10/2, p. 15\10/5-15\11/1

No revisions necessary. The subject section is consistent with the scope of work of the study. See response to Comments 257 and 258. Locating subsurface features using geophysical techniques is rarely conclusive when used as the sole source of information. These surveys were used as a tool to aid in interpreting the subsurface geology of the study area.

(262) p.35\C.1/Figure 1, Tables C-1 and C-11

No revisions necessary. The subject sections are consistent with the scope of work of the study. These surveys were used as a tool to aid in interpreting the subsurface geology of the study area.

(263) p.33\C.2/Table 5

No revisions necessary. See response to Comments 254, 257, and 258.

(264) p.9\1/1, p.24\16/1

No revisions necessary. The subject section is consistent with the scope of work of the study. Also, see response to Comment 257.

(265) p.23c-3,15/3

The study team disagrees with these comments; no revisions necessary. The subject section is consistent with the scope of work of the study. The data gathered from these surveys were used in conjunction with the other seismic surveys and subsequently used during the analysis and interpretation processes for the study zones.

(266) p.24\16/4

No revisions necessary. The subject statement is consistent with the scope of work of the study. These surveys were done to confirm that bedrock is over 400 feet bgs.

State of California Department of Transportation,
SR-710 Tunnel Technical Study,
3412 North Eastern Avenue
Los Angeles, CA 90032
Subject: SR-710 North Extension Tunnel,
Tunnel Technical Study
Re: Geotechnical Summary Study Report, Comments

Dear Dept of Transportation: March 10, 2010

For more than 20 years, Communities Against the 710 have monitored Caltrans activities for the 710. During the last three years, we have monitored efforts of Caltrans and Metro to fill the Gap. The above study appears to be just one more examples of a fundamental approach, get something through El Sereno, South Pasadena, and Pasadena no matter what others or the facts say. We have participated in the numerous committee meetings, presentations, and discussions in hope that Caltrans and Metro's approaches would become "route neutral", but they don't appear to have change as reflected in this very important study and Report. We have tracked the changing scope, the original of which has not been seen, from a wide ranging feasibility study to a narrowly defined geotechnical study. But then Caltrans issued Task Order 5 without review by the Technical Advisory and Steering Committees and expected to issue a "feasibility study" without the considerations of the Committees or participation of the public, fortunately Caltrans has supposedly withdrawn the Task Order 5.

We understand that moneys are still available because the original defined scope of work was not completed and some federal and regional funding may still exist as the originally funded scope was not completed.

When the Report was issued, we had hoped that sound thorough research and technical evaluations would be presented but they weren't. Caltrans added new different "screening parameters" and clearly distorted reviews and comparisons to favor "Zone 3" and that tunneling was feasible anywhere and anytime, as long as money was available without regard to compliance with the original Federal funded scope of work.

The Study Report tells us that tunneling can do anything/aytime/any-place but the least worst Zone is Zone 3, the old Meridian Route, and the Report therefore destroys Caltrans' myth of "route neutral". The Report does not deal with seismic shaking and earth-wave movements and their impacts on drivers, accidents, fires, and deaths that may occur inside the tunnel during a large seismic event, and how this differs in each zone. We had hoped for a more fact-based evaluation with responsible use of the results of the investigations rather than appeal to well-worn paths backed to the "Meridian Route" through Zone 3.

The Study and Report are shams and utter distortions of "feasibility", "sound research", and "route neutral", a continuation of Caltrans' and now Metro's shell-game of presenting the Report as proof of total feasibility of tunneling. After the wasting of money, our time, and our officials' efforts and expense, we still ask: "Where is our complete feasibility study?" The current report is not it.

The Study and Report did do one thing; the Report clearly shows that the Zone 2 is a valid alternative to Zone 3. The residents of Northeast LA have now joined with the Communities of the "Meridian Route" to neutralize the Study, the Report, and the Project.

As indicated in the attached comments, the Report is not based on the Study and thereby is seriously flawed, is not "route neutral" nor "portal neutral", and clearly is bias in favor of Zone 3, the "Meridian Route". We have attached more detailed comments and expect this letter and attached comments shall be incorporated into Final Geotechnical Summary Study Report and shall be recirculation.

We are now considering further actions regarding compliance and changes made to the scope and the basis of funding for the entire study as reflected in the Draft Report.

Sincerely,

C. J. Williams

Attach.

cc: Various Federal, State, Regional, and Municipal representatives and agencies

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CALTRANS
SR-710 NORTH EXTENSION - TUNNEL
TECHNICAL STUDY REPORT – Draft
GEOTECHNICAL INVESTIGATIONS
COMMENTS – Unit 1 of 3

COMMENT FORMAT

Text from referenced documents, volumes, and sections have been copied from the Study Report and are placed in the comments as "…" as needed; **bolded** portions of text highlight particular phrases or issues for which comments are provided or focused on.

In addition, pdf-[report-] pages and paragraphs are given (p.14/2) along with section' headings for connections with the Study Report.

All statements and phrases in ITALICS are also comments of the reviewers without presence in the text.

Abbreviations are used in comments to reduce volume only and are based on the following:

- *Huntington Drive –* *HtD*
- *Alhambra Ave. (LA) –* *AhA (Not Alhambra Road)*
- *Mission Road (LA and Alhambra) –* *MRLA and MRA*
- *Multi-Mode(any level of funding) –* *MM*
- *Multi-Mode/Low Build (<10% of Project costs)–* *MM`/LB*
- *Executive Summary –* *ExS*
- *Appendix, Appendices –* *Apdx*

COMMENT NUMBER

SUMMARY CONTENT COMMENTS

1 *The entire Report is bias in comparisons of Zones 1-3 vs 4-5 and Zone 3 vs Zones 1-2 and comparisons are not based on factual evidence found during the investigations of the project.*

2 *Information from the borings and surveys are not developed and compiled for establishing the presence/absence of fault planes/gouges, gassy grounds, and groundwater conditions at the tunnel levels of >100ft below surfaces equitably among all zones.*

3 *Total absence of borings and seismic reflection, and surface wave surveys in hill areas of Mt Washington, Debs Park, Ascot Hill, Monterey Hills, Montecito Heights, and Elephant Hill which would normally provide better tunneling conditions and shorter portal/viaduct systems than those anticipated in several places (Zones 1-Northern and Zone 2-Southern) in the Report. Bias for routing is also focused on tunneling through alluvium rather than under hills, which would not be preferred alignments for conventional tunneling through Zones 1-3.*

4 *Several borings are not within the designated Zones' boundaries, and the Zone1B9, the pivotal borehole for the southern portal area lies in Zone 3 boundaries, not Zone 1; furthermore this borehole lies within the El Sereno District, City of Los Angeles, and not in Alhambra as indicated in the Report and previous presentations.*

5 *No acquisition and compilation of micro-seismicity were attempted for all zones to confirm levels of activities and for active/potential active/inactive faults and potential active of many faults identified within the boring logs but not related to the surface fault traces.*

6 *Gases (methane-a non-VOC, VOCs, and hydrogen sulfide) were not an original of pre-January 2009 scopes, but sporadic VOC monitoring has been included erratically in borings. No protocol was provided as to how and when the gases were monitored, and qualifications for such a monitor are specified by the*

California Consumer Affairs. These gas monitoring levels were not referenced nor included in discussion of "gassy" conditions and grounds; gas potential is focused on the Puente formation although gas levels were detected in virtually every formation and alluvium.

7 *Preparers apparently do not understand that the naturally occurring ground gases generally are not VOCs, methane is not a VOC, and H2S is not an organic gas. Also monitoring for ppm levels, all below 100ppm in the boring logs does not equate to Lower Explosive Limits (=4.5% methane = 45,000ppm; 10%LEL = 4500ppm; 100ppm = <0.2%LEL).*

8 *Hazardous materials were not included as a separate screening parameter during previous committee meetings and have not been monitored, sampled, or tested in boring or in relationship to groundwater below 100ft bgs.*

9 *Discussions of groundwater do not reflect incompressibility of water and saturation of bedrock can be done without being a productive aquifer and that compressible gases can easily influence several occurrences of expansive samples (RQD>95%). Permeability and porosity (25+% water content =fully saturation) are confused*

Definitions and Usage (p.15-17)

10 ***Fernando, Puente, and Topanga*** *Formations and Members are not consistently distinguishable based on their definitions and their physical characteristics, especially in borehole samples and logs:*

Bedrock generally consisting of layers or beds of claystone and siltstone.
Bedrock generally consisting of layers or beds of sandstones, siltstones, diatomaceous siltstones, and/or mudstones.
Bedrock generally consisting of ***[layers or beds of]*** conglomerate, sandstone, and siltstone.

Members appear to vary widely but have not been used to distinguish physical and test characteristics such permeability, storage capacity (=porosity), etc. and to evaluate or compare the feasibility of tunneling through sandstone rather than mud-, silt- or claystone or shale

11 ***Fault, Fracture, Joint, and Shear***
Definitions depend on "significant" or "insignificant" movement along the features which are not provided either for the logs or for the text. Clear and consistent definitions and usage are required for these terms between different geologists during the borehole logging and between the logs and the texts.

12 *The importance and usefulness of* ***"sound cores", RQD*** *without sound cores, supra-RQD >90% values, and the basis for using of RQD at all throughout the borings have not been provided. If it should not be used, why record it and take the sample for its calculation.*

Clear and consistent definitions and usage are required for these terms between different geologists during the borehole logging and between the logs and the texts. At least one log lacks the disclaimer.

13 ***"Fat clay"*** *requires clear and consistent definitions and usage between different logs and the texts; some discussion of its importance for tunneling and portal excavation would clarify.*

14 *p.15 Groundwater Table (perched or otherwise) is not defined; no definition is given for "Aquiclude" and Aquifer* - A permeable formation that stores and transmits groundwater in sufficient quantity to supply wells and **Aquitards** - Semipervious layer above or below an aquifer
All three terms depend on definitive quantification which is not given and presence of wells.

15 **p.15** "**Geologic structure.** Geometric relationship of bedrock formations, faults, folds, and fractures.
p.17 Stratigraphy. Science of the description, correlation, and classification of strata including the interpretation of the depositional environments of those strata.
No parallel definition of structure or structural geology is provided; text indicates a section for Structure and includes folding and faulting, but then Faulting is discussed as a separate section from Structure.

16 *p.16* **"Seismicity.** World-wide or local distribution of earthquakes in space and time; a general term for the number of earthquakes in a unit of time [in an area]."
"Micro-Seismic Events (1-4$M_{w/l}$) are not discussed within the text and were not included in the investigations; such events are important is locating or confirming "faults" and would be readily available within the LA Region.

Executive Summary

17 **p.18\ES-1/1** *Indicate that the extension is designated as SR-710 North Extension and eliminate reference to I-710, except for referring to portions south of I-10.*

18 **p.18\ES-1/1** Discussion of the "intent…alleviate traffic congestion within the area…" and "intent…is…benefit of improving air quality.."
Such a statement is subject to consideration debate and should be removed. As this is the geotechnical study report, any discussion of traffic and what the project may or may not do is premature and not based on factual information.

19 **p.18\ES-1/2** *"*Purpose*" refers to various geologic, groundwater and seismic conditions, but does not refer to* "hazardous materials" *nor* "gassy" *conditions which have been elevated to equal value in comparisons but have not been documented in the borings and related analyses.*
All information should be focused on what will establish the technical feasibility and requirements for a conventional tunnel and tunneling system and provide an indication as to what "special" design and construction methods should be required to deal with the "special" conditions encountered in each zone.

p.18\ES-1/2 "Purpose" *also includes* "…provide a basis for a comparison of the geological conditions with respect to tunneling design and construction."
This summary does not provide "Factors" derived from the Study "basis" which are relevant to design/construction of portals/tunnels. Provide a summary table based on standardized conventional tunnel and portal design and construction systems from which other modifications or specialization would be required, presumably additions and not deletions.

20 **p.18\ES-1/3** General tunnel design parameters are provided: Bottom of tunnel, assumed TBM bored tunnel – 200ft bgl (below ground level) and Diameter of tunnel, assumed outside diameter shield diameter – 50ft, and thereby top of the bored tunnel would be approximately 150ft bgl.
As the report refers to conditions which may affect the construction of the portals, both north and south, similar basic parameters should be included: example, Construction Method: Cut and Cover; Length:7000ft x Width:200ft max. x Depth:0-200ft bgs, max.

21 **p.19\ES-2/2** *No references are made to LA City departments involvement, although many existing information sources are incorporated into the references. Revise summary and appropriate sections/subsections.*

22 **p.19\ES-2/2** *No reference to section with "lineation analysis". Revise summary and appropriate sections/subsections.*

23 **p.19\ES-2/2** *No reference is made to any surface mapping of exposed bedrock. In public hearings, consultants and Caltrans stated that they would include surface geological surveys. No evidence of any such surface investigations has been provided within the Study Report. Revise summary and appropriate sections/subsections.*

24 **p.19\ES-2/3** *Field investigation mentions "geological reconnaissance". Did investigations and/or reconnaissance include mapping of available surface geology (e.g., Mission, south of Broadway, Ave 50/El Paso, east side of CSULA, Huntington east of Collis, etc.)? Revise summary and appropriate sections/subsections.*

25 **p.20\ES-3/1** *Measured piezometers are not identified on drawings and are not indicated as being monitored for waters and/or gas. Groundwater notations were shown on some drawings and boring logs and at the conclusion of each boring log. Unfortunately the basic boring log notations are not consistent with/differ from those in related compilation tables and the summary volume (1). Clearly indicate peizometers and those read. Review and revise summary and appropriate sections/subsections consistent with the foundation results of the Boring Logs.*

26 **p.22\ES-5/1** "The underlying rock formations contain groundwater but are not **aquifers**."
The statement is not documented through the investigation results and not based on any references. The statement is incorrect and should be corrected to indicate that "no rock aquifer is exploited for potable water" or provide a different definition of aquifer. Remove "comment/interpretation" and revise summary and appropriate sections/subsections

27 **p.22\ES-5/1** "Impact to groundwater **should** be **kept minimal** during tunnel construction and operation."
Terms are meaningless or without definition and support within the report or study. How do you "keep" and why? How much is minimal? Should or Shall? Document or remove. Revise summary and appropriate sections/subsections.

28 **p.22\ES-5/1** "Tunnel construction technology **should** be **selected** so that there will be **minimal impact** to groundwater resources."
Terms are meaningless or without definition and support within the report or study. Should or Shall? How do you "select" and why? How much is minimal? What are the impacts? Document or remove. Revise summary and appropriate sections/subsections.

29 **p.22\ES-5/3** "The ISAs and the **limited** ESA **identified several** sites within the five study zones that have soil and groundwater **contamination issues** (see Figure 6-1)."
Terms are meaningless or without definition and support within the report or study. What is limited in an ESA? How many sites = "several"? How do you define "identified"? How much is "contamination"? Define "issues"? Document or remove. Revise summary and appropriate sections/subsections.

30 **p.22\ES-5/5** "**Most** of the groundwater contamination is due to **chlorinated** volatile organic compounds (VOCs) that are the result of **past industrial activities** in the **area**.
Terms are meaningless or without definition and support within the report or study. "Most" in probably not correct and overly emphasizes Zones 1, 4, and 5; no information is included in relevant sections to support the generalization. Terminology and abbreviations inconsistent; VOCs refers to ALL hydrocarbons, chlorinated or not, and for chlorinated ones use – ChVOCs. VOCs are also tested in the Boring Logs; Are these chlorinated or not? Past industrial activities and area are not defined any where; statements should focus on "Zones" not areas and land uses rather than a mix of industrial and activities. Document or remove. Revise summary and appropriate sections/subsections.

31 **p.22\ES-5/5** "Therefore, the **potential** of **encountering** the contaminated groundwater **should** be considered in tunnel design, and contamination containment should be part of the construction method."
Construction methods influencing the area extent of contaminated waters and mitigation measures are important, but contaminated soil is also, and may be more of, a problem than groundwater for the tunnel and portal methods but is not mentioned. Terms are meaningless or without definition and support within the report or study. How do you "keep" and why? How much is minimal? Should or Shall? Document or remove. Revise summary and appropriate sections/subsections.

32 **p.22\ES-5/6** "...**a large number** of **small** soil and groundwater contamination sites are identified in each zone."
Terms are meaningless or without definition and support within the report or study. "A Large Number" and "small" are open to wide interpretation, a maximum number and/or maximum area of X and/or Y should be used. Revise summary and appropriate sections/subsections.

33 **p.23\ES-6/1 Item 4** "The ***rock mass*** is not **expected** to transmit **large** quantities of groundwater into the tunnel, except for possibly beneath the Los Angeles River."
Terms are meaningless or without definition and support within the report or study. "Rock Mass" (=bedrock??) by definition of ROCK would specifically exclude alluvium and soil. "Expected" and "Large Quantities" are open to wide interpretations, a numerical assessment and maximum should be used with reference to rock and/or "bedrock". Revise summary and appropriate sections/subsections.

34 **p.23\ES-6/1 Item 7** "There is a **relatively high potential** of **encountering** naturally occurring gas (methane and/or hydrogen sulfide) in this zone."

Terms are meaningless or without definition and support within the report or study. "Relatively", "High", "Potential", and "Encountering" are open to wide interpretations, numerical assessments and maxima should be used with reference to gases. Document or remove. Revise summary and appropriate sections/subsections.

Some borings or samples were inconsistently tested for VOC gas, which would not relate to "methane" which is not considered as a VOC

"Relatively High Potential" is not supported by the borings and inconsistent and undocumented, uncontrolled measurements of "VOC" gases only and at less than 100ppm, <0.5% of LEL. Monitoring protocol for monitoring are not provided anywhere.

Diorites are also monitored in borings and found to contain "VOC" gases. Does this mean that diorites are "gassy"? Highest median gas levels occur in boring Z4/B4, primarily alluvium. Document or remove; revise summary and appropriate sections/subsections.

Revise summary and appropriate sections/subsections.

35 **p.23\ES-6/2 Item 1 "Locally**, alluvium (or soil) is **expected near the portals**."

Terms are meaningless or without definition and support within the report or study. These terms, "Locally", "expected", and "near", are so generalized as to be useless. Like the tunnels, specialized construction methods are available for excavation and construction of portals.

"Near the Portals" presumes that the writer knows where the Portals are going to be located, their size, and depths which would clearly counter the approach of "Route Neutral" along with "Portal Neutral".

Statements regarding locations of tunnels and portals demonstrate bias and non-objective considerations in the conduct of the study. Document or remove. Revise summary and appropriate sections/subsections.

Revise statements appropriately and either use numerical values or eliminate as appropriate.

36 **p.23\ES6-1, Item 4** "**High** groundwater inflows are also **expected** in the **saturated** alluvium **at the portal areas**."

Terms are meaningless or without definition and support within the report or study. These terms, "High", "expected", and "near", are so generalized as to be useless. Like the tunnels, specialized construction methods are available for excavation and construction of portals.

"Near the Portals" presumes that the writer knows where the Portals are going to be located, their size, and depths which would clearly counter the approach of "Route Neutral" along with "Portal Neutral". Statements regarding locations of tunnels and portals demonstrate bias and non-objective considerations in the conduct of the study. Document or remove. Revise summary and appropriate sections/subsections.

37 **p.24\ES-7/1 Item 1** ZONE 2

"• Rock is **generally slightly** to **moderately** fractured. **Several** inactive faults will be **encountered** in this zone (Plate 1).

Terms are meaningless or without definition and support within the report or study. These terms, "generally", "slightly", "moderately", "fractured", "several", and "inactive" are so generalized as to be useless.

Revise statements appropriately and either use numerical values or eliminate as appropriate.

38 **p.24\ES-7/1 Item 1** "The active Raymond fault crosses the zone at the **northwestern end** and **could be encountered within the portal area** and/or the **approach excavation** for the tunnel."

Terms are meaningless or without definition and support within the report or study. These terms, "could" [either will or won't??] and "encountered" are so generalized as to be useless.

The Raymond does not cross the entire northwest end of Zone 2, only the northerly side which would most likely not be the preferred most practical alignment which would be expected to reach the surface from the northwest end of Mt.Washington, south of Verdugo-Ave.50/Verdugo intersection.

Clarify "approach excavation". Is this the starter shaft, remembering that the bored tunnel level will be 150-200ft below ground surface (BGS; road grade level of about 180ft.)? No one would excavate a 3000ft long ramp only to get the TBM down to the tunneling levels, 150-200ft, rather than a 300-500ft long 100ft wide shaft.

Statements regarding locations of tunnels and portals demonstrate bias and non-objective considerations in the conduct of the study.

Document or remove. Revise summary and appropriate sections/subsections.

39 **p.24\ES-7/1 Item 3** ZONE 2 "**Some minor** soil and groundwater contamination, associated with two gas stations, **could** result in hazardous materials being encountered in the **portal and tunnel approach excavations**."

No quantification of "some" or "minor" contamination is provided and no factual information has been established that the contamination is present in any boring much less at the anticipated tunnel level of 150-200ft bgs.

Revise this and any other statement regarding the presence or potential presence of contaminated soils or groundwater. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

Statements regarding locations of tunnels and portals demonstrate bias and non-objective considerations in the conduct of the study. Document or remove. Revise summary and appropriate sections/subsections.

40 **p.24\ES-7/1 Item 3** "• Groundwater is **shallow...**(approximately 20 feet below grade), but **it is believed to be ponded** on top of bedrock. The rock mass **generally has low permeability**, and therefore is **not expected to transmit large** quantities of groundwater into the tunnel except for **possibly in the saturated alluvium** of the **portal areas**."

Terms are meaningless or without definition and support within the report or study. These terms, "shallow"[other statements say 20-50ft as being shallow"], "believed", "ponded", "generally", "low" permeability" [10^{-5}, 10^{-6}, 10^{-7}, 10^{-8} cm/sec??], "not expected", "possibly", and "saturated" are so generalized as to be useless.

"Ponded" is inappropriate and should be replaced by "perched", the more commonly understood term for the undemonstrated presence of groundwater lying above the regionally identified groundwater table, if there is one.

Statements regarding locations of tunnels and portals demonstrate bias and non-objective considerations in the conduct of the study. Document or remove. Revise summary and appropriate sections/subsections.

41 **p.24\ES-7/1 Item 6** "• There is a **relatively high potential** of **encountering** naturally occurring gas (**methane** and/or hydrogen sulfide)..."

Terms are meaningless or without definition and support within the report or study. These terms, "relatively" "high potential", and "encountering" are so generalized as to be useless. No measurements were made for hydrogen sulfide and erratic monitoring was conducted for undefined VOCs, which does not include methane.

Although this relationship is mentioned in many pages, the investigation of gases is totally incomplete with regard to any factual presence (measurements) of hydrogen sulfide (H2S) in any boring and erratic monitoring of very low levels of volatile organic compounds (maximum of 0.0 to <100ppm).

Revise this and any other statement regarding presence/potential presence of such gases and use numerical values or eliminate as appropriate. Relate summary and other statements to factual information gathered by the geotechnical investigations, not conjectures.

42 **p.24\ES-7/2 Item 1-2** ZONE 3• "Subsurface conditions...and strong **granitic** basement rocks (diorite or quartz diorite)."

"• Rock strength varies widely...to the higher strength **granitic** rocks."

"Borings and the general igneous rocks...are not identified as **granites or granitic**..."

Diorites are not the same as granites and references to granite are erroneous. All references to granites or granitic should be removed or substantiated.

43 **p.24\ES-7/2 Item 3** ZONE 3 "• The Raymond fault and San Rafael fault are groundwater **barriers**. Depth to groundwater varies from as shallow as 50 feet bgs **near** the Raymond fault to more than 100 feet in both the northern and the southern parts of the zone...Rock formations are **not expected** to transmit large quantities of groundwater into the tunnel...ground inflows are **expected** when tunneling in the **saturated alluvium**.

In some discussions of faults, the zone is considered as more permeable while in this and others reference is made to barriers or impermeable zones.

No information is provide regarding barrier effects of faults, and many fault zones are actually the sources of surface springs and other evidences of groundwater flows and presence of aquifers.

Revise this and any other statement regarding the presence or potential presence of groundwater aquifers and groundwater movement. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

44 **p.25\ES-8/1/Item 3** Zone 3 "Two sites with **minor soil** contamination are located at the northern limits of this zone and could impact the project **depending on the actual portal location**.

No quantification of "minor" contamination is provided; no reference to groundwater contamination is proceed and therefore should the absence of reference indicated a more favorable condition compared to that of Zone 2 (?); and no factual information has been established that contamination is present in boring much less at the anticipated tunnel level of 150-200ft bgs.

Revise this and any other statement regarding the presence or potential presence of contaminated soils? And perhaps groundwater? Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

Statements regarding locations of tunnels and portals demonstrate bias and non-objective considerations in the conduct of the study. Document or remove. Revise summary and appropriate sections/subsections.

45 **p.27\ES-10/2** Title of section – "**Geotechnical Considerations for Tunnel Design and Construction** but altered in subsequent text as "...interpreted relative to the **design of construction** of tunnels with each of the zones."

Clarify and define "designs" for tunnels and construction of tunnels (=?tunneling machines?)

No consideration is given as to interpretations, evaluations, and comparisons as to the geotechnical conditions and types of tunneling machines, starting with conventional and then more complicated rotating open, and rotating closed face shields..

Revise this and any other statement regarding design/construction of tunneling methods, tunnels, and portals and their optimal ground conditions. Relate summary and other statements to factual information gathered by Geotechnical Study investigations, no conjectures.

46 **p.27-28\ES-10 - 11** *Section groups the Zones 1 and 2, 4 and 5, and 3 separately without parallel development as in preceding sections; this is inappropriate in a "Route Neutral" consideration, interpretation, or comparison.*

Revise this and any other statement regarding separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

47 **p.27-28\ES-10 - 11** *Section does not indicate that tunneling includes a wide range of machines and their differences in costs, delivery schedules, setup/knock-down times, risks of malfunctions, etc. for at least four groups, as example:*

Methods	***Most Appropriate Zones***
Mined-NATM/SEM	*1-3*
(No shield, one of the cheapest, practical alternative)	
Open-Face Digger Shields (e.g., MTA's Red Line tunneling methods)	*1-3*
(Conventional/Routine, second cheapest, practical alternative)	
Full-faced rotating Tunnel Boring Machines	*3*
Open to mostly enclosed face	
Closed Face Tunnel Boring Machines	*4-5*
Earth-Balanced and/or Slurry TBM, Most expensive	

This Section is incomplete and inadequate as it does not establish a "Conventional System" and then compared requirements for each zone to the conventional tunneling system, and without such the section inappropriate for "Route Neutral" considerations, interpretations, evaluations, or comparison. Methods should be separately discussed for each zone.

Revise this and any other statement and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

48 **p.27-28\ES-10 – 11 Geotechnical Considerations for Tunnel Design and Construction Geological Conditions**

p.27\ES-10/3 "Tunnel excavations…**considered** to be **routine** with **modern** tunneling equipment, …**uniformity** of geological…**simplify** construction planning…[BUT] **potential** impact of the **cemented** layers and concretions will **need** to be **addressed** in the **selection/design** of tunnel excavation equipment, which **might** reduce tunnel advance rates; however, tunnels have been successfully completed in the past in these formations."

Need definitions and clear and consistent applications throughout the Summary and subsequent Report sections for: Consider, Routine, Conventional, Modern, Uniformity, Simplify, Potential, Cemented, Needs, Address, Selection, and Might. OR their deletion and provide factual statements based on boring information and a conventional tunnel machine, design, and development as was done for tunnel depth (200ft) and diameter (50ft).

This is one of the best examples of BIAS regarding Zones 1 or 2 and 3.

Reference to the presence of "cemented layers and concretions" for Zone 2 without parallel comments on the presence of volcanic, cobbles/boulder, and diorite in Zone 3 demonstrates a clear attempt to raise suspicions and confusion regarding apparent more practical feasibility of Zone 2 compared to Zone 3.

Revise this and any other statement and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

49 **p.27\ES-10/4** *No discussion of volcanics or of major gravel-boulders and cobble units (both primarily Zone 3) is included and their adverse effects on various TBMs and their progress and delays. These are distinctive rock units with very different properties and usually identified as separate distinct members or could be considered as formations.*

Revise this and any other statement and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

50 **p.28\ES-11/1** "Although Zone 3 presents the **most varied lithology** of all the zones, excavation of a tunnel in this zone **could** be done with a **specialized machine suited** for **variable** geologic conditions or using a combination of excavation methods."

Need definitions and clear and consistent applications throughout the Summary and subsequent Report sections for: most, lithology, could, specialized, suited, varied, and variable.

As indicated above use of lithology rather than the formational names clearly opens the considerations , comparisons, and evaluations for shales vs sands, conglomerates/cobbles/boulder, volcanics vs diorites, and other similar lithologically distinctive units compared to use of Topanga, Puente, Fernando, etc.

Discussion for Zone 3 greatly simplifies construction/tunneling considerations and does not give consideration to the volcanic and granitic/dioritic rock units as was highlighted for Zones 1-2 cemented layers and concretions.

Revise this and any other statement and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

51 **p.28\ES-11/3-4** [Zones 4-5] "Surface excavations in alluvial soils **will be required for the tunnel portals** in Zones 1 through 5…"

Use of the definitive statement "will be required for tunnel portals" rather than "may be required" clearly show bias for routes within the Zones 1, 2, and 3; furthermore, the geology of the South Portal is most fill over bedrock.

Construction of SR710 for the western connection of the tunnels to the I-5/SR-2 Interchange or to the SR-2 Freeway at Verdugo/Eagle Rock could be done more practically via a portal on the bedrock flanks of Mt. Washington at existing freeway levels with connections by way of overhead viaduct structure to the freeways rather than trying to construct a portal in the alluvium and then having the roadway rise up to the existing freeway levels. Portal construction in the alluvium presumes a specific route through the alluvium rather than through the bedrock of ridges and hills within each Zone, and would clearly again show that the considerations are not "Route Neutral".

Review and revise the statement and make less restrictive and bias and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

52 **p.28\ES-11/3-4** "Although the **geology** of Zones 4 and 5 is not as **variable** as that of Zone 3, it is **not as uniform** as the **geology** of Zones 1 and 2."

The Report appears to confuse Geology, Lithology, and Formational names as in some places cemented layers, concretions, volcanics, conglomerates, sandstones, shales, etc. are mentioned while in others, uniformity of "formational name" (e.g., Wilson, Puente, Alluvium, Fernando, Topanga, etc.) are equated as being "geologically uniform".

Review and revise for consistent uses of formation, lithologies, or geology as the basis for comparisons of uniformity between the different zones and possible alignments within varied zones and remove the apparent bias uses for comparing Zone 2 and 3 specifically. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

53 **p.28-29\ES-11 - -12 Geotechnical Considerations for Tunnel Design and Construction**
Active and Inactive Faults

No discussion of seismicity, and especially micro-seismicity (>1R<4R)< depths, and proximities to epicenters and earthquake effects during construction and design considerations is provided.

No known active or inactive fault is indicated as being identified within the boring logs or through the various seismic surveys. No discussion of the boring logs' information is provided for this specific issue, although the logs' terminologies include: joints, fractures, shears, and faults.

No studies of available micro-seismic events is given so as to indicate a numeric classification for this study rather than classic formalistic surface delineations of "Active Faults".

Review and revise the statements and make less restrictive and bias and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

54 **p.28\ES-11/4** *Discussions of inactive faults de-emphasizes the importance of Active, Potentially Active, and Inactive to the Geotechnical Considerations and does not incorporate the actual observations in the boring logs. The Summary and Volume 1 do not relate reported presence of active or inactive faults with the fractures, joints, shears, and faults found in the boring logs and do not relate activity or inactivity to actual measured seismic events (e.g., 1-4R events).*

Review and revise the statement and make less restrictive and bias and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

55 **p.28\ES-11/6** "The active Raymond fault is **expected** to cross the **portal area in Zone 2** and to cross a potential tunnel in Zones 3 and 4. **Special** considerations **will need** to be made for excavating through a fault and lining a tunnel in an active fault zone."

The expectation is based on an assumption that the portal would be in the worst ground and surface conditions of the northerly northwestern "End" of Zone 2, when a more practical location is available in the southern portion of the End. The portal location of Zone 2 is referred to as actual "expected to cross", rather than a "potential tunnel". The expectation of coincidence of portal and the Raymond Fault indicates that an expected portal and therefore alignment exists on the part of the preparers of the report.

No discussion of Zone 5 is provided other than "inactive faults" in ALL zones

Statements regarding locations of tunnels and portals demonstrate bias and non-objective considerations in the conduct of the study. Document or remove. Revise summary and appropriate sections/subsections.

Review and revise the statement and make less restrictive and bias and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

56 **p.29\ES-12/2** Faults are named as: Raymond Hill, Alhambra Wash, Eagle Rock, San Rafael, and an unnamed faults or zones; *but none are identified within the factual information of boring logs and seismic surveys. Also none of the identified "faults" and "shears" in the boring logs are referenced in the texts of the relevant sections and subsections.*

Review and revise the statement and make less restrictive and bias and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

57 **p.29\ES-12/4 Naturally Occurring Gas** "Naturally occurring gas **could** be encountered in the Puente Formation in Zones 1 through 5. Although this was not confirmed in borings, tunneling experience in the vicinity of Zone 2 in the Puente Formation **suggests** that **gas could be present in the subsurface**."

No reference is made to the gas monitoring in borings and the FACT that VOC gases (not indicated as calibrated to methane which is not a Volatile Organic Compound, or other gases-VOCs such as ethane, benzene, etc.) were monitored and recorded in virtually any and all lithologies and formations within all zones.

No protocol or procedure is providing regarding the testing of VOC gases during the borings and recorded on the boring logs along with depths.

Review and revise the statement and make less restrictive and bias and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

58 **p.29\ES-12/4** "...gas **could** be encountered in the Puente Formation in Zones 1 through 5..."

Gas monitoring in the investigation documented that VOC-gas was present in almost all subsurface lithologies and geologic materials or formations (including Wilson Diorite), and therefore gases cannot be used to compare and screen zones. Gases were not found only in Puente formation and therefore presence or absence of Puente formation cannot be used for discrimination. No boring was made in Zone 5 and only one boring was documented in Zone 4.

Review and revise all sections, subsections, and discussions regarding ground gases, gassy ground, naturally occurring gases, methane, and/or hydrogen sulfide. Remove gases as any element for comparisons and evaluations of conditions in any zones and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

59 **p.29\ES-12/5 Other Tunnel Considerations**

"The **competent** sedimentary formations...need for **relatively modest** tunnel support requirements. Nevertheless, typically a full perimeter support system...is provided to control loss of ground, **particularly in developed urban** areas."

The Report's Summary and Section 1 do not define: "competent", "relatively", and "modest" [2in, 4in, 8in, 16in, etc.??]. Competent formations are not defined and not assigned to the various formations and samples provided in borings

The most consistent "competent" but not "hard" ground and least alluvium appears to be in Zone 2, especially the southerly half-arc of the zone (Mt. Washington Axis Alignment); such would support the referenced "conventional tunneling" or even NATM/SEM for Zone 2 and thereby feasible by most conventional tunneling method (no need for open/closed faced rotating shields).

"Loss of ground" and "groundwater inflow" are important issues for any tunnel construction not just particularly for urban area.

Review and revise the statement and make less restrictive and bias and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

60 **p.29\ES-12/5 Other Tunnel Considerations** "There is the **possibility** of **encountering squeezing [*expansive*]** conditions during excavation of a tunnel **within clayey fault gouge**. Special procedures **might be required** to advance the **TBM** shield through the clay gouge zone and provide permanent ground support."

Presumes facts not found in borings and lithologies and thereby are unfounded conjectures for non-objective considerations.

Use of a TBM (presumably closed, rotating face shield) is a non-objective assumption not shown to be required and not comparable to an open-face digger-shield.

Repetitive to other discussion regarding faults and relationships to Zones.

Review and revise the statement and make less restrictive and bias and incorporate the above with appropriate modifications for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

Expansive geological materials have been encountered and documented within boring samples (e.g., RQDs >100%), especially from depths of >100ft (hydrostatic head pressures of >20 psi).

Review borings regarding their RQD and values of >85% in weak rock and/or fault/shear/fracture gouge and develop and compare boring found in different zones regarding depths and expansive materials. Revise and modify related statements above with appropriately for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

61 **p.29\ES-12/6 "Key ground characteristics**...were compared between each zone and are summarized in Table ES-3...**13/1, Table ES-3** Comparison of Zones"

Percent of Zone under Superfund Sites:	5-10,	0,	0,	5-15, and	5-30.
Potential for Gassy Conditions:	H,	H,	M,	L,	L
Number of Reported/Mapped Faults:	0,	1,	3[b],	2,	1;

[b] "potentially active faults" (NW Portal)

Although identified as "Key" no calculation sheets or alignments were given to verify the designations. Designations are not based on investigation findings and no relationships are provided between the borings and this table.

Revise and modify related values and statements above with appropriately for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

62 **p.29\ES-12/5 Other** "This information provides a basis for **evaluating...**"

No definition is given for "evaluating". The "evaluating" information is not based on investigation findings, and relationships are not provided between the borings and this subsection or "information".

Revise and modify related statements above with appropriately for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

63 **p.30\ES-13/1** "This information **[Detailed Information]** provides a basis for **evaluating the geotechnical feasibility** of tunneling...Based on the information collected and reviewed as part of the current geotechnical study, **tunneling** is **geotechnically feasible in all five zones**."

Although various tunneling methods may be used for the wide array of geological conditions, a feasibility evaluation usually establishes a base construction methods case against which the conditions and methods can be compared and additions made to show how conditions may influence typical operations of conventional methods and require more specialized methods. No conventional methods are established, various ground parameters are elevated to evaluation levels although no consistent investigation of their presence/absence is provided in the Study Report or investigation program.

Similarly, the evaluations of conditions in the zones assumes that the zones are relatively consistent across the width of each zone, and the numerical summations are presumed to be applicable to each zone. Unfortunately the breadth of Zone 2 contains two very different profiled conditions through the northern half compared to the southerly half. Such differences would clearly indicate that the southerly half of Zone 2 would significantly improve the tunneling conditions for conventional methods and thereby the southerly portion of Zone 2 would categorically be "more feasible" than the others requiring more specialized methods through the more varied geological conditions.

Results of the entire investigation are not incorporated into the Study's "evaluation", such as gassy ground, "non-super-fund" contaminated sites, and seisimicity.

Review borings regarding their RQD and values of >85% in weak rock and fault/shear/fracture gouge and develop and compare boring found in different zones regarding depths and expansive materials. Revise and modify related statements above with appropriately for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures.

Review and revise all statements and numerical characterizations provided in Vol. 1, Sec. 13 and address comparisons with any practical alignment within each Zone. Clearly identify numerical conditions with summaries of actual boring information rather than general assumptions and comments which are not supported by the Study's investigation results, especially for gassy grounds, seismicity, groundwater, and hazardous materials.

64 **p.30\ES-13/1** "**Geotechnical feasibility** implies that it is **feasible** to construct a tunnel **in the geologic formations expected**, including the geotechnical conditions associated with these formations using currently available tunneling technologies."

Although various tunneling methods may be used for the wide array of geological conditions, a feasibility evaluation usually establishes a base construction methods case against which the conditions and methods can be compared and additions made to show how conditions may influence typical operations of conventional methods and require more specialized methods. No conventional methods are established, various ground parameters are elevated to evaluation levels although no consistent investigation of their presence/absence is provided in the Study Report or investigation program.

Similarly, the evaluations of conditions in the zones assume that the zones are relatively consistent across the width of each zone, and the numerical summations are presumed to be applicable to each zone. Unfortunately the breadth of Zone 2 contains two very different profiled conditions through the northern half compared to the southerly half. Such differences would clearly indicate that the southerly half of Zone 2 would significantly improve the tunneling conditions for conventional methods and thereby the southerly portion of Zone 2 would categorically be "more feasible" than the others requiring more specialized methods through the more varied geological conditions.

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Review and revise all statements and numerical characterizations provided in Vol. 1, Sec. 13 and address comparisons with any practical alignment within each Zone. Clearly identify numerical conditions with summaries of actual boring information rather than general assumptions and comments which are not supported by the Study's investigation results, especially for gassy grounds, seismicity, groundwater, and hazardous materials.

CALTRANS SR710 NORTH EXTENSION GEOTECHNICAL STUDY REPORT
SECTION 1 Introduction

65 **p.31\S1-1/1-4** *Clearly state that the extension is designated as SR-710 North Extension and eliminate reference to I-710 as being between I-10 (south) and I-210/SR134 (north).*

Review and revise as appropriate and consistent with terms used by MTA.

66 **p.31\S1-1/1** "...use the results of this study during future evaluations of the **technical**, operational, and financial **feasibility**...potential environmental study phase of the project."

The current draft does not provide adequate comparisons, evaluations, and considerations of the factual results of the investigation which have not been adequately reviewed, summarized, and compared. Similarly review of tunneling methods is totally inadequate to establish the typical, most practical, or conventional tunneling methods of open face with diggers and jumbos (NATM or SEM) and conventional open face shield tunneling with diggers or other simple excavators.

Review, compare, revise, and modify related statements appropriately for separate discussion of each zone. Relate summary and other statements to factual information gathered by the Geotechnical Study investigations, no conjectures or not supported by the investigation.

67 **p.31\S1-1/4** "...traffic coming off I-710 [sic] continues on **local** streets within the cities of Alhambra, South Pasadena, and Los Angeles causing **major traffic congestion**."

This statement discusses issues which are not a subject of tunneling or geotechnical conditions and is totally inappropriate for this Study Report; furthermore the statement fails to include the affected communities of the Study areas, especially Pasadena and those included in the committees.

Review, compare, revise, and modify related statements appropriately for separate discussion regarding any non-geotechnical ground conditions. Relate summary and other statements only to factual information gathered by the Geotechnical Study investigations, no conjectures or not supported by the investigation.

68 **p.32-33\S1/Fig.1-1 to 1-3**
Figure, texts, and committee memberships are not consistent, and document should be revised to be consistent with the full committee membership.
Review, compare, revise, and modify related statements.

69 **p.34\S1-4/4** "The study zones were selected by both Caltrans and CH2M HILL, after **evaluating available data** related to subsurface geology. The **limits of the study zones** are **defined** with consideration given to **anticipated subsurface geology**, based on the initial review of the subsurface conditions and on the project team's experience with the geology in the study area."
These statements are not consistent with meetings' minutes of Steering and Technical Advisory Communities which included submitted routes which were then generalized from those into at least three zones and others added for completeness. Initial boring program and seismic studies were different from those actually implemented, especially for Zones 1, 4, and 5.
NO consideration had been provided for contaminated soils and groundwater, especially at tunnel depths, and no screening parameters had been included regarding "gassy grounds" and "hazardous materials" during discussions in 2007-08.
Definition of Zone 2 includes two very different geological frameworks along the northerly and southerly portions of the Zone 2, so that the geological characters of Zone 2 differ markedly and cannot be consistently compared and evaluated.
Review and revise and recirculate draft Report.

70 **p.36\S1-6/2** "The exploration program…**major focus** has been to **characterize** the materials that would be **encountered** within these zones, such that the **results** can be used to **evaluate** any **given tunnel alignment** within the study area."
"The approach to selection of the exploration locations was to **obtain subsurface information to characterize various materials** that were anticipated within the assumed tunnel zone."
"Borings and/or geophysical testing were performed to **obtain the characteristics of the formations…developed to evaluate the subsurface conditions**…"
No definition of "major", "focus", "characterize", "encountered", "evaluate", and "given tunnel alignment" is provided nor consistently applied.
Volcanics are known within and expected in Zone 3 but were not encountered.
Explain absence of volcanics and then review/revise/re-circulate draft Report.

71 **p.35\S1-5/1-2** "Caltrans formed a Technical Advisory Committee (TAC) and Steering Committee (SC) for this project to provide ***guidance***, as needed." "The scope of work for the geotechnical study along with the study zones were ***agreed upon by both TAC and SC***…The final report is to be submitted to TAC and SC for their ***concurrence***."
p.35\S1-5/8 1.4 Scope of Work "Caltrans Geotechnical Services and CH2M HILL jointly developed the exploration program to **evaluate** the subsurface conditions."
Caltrans meeting minutes document that they provided the committees with an initial ten parameter array for a reasonable technical and financial feasibility for the SR-710 North Tunnel; then without consultation, Caltrans removed seven parameters and restricted future study to three parameters: geotechnical, seismic, and groundwater. Again, after the technical investigations were largely completed, Caltrans returned without consultation and submitted Task Order 5, largely the same scope as had been removed. Only because of an overall committees' opposition to the changes did Caltrans reluctantly delayed its implementation.
Therefore comments regarding Committees' "guidance", "agreement", and ""concurrence" should be revised to less important actions, "reviewed" and "commented" on Caltrans' actions..

72 **p.35\S1-5/6** "The purpose…**evaluate** the geologic, groundwater, and seismic conditions along the selected study zones to **determine** if it is **feasible to construct** a tunnel through these conditions…**enable comparison** of the key geological factors…geologic conditions, groundwater conditions, seismicity**, faulting, potential for contaminated soil or groundwater, and presence of naturally occurring gas** with respect to each of the tunnel study zones."
No consistent definition is provided for the terms indicated above.
No mention is made regarding "hazardous materials", only "contaminated" which is not equivalent.
Review, compare, revise, and modify related statements.

73 **p.35\S1-5/7** "Our understanding is that a **detailed** evaluation of the tunnel profile and tunnel configuration will be made during the **environmental documentation** phase in the future."

Caltrans' Task Order 5 proposed(/proposes) to undertake more detailed evaluation of at least one alignment for each Zone and all Task elements are those generally included in an "Initial Study" or an "Environmental Assessment".

As stratigraphic and structural geology, seisimicity, hazardous materials, gassy grounds, and groundwater are important parts of any environmental considerations, the Study Report now forms an initial element of any "environmental documentation" or environmental assessment phase.

Review and revise the statement to reflect the contents of Task Order 5 as Caltrans has not rescinded but only delayed implementation of the Task Order.

74 **p.S1-6/1** "The **team** also **evaluated existing information**...plan the exploration program for this study phase."

No consistent definition is provided for the terms indicated above. No discussion is provided regarding "evaluated".

Review, compare, revise, and modify related statements.

CALTRANS SR710 NORTH EXTENSION GEOTECHNICAL STUDY REPORT
SECTION 2 Data Collection and Review

75 *Section 2 does not provide any sources or discussion of seismicity, although the CalTech/Jet Propulsion seismic centers and professionals are readily available and occupy locations in Zone 3 and the affected communities.*

No reference is made to the considerable resources and data available regarding seismicity, lineation analyses, and surrounding geology of/in the Jet Propulsion Laboratory.

No discussion of reports with regard to gases and gassy grounds anywhere, much less their "unique" association with only the Puente formation.

Although the Report indicates various sources were considered and some documents were received from such sources, no indication exists to suggest that the faults, seismicity, and related tectonic data from the two major sources were solicited or delivered and reviewed.

Presence/absences of microseismicity [1-4R/M] locations and R/M intensities could have been used elsewhere to document faults, active, potentially active, inactive, and ancient, especially when related to the geotechnical and geophysical information provided from the investigations. Such comparisons and incorporation of the boring designations of faults, shears, gouge, and slickensides could have provide clear, objective, unbiased considerations for seismicity and faults and required design considerations for future feasibility studies, especially for any alignment through Zone 2.

Review and revise Section 2, acquire and incorporate seismicity information from the regional sources and centers, and establish where the faults, fractures, shears, and joints are located in relationship to the known or reported fault traces.

76 **p.S2-3/2-5 2.3 Fault Lineation Study** *Whittier College sources of aerial photos are not given in the p.S2-1 listing.*

As this was not part of the approved geotechnical scope and none concurrence was given by the TAC/SC, inclusion at this stage appears as an attempt to add information to influence evaluation/review, comparisons, and screening of ground information.

Lineation is not directly related to other seismic/fault information.

CALTRANS SR710 NORTH EXTENSION GEOTECHNICAL STUDY REPORT
SECTION 3 Field Investigation

77 **p.S3-1/2** "• **Potential** for naturally occurring **gas**;"
"• **Potential** for **contaminated** soil, rock, and/or groundwater"

Natural "VOC" gases were erratically monitored during the boring program, but investigation results are not presented in the Report and appear to be sufficiently widespread but at such low levels and without

adequate procedural and monitoring protocol as to render any consideration of gassy grounds to be worthless for evaluations and comparisons.

Similarly, absence of monitoring, sampling, and testing of boring samples for contamination renders any "potentials" arbitrary at best and misleading. Review, compare, revise, and modify related statements.

78 **p.S3-1/3** "• Seismic reflection testing to **identify** the **location and orientation** of **selected** active and inactive faults, the **contact** between alluvium and bedrock, and **depth** to groundwater."

No clear definition is provided for several terms and for the relationships to SRT surveys, which appear to have been unsuccessful to clearly demonstrate and fulfil their goals and purposes, why is/are it/they included in the first place. Review, compare, revise, and modify related statements.

79 **p.S3-1/3** "• The surface-wave seismic method to obtain **information** on depth of alluvium and the **dynamic characteristics** of the underlying material.

No clear definition is provided for several terms and for the relationships to SWS surveys, which appear to have been unsuccessful to clearly demonstrate and fulfil their goals and purposes, why is/are it/they included in the first place. Review, compare, revise, and modify related statements.

80 **p.S3-1/3 p.S3-2/1** **"Limited geologic reconnaissance**...conducted to **verify and refine** existing geological data...limited to areas with rock outcrops...**reconnaissance** consisted of **spot-checking** regional geologic maps available..."

No clear definition is provided for several terms and for the relationships to LGR surveys, which appear to not have been conducted and were not reported elsewhere in the Report. Review, compare, revise, and modify related statements.

81 **p.S3-4/1** "...RQD values should not be used to evaluate...**RQD values reported for hard rock in Zone 3 are valid for such analysis**....density of fracturing (reflected by different RQD percentages) in weak and **hard rock** may play a significant role in the **secondary permeability** of those materials and may directly influence the occurrence of groundwater and its flow."

No clear definition is provided for several terms and for the relationships to RQD, which if it is not appropriate to assess rock conditions, why is/are it/they included in the first place and what are the validities of all other rock tests and in situ testing for the non-"hard rock" materials. Review, compare, revise, and modify related statements.

82 **p.S3-6/2+7/1** "SR-710 Tunnel Technical Study"

The Title suggests a broader scope than included within the contents of this Report even if including gases and hazmats. Review, compare, revise, and modify related statements.

83 **p.S3-7/1** "These properties, in combination with the **rock mass properties** from in situ testing and logging, are used to **estimate** the **requirements for tunnel design and construction**.

No clear definition is provided for several terms and for the relationships of any in situ and boring log description conducted to tunnel designs, layouts, and construction which have not been defined at this time. No requirements have been defined based on the Investigations or the Report contents. Review, compare, revise, and modify related statements.

84 **p.S3-7/2** "In most cases, the depths of exploration for buildings and bridges are terminated once the **formational materials** are encountered, and therefore would provide information **useful** to only the **tunnel portal** component.

No clear definition is provided for several terms and for the relationships of any depths of boring conducted to tunnel and portal locations which are not delineated at this time. Review, compare, revise, and modify related statements.

85 **p.S3-7/5** "The CH2M HILL team **selected** samples for testing based on formational type, rock weathering and hardness, sample depth related to **tunnel, and portal location**."

No clear definition is provided for several terms and for the relationships of any test conducted to tunnel and portal locations which are not delineated at this time. Review, compare, revise, and modify related statements.

CALTRANS SR710 NORTH EXTENSION GEOTECHNICAL STUDY REPORT
SECTION 4 Regional Geology, Faulting, and Seismicity

86 **p.50\S4-2/Fig.4-1** "Puente Hills Fault Zone, west of the Downey Plain, east side of Inglewood Fault Zone"
Revise drawing and provide description within text appropriate to relationship of the Puente Hills Fault Zone" with the project region and zones.

87 **p.52\S4-4/1** "In the northern portion of Zones 3 and 4, the Tertiary-age formations and/or alluvium are underlain by basement complex rocks."
p.59\S4-11/2 "...Basement complex rocks were not observed in [borings or surface exposures of] Zones 1, 2, **4,** and 5."
All sedimentary formations in the Los Angeles are underlain by basement complex (Pre-Tertiary igneous and metamorphic rock formations), but within the context of the two statements a contradiction appears to require revision.

88 **p.59\S4-11/3 4.1.3 Geologic Structure Followed by 4.2 Regional Faulting**
Geological Structure includes both faults and folds. Define "down-warp". Is it a syncline or synclinorum? Folded and Folds are mentioned twice but then the remainder is about faults and tremors. No clear definition is provided for several terms and for the relationships to structure, folding, and faulting and seismicity. Review, revise, and modify related statements.

89 **p.59\S4-11/3 4.1.3 Geologic Structure** "The San Gabriel Basin is a **large down-warp** created by regional north-northeast to south-southwest-directed compressional geological forces that have uplifted the San Gabriel Mountains and folded the rocks in adjacent hills."
Define "down-warp", compressional, and relationships to Down-warp, uplifted, and folded. Is it a syncline or synclinorum or anticline or anticlinorium? Geologic Structure includes folding and faulting but generally no folding is discussed, and sub-section repeats much of Sec. 4.2 Regional Faulting. Review, compare, revise, and modify related statements.

90 **p.59\S4-11/4** "Such ground motions **should be accounted for** during design of portals, shafts, and shallow tunnels. Tunnels at **greater** depths are **expected** to [p.60\S4-12/1] move simultaneously with the ground during an earthquake, and as such, are expected to perform better than **structures at shallower depths**."
"Greater" *and* "shallower" *tunnels requires definition as the tunnel has been discussed as assumed to be 100-150ft to top of tunnel and150- 200ft to bottom of tunnel (2-3 x 50ft diameter tunnel). As all tunnels have portals and may have ventilation and emergency shafts*
Discussions do not address the relationship of two tunnels, connected two portals, and connected to vent shafts, emergency access shafts, and cross-tunnel passages. Since these connections are known to response differently then a simple tunnel may be relative unaffected by the tremors while the tunnel/portal connections would respond very differently.
Revise the statements and provide appropriate analyses regarding mixed-element responses for East-West vs North-South alignments and cross-passage.

91 **p.60\S4-12/1** "...***might*** be underlain by subsurface thrust faults, such as the Upper Elysian Park and the Puente Hills thrust fault system (Figure 4-1). Although these two fault systems ***may generate*** shaking strong enough to ***impact project facilities***, they are ***too deep*** *to result in* ***significant deformation*** *at tunnel depths*."
No clear definition (Might, May generate, Strong enough, Too deep, Significant deformation) is provided for several terms and for the relationships of any test conducted to tunnel and portal locations which are not delineated at this time. Review, compare, revise, and modify related statements.
Revise and incorporate multiple blind thrust faults which are accepted to underlie the project region.
Revise seismic analyses related to shallow (6mi) depths of epicenters along/on thrust fault planes.

92 **p.66+69\S4-18/5+-21/Fig.4-9**
Review of the Figure and the five zones would suggest some modifications

PGA	Zone 1	0.8g northern [west] part	***0.9g [8.5g]***	southern [east] part of Zone 1.
	Zone 2	0.7g near northwest corner	***0.8g [<8]***	near southeast boundary

Zone 3	from 0.7g north	to 0.8g ***[<8]*** to south, respectively.
Zone 4	0.6g ***[<6]*** near northern end	0.8g ***[<8]*** near southern end, 0.7g ***[<7]*** central portion,
Zone 5	0.6g	***[<6]*** at northeast corner, 0.8g ***[<8]*** at the west end. 0.7g in the central portion

*Text/Table values given vs those in Figures do not agree; Numbers in Table compared to the information provided in figures **[xx].***

Revise seismic comparisons with more accurate quantitative assessment analyses related to acceleration from events along/on the surface and underlying thrust fault planes. Review, compare, revise, and modify related statements.

CALTRANS SR710 NORTH EXTENSION GEOTECHNICAL STUDY REPORT
SECTION 5 Groundwater Evaluation p.70-76\5-1 - -7

93 **p.73\S5-4/3** Bedrock units are generally considered to be **non-water bearing**.

Most rocks and alluvium can be called: "water-bearing" rather than "non-water bearing" and the text is attempting to reflect permeability rather than porosity. Such descriptors should be connected to the actual recordings in the borings and sample tests rather than erroneous conjectures. Review, compare, revise, and modify related statements.

94 **p.75-76\S5-6/6 - 7/1** The bedrock is comprised of the **lower-permeability** Puente, Topanga, [S5/7] and Fernando Formations.

Define "lower-permeability" and quantify for each formation and their members (sandstones, siltstones, and siliceous layers) as established during the investigation and compare to other encountered and tested materials. Such descriptors should be connected to actual recordings in the borings and sample tests rather than erroneous conjectures. Review, compare, revise, and modify related statements.

95 **p.76\S5-7/5** 5.5 Contaminated Groundwater Conditions

Discussions of contaminated groundwater focus entirely on Superfund sites in Zones 1 and 4&5 and does not identify potential for contamination of both Zone 2 and 3 by USTs.

5.5 Contaminated Groundwater Conditions is included under groundwater items but is then repeated under hazardous materials (Sec.6).

Texts do not include any references to conditions actually encountered in or established during the investigation. Actual encounters are not identified in borings other than sporadic VOC gas monitoring, and general comments have no direct bearing on the tunnel, shafts, and portal envelopes. Review, compare, revise, and modify related statements.

CALTRANS SR710 NORTH EXTENSION GEOTECHNICAL STUDY REPORT
SECTION 6 Hazardous Materials p.77-80\6-1 - -4

96 *Text does not include any references to conditions actually encountered in or established during the investigation. Actual encounters are not identified in borings other than sporadic VOC gas monitoring, hydrocarbon/sulfide odors, and presence of oil/tar, and general comments have no direct bearing on the tunnel, shafts, and portal envelopes. Review, compare, revise, and modify related statements.*

97 **p.77\S6-1\1** The **purpose**...was to identify sites...that have **potential** soil or groundwater contamination that **could affect** geotechnical work (for example, **drilling or tunneling**)...

Text does not define purpose or potential that "could affect" the Project and does not relate or identify the tunnel, shafts, and portal envelopes that could be affected.

Text does not include any references to conditions actually encountered in or established during the investigation. Actual encounters are not identified in borings other than sporadic VOC gas monitoring, and general comments have no direct bearing on the tunnel, shafts, and portal envelopes. Review, compare, revise, and modify related statements.

98 **p.78\S6-2/8** "The **biggest** contamination issues are the existence of the **three** National Priorities List (NPL) sites within Zones **1, 4, and 5**."
Text does not define "biggest" issue and does not relate or identify the tunnel, shafts, and portal envelopes that could be affected.
As clearly indicated as an issue for Zone 1, tunnel approaches would most practically portal along the western slopes of Mt. Washington and then connect to I-5/SR-2 via overhead viaduct over Verdugo and San Fernando Road, Railroad, and LA River.
Text does not include any references to Super Fund conditions actually encountered in or established during the investigation and has no direct bearing on the tunnel, shafts, and portal envelopes. Review, compare, revise, and modify related statements.

99 **p.79\S6-3/2** "**Contaminated groundwater plumes** have been **delineated** for the San Fernando Valley Superfund Site Area 4 (Pollock Field) in Zone 1…has not been delineated yet for the San Gabriel Valley Area 3..."
Text does not include any references to Super Fund or Plume conditions actually encountered in or established during the investigation. Actual encounters are not identified in borings other than sporadic VOC gas monitoring, and text conjectures have no direct bearing on the tunnel, shafts, and portal envelopes. Review, compare, revise, and modify related statements.

100 **p.76\S5-7\4** "**5.5 Contaminated Groundwater Conditions** Contaminated groundwater zones occur within the study area. The biggest contamination issues are the existence of the **two** National Priority List (NPL) sites within Zones 1, 4, and 5. These **two** NPL sites…"
Repeat of earlier text, please review, compare, revise, and modify related statements.

101 **p.79\S6-3/4-5** "…localized groundwater **contamination** sites within Zones 1, 2, 3, 4, and 5…If groundwater with **suspected** contamination is encountered…" and "…sites with localized **soil contamination** issues…potential to impact the project…soil contamination…is **shallow** and is comprised of metals, total petroleum hydrocarbons (TPHs), or **VOCs**."
Text does not include any references to groundwater or soil contamination, suspected, and localized conditions actually encountered in or established during the investigation. Actual encounters are not identified in borings and no groundwater samples/tests other than sporadic VOC gas monitoring, odors, oils, and tars compared to text conjectures that have no direct bearing on the tunnel, shafts, and portal envelopes. Review, compare, revise, and modify related statements.

102 **p.80\S6-4/Fig 6.1** *Various localized sites include - Zone 1 – 9, 2 – 8, and 3 - 12 identified local sites (>12 sites in Zones 4 and 5).*
Text does not include any references to groundwater or soil contamination, suspected, and localized conditions actually encountered in or established in the closest boring logs during the investigation. Actual encounters are not identified in borings and no groundwater samples/tests other than sporadic VOC gas monitoring, odors, oils, and tars compared to text conjectures that have no direct bearing on the tunnel, shafts, and portal envelopes. Review, compare, revise, and modify related statements.

CALTRANS SR710 NORTH EXTENSION GEOTECHNICAL STUDY REPORT
SECTION 7 Site Conditions for Zone 1

103 p.81\S7-1/2 "Other important surface roads include, from east to west, Alhambra Avenue, Eastern Avenue, **Mission Road**, Pasadena Avenue, Figueroa Street, **San Fernando Road and Eagle Rock Boulevard**."
Mission Road is incorrectly identified which is in fact Huntington Drive South and North; also incorrectly identified in map plates. Similarly Eagle Rock Blvd. is incorrectly identified which is in fact Riverside Drive, west of San Fernando Road. Review, compare, revise, and modify related statements and plates.

104 "Railroad tracks cross the eastern portion of the zone [1] between **Mission Road** and Valley Boulevard."
Mission Road is incorrectly identified which is in fact Alhambra Avenue in Los Angeles rather than Mission Road in Alhambra. All lands north of the southern edge of Valley Blvd. north of the northern terminus of I-710 lie within the City of Los Angeles. Review, compare, revise, and modify statements.

105 **p.81\S7-1/3** "...**northern** flood plain of the Los Angeles River and immediately **south** of San Fernando Road."
p.81\S7-1/4 "...from just **south** of the intersection of the Los Angeles River...San Fernando Road and **Division Street** (immediately to the east of the former Taylor rail yard)."
Northern floodplain is incorrectly identified as it should be northeasterly and/or left floodplain; similarly, just south should be changed to southwest; similarly the floodplain is southwest of the NW-SE aligned San Fernando Road. Review, compare, revise, and modify related statements.

106 **p.82\S7-2/5 "Alluvium** is expected to be encountered only at the **portal area** and along the Los Angeles River."
Alluvium in Zone 1 is restricted to the floodplains of the Los Angeles River and also Arroyo Seco, included in Zone 1. Encountering of alluvium in the "portal area" presumes a known location for the westerly portal and/or would locate the portal in the LA River floodplain which would be an impractical location for a tunnel portal.

p.82\S7-2/5 "As described in Sections 5 and 6, groundwater within the **alluvium** at the **west portal area** is contaminated."
Alluvium and contamination in Zone 1 is restricted to the floodplains of the Los Angeles River. Encountering of alluvium in the "west portal area" presumes a known location for the portal and/or would locate the portal in the LA River floodplain which would be an impractical location for a tunnel portal. Raising the issue of groundwater and contamination of groundwater under the item of Stratigraphy appears to be an attempt to bias the report against Zone 1 feasibility. Review, compare, revise, and modify related statements.

107 **p.83\S7-3/2** "The Puente Formation...**tunnel depth in Zone 1**. Except for the easternmost 2,000 linear feet...[in] siltstone member (Tpsl) of the Puente Formation...typical tunnel...in the sandstone member (Tpss)...[with] **20 to 30 percent fine-grained interbeds (siltstone)**...shale member (Tpsh) crops out in portions of Zone 1...**could occur mostly at shallow depths above a typical tunnel**."
Statement presumes to have a design, alignment, and profile for the proposed Project tunnel, eastern portal and approaches. Comments regarding various members and percents of fine grained interbeds are not based on any compilation of boring logs. Fine grained materials could also include shales, clay-, and mud-stones, and no screen analyses are provided to support the conjectures in Zone 1. Conjectures of "could" and "mostly" are not supported by boring log descriptions, especially at tunnel depths. "Shallow depths" above a "typical tunnel" presumes a tunnel design and unknown conjectures as to shallow vs deep. Review, compare, revise, and modify related statements.

108 **p.83\S7-3/4** 7.3.3 Structural Geology and **p.84\S7-4/2** 7.4 Faulting
Separation of Structural Geology from Faulting indicates strange definitions of both terms as typical all structural geology include faulting. Review, compare, revise, and modify related statements.

109 **p.83\S7-3/4** "Faulting along the Elysian Park blind-thrust fault ***deep*** below Zone 1 has folded rocks within the ***northwest trending and southeast-plunging*** Elysian Park ***Anticline..."***
Review, compare, revise, and modify related statements.

110 **p.83\S7-3/5** "The **majority** of these **secondary** folds and the **more continuous** faults **generally** parallel the trend of the Elysian Park Anticline; however, **several shorter** faults have been mapped **trending perpendicular and oblique** to the **Elysian Park Anticline**."
Definitions and quantifications of the above bolded terms are undocumented and not supported by boring logs and related information within the Study Report.
Review, compare, revise, and modify related statements

111 **p.84\S7-4/3** "The Elysian Park fault and **all other, steeply dipping faults mapped...**currently anticipated tunnel depth...could juxtapose various units of the Puente Formation, but **generally** the rock types on both sides of a fault are expected to have similar geotechnical properties."
Sandstone vs siltstone and shale which are not documented by reference to boring logs. Review, compare, revise, and modify related statements.

112 "No new fault displacements are anticipated to occur along these inactive faults."
Conjectures as to "new", "anticipated", and "inactive" are not supported by any boring logs or seismic information and analyses. Review, compare, revise, and modify related statements

113 **p.84\S7-4/3** "...Dibblee's (1989b) geologic map...does not show the Elysian Park fault...**suggests**... Elysian Park fault **might not exist** or is a **minor feature** at the **location mapped**..."
Define bolded terms and revise text accordingly. Has any mapping been conducted for this project? *Review, compare, revise, and modify related statements.*

114 **p.85\S7-5/1** "...**other four soundings**...in Zone 1...at **higher** elevations and in bedrock materials..."
No such sounding or borings presumably were found and higher has not been defined or provided in the context of Zone 1. *Review, compare, revise, and modify related statements.*

115 **p.85\S7-5/4** "...Puente Formation...**generally considered non-water-bearing**. Perched groundwater conditions **might be locally present** within faulted and/or fractured zones; however, **none were observed**..."
As comments indicated elsewhere, such conjectures are misleading and perched groundwater is commonly found throughout the area. Please provide boring and investigation results to confirm or support the conjectures or remove. Review, compare, revise, and modify related statements.

116 **p.85\S7-5/4/Fig. 6-1** "...**7.6 Hazardous Materials** The ISAs and ESA identified 10 open or active sites located within Zone 1. The locations of these sites are shown in Figure 6-1."
and
p.86\S7-6/1 "Ten sites (including the San Fernando Valley [Area 4] Pollock NPL Site) with localized groundwater or soil contamination are located within Zone 1."
"One of these sites, summarized below [Hurst Chemicals], "
Figure shows only 9 sites plus three tan areas so site would be either 9 or 12).
Review, compare, revise, and modify related statements.

117 **p.86\S7-6/2** "...The **remaining eight sites**...were identified as being in the **central** portion of Zone 1 and are **considered** to have a **low potential** to impact..."
p.86\S7-6/2 "...**eight sites**...are considered to have a **low potential** to impact the project because they are **located within the tunnel zone** and are characterized with soil or groundwater contamination at a **depth of less than 150 feet bgs**."
How does the preparers know how to measure the depth to tunnel or portal as the route neutral study has no alignments, and therefore no measurement of150feet bgs can be made.
Review, compare, revise, and modify related statements.

118 **p.86\S7-6/1** "...located **in proximity** (...less than 0.5 mile) to a **western portal zone** for Zone 1:"
How does the preparers know how to measure as the route neutral study has no alignments and thereby no portal "areas" and therefore no measurement of 2640ft can be made.
Review, compare, revise, and modify related statements.

119 **p.86\S7-6/3 "7.7 Potential for Naturally Occurring Gas** The Puente Formation is one of the **more prolific petroleum sources in the Los Angeles Basin.** Although, no known oil or natural gas fields are located within Zone 1, **naturally occurring tar and hydrocarbon odors were encountered within the Puente Formation during drilling at boring R-09-Z1B7 and R-09-Z3B12 locations. [El Sereno for both borings]"**
Logs of Z3B12 has no notes of any tar, oil, or odor and a maximum gas level of less than 38ppm (single detection which may be incorrect) and probably less than 11ppm
Logs also have tar in Tt/Z3B7 -255
References were not given for either the occurrence or prolific character within only the Puente and absence of any oil wells in Zone 1.
How much gas (mg/cum, ppm, or % of LEL) or tar/oil (number of liters removed) were encountered in two borings? How many feet or percentage of boring from each boring and how many feet or percentage of borings for each zone, Zone 1 (Multnomah/Eastern) and Zone 3 (Maycrest/Huntington).

As Zones 1 and 3 are clearly identified with gassy ground, and the report indicates low potential for gassy ground in Zone 3 compared to Zones 1 and 2, apparent contradictions exist between facts, conjectures, and extrapolations or is the boring number for Zone 3 incorrect.
At what levels and in which member of the Puente "formation", sandstone, siltstone, or shale, especially for Z3B12?
Review, compare, revise, and modify related statements.

120 **p.86\S7-6/4** "During the field investigation performed for the Upper Reach segment of the NEIS sewer line and during its construction, **hydrogen sulfide (H2S) gas was encountered...** released...from groundwater flowing into the cutting chamber...methane gas, in excess of 20 percent of the lower explosive limit (LEL) *[20% x 45,000ppm = 9000ppm; 100x highest levels measured at any level in any boring]*, was encountered during tunnel excavation."
References and levels not given for the gases, H2S, or VOC occurrences and their relationships to the Zones, formations, and members of the Puente formation.
Review, compare, revise, and modify related statements.

121 **p.86\S7-6/5** "Based on previous observations of naturally occurring gas in other tunneling projects, naturally occurring gas conditions can be **expected** within Zone 1."
Quantitative values of gas monitoring in borings have not been compiled and used to evaluate Zones or formations rather than non-objective comments and conjectures stated in Summary.
No depth or other technical information is provided for comparisons; references are not given for observations and by whom?
"Expected" in which member of the Puente, or all members, or alluvium as the groundwater inflows was associated with alluvium not Puente.
Review, compare, revise, and modify related statements.

122 **p.86\S7-6/5** "...**gassy conditions encountered to-date in the zone** and elsewhere within the Los Angeles basin ***should be manageable***, as long as appropriate considerations is given to this condition during construction."
References of encounters not given for encounters in the zone or elsewhere; by whom and what levels?
"Expected" in which member of the Puente or all members.
"Should be" suggests that levels may be "un-manageable" under a condition; clarify or remove.
Review, compare, revise, and modify related statements.

123 **p.87\S7-7/Item 5** "...**considered** to be **susceptible** to **liquefaction** (CDMG, 1999d) in areas where groundwater is **near** the ground surface and **loose cohesionless** soils occur."
City of Los Angeles has more specific and detailed maps of liquefaction and landslide which have not been used or referenced.
Definitions and quantifications of various terms: considered, susceptible, near, loose, and cohesionless materials are non-existent and not related to any boring logs and units included therein.
Review, compare, revise, and modify related statements.

124 **p.87\S7-7/Item 6** "This concern [contaminated soil and water] applies mainly to the **portal area** and **approach excavations** for the tunnel."
Statement presumes a location for portal and the design of the portal and probable viaduct (="approach excavations").
Review, compare, revise, and modify related statements.

125 **p.87\S7-7/Item 7** "There is a **relatively high potential** of encountering naturally occurring gas (methane and/or hydrogen sulfide) in this zone."
Definitions and quantifications of various terms: Relatively High and/or High Potential are non-existent and not related to any boring logs and units included therein.
Review, compare, revise, and modify related statements.

126 **p.87\S7-7/2 "7.8.2 Preliminary Assessment of Tunneling Considerations** Information presented...used to perform a **preliminary assessment of tunnel design and construction requirements**..."

Definitions and quantifications of various term/phrase: Preliminary Assessment is non-existent and not related to any boring logs and units included therein.
Statement also presumes a "tunnel design" and "construction requirements" which have not been given and stated anywhere in report and summary.
Review, compare, revise, and modify related statements.

127 **p.87\S7-7/3** "Tunnel excavation...**almost entirely** in the Puente Formation sandstone (Tpss)...exception being at the **portals** where the tunnel **would likely encounter** alluvium in the **transition** from the ground surface to the tunnel."
Definitions and quantifications of various term/phrases: almost entirely, would likely, encounter, etc. are non-existent and not related to any boring logs and units included therein.
Statement also presumes a location for "tunnel", ground surface, and portal which have not been given and stated anywhere in report and summary.
Review, compare, revise, and modify related statements.

128 **p.87\S7-7/3** "...**weak** sedimentary rocks that can be excavated with **modern** tunneling equipment such as a **TBM.**"
Definitions and quantifications of various term/phrases: weak, modern, and TBM are non-existent and not related to any boring logs and units and/or description as to what is conventional vs modern included therein. Most all currently described tunneling methods have been in existence for >20 years.
Statement also presumes a location for "tunneling" which has not been given and stated anywhere in report and summary.
Review, compare, revise, and modify related statements.

129 **p.88\S7-8/1** "Depending on the **rock mass quality** at this crossing, a **clear distance of about 15 to 25 feet is needed to avoid impacts to the existing tunnel.**"
Definitions and quantifications of various term/phrases: rock mass quality (?=RQD), needed, avoid, "existing tunnel" are non-existent and not related to any boring logs and units and/or description as to what is conventional vs modern included therein.
Statement also presumes a location for an "existing tunnel" which has not been given and stated anywhere in report and summary.
Review, compare, revise, and modify related statements.

130 **p.88\S7-8/2** "...ground cover of **at least two tunnel diameters [>100ft from ground level or top of stable formation to top of tunnel]** is **desirable** for **minimizing** settlement **magnitudes**."
Definitions and quantifications are not provided for at least, tunnel diameter, desirable, minimizing, and magnitudes; statements need objective definitions and clear and consistent applications throughout the Summary and subsequent Report sections. The statement may contradict other Summary statements indicate an assumed depth of 150-200ft depth (3 x 50ft diameter).
The Summary and sections do not relate most probable or "typical" tunnel depths with the actual geological (depths of alluvium and "bedrock", RQD/Coring, etc.) seismic and groundwater (packer tests, clay/silt/sand permeabilities, etc.) of
Revise this and any other statement and incorporate the above definitional requirements with appropriate modifications for separate discussion of each zone. Relate Summary and other statements to factual boring information gathered by the Geotechnical Study investigations to the most probable levels (100 or 150ft depth to top) of tunnel rather than conjectures.
Review, compare, revise, and modify related statements.

131 **p.88\S7-8/4** "**In the alluvium**...watertight lining system to **avoid groundwater inflows,**...and result in **additional maintenance** within the tunnel."
Watertight lining is required in all tunnels and subsurface structures wherever groundwater may seep into the structure and could cause deterioration of the structure and thereby further and additional maintenance and replacement.
Definitions and quantifications are not provided for avoid and additional maintenance; statements need objective definitions and clear and consistent applications throughout the Summary and subsequent Report sections.

Revise this and any other statement and incorporate the above definitional requirements with appropriate modifications for separate discussion of each zone. Relate Summary and other statements to factual groundwater information gathered from boring conducted in the Geotechnical Study investigations rather than conjectures.

Review, compare, revise, and modify related statements.

132 **p.89\S7-9/1** "**If** the tunnel is excavated by a **full-face TBM**, the ground support is **expected** to be a precast reinforced concrete segmental lining…If the tunnel is **excavated by other methods**, the ground support **may be** shotcrete and rock bolts or steel ribs and lagging."

If/Expected/May statements in this Summary is totally inappropriate unless used in documented conditions; all ground must be supported and most shields (full or less than full) may use precast segmental lining segments, as done in the MTA/RTD Red Line, Phase 1. Other methods generally would involve NATM or SEM.

Review, selected "standard method", compare, revise, and modify related statements.

133 **p.89\S7-9/1** "The tunnel muck excavated from areas of **naturally occurring gas may** need to be disposed at **hazardous waste landfills** if concentrations of the **contaminants** exceed certain limits.

The statement makes a jump from "naturally occurring gases" (H2S and CH4) which would not generally be sufficient after excavating to warrant designation as "contaminant" or as hazardous wastes. Development indicates an non-objective approach

No definition of "exceed" or "certain" has been provided and therefore becomes non-objective and appears to bias the discussion.

Virtually all lithologies had "naturally occurring gases" based on available boring records where gases (VOC) were monitored.

Review, provide definitive terms, compare, revise, and modify related statements.

CALTRANS
SR-710 NORTH EXTENSION
TUNNEL TECHNICAL STUDY
GEOTECHNICAL SUMMARY REPORT – Draft
COMMENTS - CONTINUED
Unit 2, See Unit 1 for formatting details.
Sections 8 – 13, in part

CALTRANS SR710 NORTH EXTENSION TUNNEL TECHNICAL STUDY
GEOTECHNICAL SUMMARY REPORT – Draft
COMMENTS
SECTION 8 - Site Conditions for Zone 2, pdf-pg.90-97\8-1/ - 8-8

134 *The Report does not provide compiled surface site reconnaissance investigation results and boring logs related to presence, absence, and extent of the Puente Formation members within Zones 1-3 and appears to depend entirely on earlier geological maps of surface geology without regard to geological materials and conditions found during the geotechnical investigations.*

The entire investigation presumed that borings and geophysical surveys were required to confirm geological conditions and feasibility at tunnel depths of >150ft bgs and not confirming the surface geology of maps prepared more than 10 years ago.

The entire report needs to document statements in the text with reference to specific investigation results rather than use previously available documents without any specific field confirmation.

Review, revise, modify, and update as appropriate and recirculate the draft document.

135 **p.90\S8-1/2 8.2** "Other important surface roads…cross the zone include [Valley Blvd.,] Alhambra Avenue, ~~**Mission Road**~~ *[Mission Rd is mislabeled on Huntington Drive for all Plates/maps, north of the intersection of Soto/Mission/Huntington Dr. South]*, Monterey Road, Figueroa Street, Eagle Rock Road, and Verdugo Road."

p.90\S8-1/2 8.2 "In addition, railroad tracks cross the eastern portion of the zone [Zones 1 and 2, southern portion in Zone 3, and southwestern and western portions of Zones 4 and 5] between ~~**Mission Road**~~ *[Mission Rd is in Alhambra, Alhambra Ave. is in Los Angeles, and the pivotal boring (Z1B9) lies within Los Angeles, not in Alhambra as misidentified in other sections]* and Valley Boulevard."

p.91\S8-2/3 8.2 "One of the drainages is located along Eagle Rock Boulevard at the northwesternmost portion of the zone, whereas two other drainages are located along ~~**Mission Road and West Mission Road**~~**in the southeastern portion of the zone**. *[Mission Rd is mislabeled on Huntington Drive for all maps, north of the intersection of Soto/Mission/Huntington Dr. South-Huntington Dr. North. "West Mission" is also mislabeled as in LACity the street is titled Alhambra Ave. across the entirety of Zone 2]*"

As indicated above and elsewhere, the preparers of the Report apparently are unfamiliar with the street names and positions and city boundaries especially in El Sereno, the southerly portion of Zones 1-3 and westerly portions of Zones 4-5. Names are misused and mislabelled on Report Plates. Review, compare, revise, and modify related statements and figures/plates.

136 **p.91\S8-2/ 8.3.2 Stratigraphy**

The stratigraphic descriptions are largely based on the surface maps and terminology of the maps differs markedly from that used in borings so that there is little or no concurrence.

Text has not been prepared by compilation of the investigation but upon generalized statements based on historic documents and maps.

Text does not reflect the presence/absence of swelling/expanding clays, of faults/shears/fractures, and of the massive or thinly bedded shales, siltstones, sandstones, etc.all of which are influences on the feasibility of tunneling.

Review, compare, revise, and modify related statements and figures/plates.

137 **p.91\S8-2/5** "The **water-bearing young alluvium** is considered to be susceptible to liquefaction (CDMG, 1998d). Liquefaction may affect shallow structures but is **not expected** to affect a deep tunnel."

Discussion of liquefaction under stratigraphy, rather than groundwater or seismicity appears inappropriate and is not related to the boring logs and insitu and lab tests conducted in/on borings or samples.

Not all young alluvium with water is susceptible to liquefaction and therefore the reference is incorrect.
Alluvium subject to liquefaction usually has higher groundwater tables than the "shallow", 20-50ft below ground surface depths reported elsewhere.
Loose alluvium with high (5ft bgs) water table may be susceptible to liquefaction, however, the investigations and Study Report do not document presence or absence of such materials and required conditions for liquefaction within Zone 2 or any other zone. Furthermore, as Zone 2 is generally only in the City of Los Angeles, the City's maps of liquefaction zones should have been used rather than general reference to a more generalized report by the State.
The Report does not compile nor relate expansive cores, losses of/no cores found in Zones 1-3 to the excavation safety and competence which is central to the type of tunneling machines. Such absences suggest that something is hidden. A single reference to one boring with expansive cores which is in fact erroneous suggests that the report is bias and unobjective related to such occurrences.
The Report does not provide compiled and comparable investigation results related to potential for liquefaction within the portal and tunnel areas, although the Report has related the presence and risks of the Raymond Fault within a portion of northwestern Zone 2 as a potential constraints for a portal site.
Review, compare, revise, and modify related statements.

138 **p.91\S8-2/6** "The coarse-grained member [presumably the conglomerates of the Fernando or Topanga formation] **is anticipated** to be encountered **only** if the tunnel crosses the northern portion of the zone, west of Arroyo Seco."
The Report does not provide compiled and comparable investigation results related to the presence of a "coarse-grained" member (=Ttcg or Tfcg) and does not define "is anticipated" rather than earlier "not expected".
Furthermore as the "coarsest grained" member, Ttcg, lies only in the northern half of the Zone 2 northwestern end, this statement presumes the bias conjecture of a more northern alignment for the tunnel route through Zone 2 and a portal across the Raymond Fault with most structured development and thickest alluvium rather than practical alignment under Mt. Washington, and porting west of B2Z1 boring.
Presumption that the tunnel would pass through the northern half/radiant of the zone to the northern portal in the northwestern demonstrates the bias, and lack of objectivity, to oppose Zone 2 routes and favor Zone 3 and the need for a "Route Neutral" approach.
In order to extend any tunnel through all or just the "northern portion" of Zone 2, the tunnel must extend "west", and north, of the Arroyo Seco, therefore conjectures regarding the absence north of Zone 2 cannot be considered as "route neutral".
Review, compare, revise, and modify related statements.

139 **p.91\S8-2/7** "The sandstone (Tpss), shale (Tpsh), and siltstone (Tpsl) units…are **anticipated** to be **encountered** along different sections of a **typical tunnel** through Zone 2."
The Report does not provide compiled and comparable investigation results related to presence or absence of the three member of the Puente Formation within portal or tunnel areas and does not define is/are "anticipated" compared to the earlier "not expected" and of "encountered".
No such members of the Puente formation are identified in boring logs, only "Puente formation".
The Study Report has not defined what a "typical tunnel" is and therefore conjectures alignments and areas which a bias against Zone 2 and thereby not route or portal neutral.
A "typical tunnel" would be "expected" under the most competent rock, Mt. Washington, with the least exposure to the Raymond Fault, west of Ave.40, with least alluvium, and with shortest portal reaching the SR2, between Verdugo Road (N&S) and Ave.40.
Review, compare, revise, and modify related statements.

140 **p.91\S8-2/7** "The sandstone unit (Tpss) is exposed north of the Highland Park fault and between the Highland Park fault and Mount Washington. The shale unit (Tpsh) occurs **predominantly** [p.92\S8-2/1]…the **southern portion** of the zone in the **general** vicinity of Arroyo Seco."
The Report does not provide compiled surface site reconnaissance investigation results related to presence or absence of the Puente Formation members within Zones 1-3 and does not define or quantify "predominately", "southern", "portion", "general", and "vicinity".
The southern portion of the Zone lies south of the Arroyo Seco and freeway and Tpsh is found only in the northern portion of the southern half of the Zone (north of Kendall and south of Arroyo Seco) and Tpsl dominates the lower hills across the southern and central portions of the southern half of Zone 2.

Review, compare, revise, and modify related statements.

141 **p.92\S8-3/1** "...siltstone (Tpsl) unit *[=member]* **crops out** in the eastern portion of the zone."
The Report does not provide compiled surface site reconnaissance investigation results related to presence or absence of the Puente Formation siltstone member within Zones 1-3 and visited site of outcrops and appears to use the general maps rather than confirmed outcrops which do exist but are of limited extent and subject to movements.
Tpsl actually extents across the entire Zone south of Kendall Ave. and Monterey Hills, ridge south of the Arroyo Seco. Again the preparers are mis-oriented by the text figures rather than a properly oriented map; eastern should be changed to southeastern.
Review, compare, revise, and modify related statements.

142 **p.92\S8-3/3** "Boring **R09-Z2B4** was excavated into the shales of the Puente Formation (Tpsh) and yielded rock core recovery between **103 and 120 percent** between the depths of **135 and 245 feet** and between **355 and 400 feet** bgs."
Text does not relate to the information compiled from the boring log of Z2B4:
1) No shale is recorded in the 14 pages of boring logs, only; sandstones, claystones, siltstones, and mudstones (=Tpsl, not Tpsh).
2) Core lengths-percentage recovered were 108-140 percent from -125ft down to -260ft and 110-161 percent from 283ft down to 398ft (not BOH, 400ft). Therefore the text greatly underestimates the expansiveness of the materials which is a vital issue in tunneling.
Review, compare, revise, and modify related statements.

143 **p.92\S8-3/3** "Apparently the material was stretched during extraction of the core from the core barrel (necking)."
Samples of expansive Clay-, Silt-, and Mudstones are known to expand at surface if they contain entrapped gases at pressures exceeding 100ft water-head (say 40psi). Stretching in more than 20 samples would suggest that poor handling persistently occurred in this boring and not in many others.
Review, compare, revise, and modify related statements.

144 **p.92\S8-3/3** "Expansion index testing performed on core material collected **at this depth interval** showed **medium** expansion potential."
As indicated above, the text does not reflect the referenced boring log(s) to support the "medium" classification which has not been defined.
Statement does not reference the testing in any section of the Report to substantiate the text and allow independent review. If the materials did in fact expand they were not shale but less strong materials and any piezometer in such material cannot be used for any meaningful groundwater assessment.
Review, compare, revise, and modify related statements.

145 **p.92\S8-3/4** "A tunnel through the *[northern portion of]* western half *[of Zone 2, east of Ave.50]* would encounter the siltstone (Ttsi) and sandstone **(Tpsi)***[actually Ttss]* units of the **Topanga** Formation, along with sandstones (Tfss) and conglomerates (Tfcg) of the Fernando Formation."
Preparers have not check abbreviations for the formation, should be Ttss not Tpsl, Puente Formation, Siltstone.
This statement demonstrates the preparers bias towards an alignment only within the northern portion (radiant) of the Zone, while disregarding the more practical tunneling path beneath Mt. Washington, west of Z2B1boring, which would avoid the Raymond Fault, deeper alluvium, and the conglomerates east of Z2B1 boring.
No reference is given to relevant boring logs, and their geological descriptions and designations.
Review, compare, revise, and modify related statements.

146 **p.92\S8-3/5 "8.3.3 Structural Geology"**
Standard definitions of structural geology includes, and this Report should include: all faulting and seismicity discussions in Structural Geology; this section mentions faulting without seismicity and then provides totally separate sections on Faulting and Seismicity without a similar separate section for Folding which is often related to seismicity.
Review, compare, revise, and modify related statements.

147 **p.93\S8-4/3-6+-5/1 8.4 Faulting**
Title section relates to faults only without discussion of seismicity along the Raymond and Elysian Blind Thrust Faults. Reference to movement of 2-4 ft does not provide adequate discussion of seismicity, especially given the presence of CalTech and JPL expertise and capabilities.
Review, compare, revise, and modify related statements and figures/plates.

148 **p.93\S8-4/3** "The **largest** of these faults…northwest-trending Highland Park fault and dissects the **middle** of the entire length of Zone 2…**appears** to terminate against the western continuation of the Raymond Fault…along York Boulevard…**not considered…as active**."
"Largest" needs to be defined as to greatest throw, largest in surface area (depth x length), etc., adjectival use for faults is usually "longest", since it is only documented as the surface trace. Other terms need to be defined also as highlighted above. Although geophysical and geological studies were to identify and document faults, including this largest, but inactive fault can only be discussed as "appears" and "not considered".
The fault actually crosses both the northern and central thirds and passes to the east of the southern third of Zone 2.
Furthermore, active and potentially active faults are discussed in other Zones but nothing is provided regarding whether the many faults in Zone 2 are potentially active, and no discussion is provided regarding micro-seismicity which could be used to assess potential activity along all faults of more than 1 mile in length.
Review, compare, revise, and modify related statements.

149 **p.93\S8-4/3** "The **geologic structure** of most of the area is not only complicated but **difficult to decipher** because of the dense cover of paved streets, residential structures, commercial buildings and vegetation."
The Study Report does not provide thorough compilations, assessments, and comparisons of the information obtained in the investigations and surveys, and the excuses, such as these, render the Study Report virtually unusable for the purposes and goals established for the Study. The Study falls back to descriptions and conjectures from the Diblee maps and non-objective and erroneous statement supporting non-"route-neutral" statement in opposition to Zone 2 and thereby in favor of Zone 3.
No discussion of surface geology is found throughout the area, although rock outcrops are available within 50ft of road curbs across much of Mt. Washington.
Review, compare, revise, and modify related statements.

150 **p.93\S8-4/4** "The Highland Park fault and all other steeply dipping faults…**might** juxtapose **various units…**at the **anticipated tunnel depth.**"
No discussion of subsurface geology is found defining the throw/relative uplift of units and and units (=members or layer shown in boring logs). Conjectures as to "might", "various", and "anticipated tunnel depth" require information not provided or reference as existing anywhere. Tunnel depths have been generally given as 150ft to top of tunnel, but in the hilly Zone 2 the depths vary to such extent that an "anticipated depth" would require an alignment of the tunnel and thereby the positioning of portals. Such considerations have not been developed and are not supported by information available especially for the differences between north and south of Ave.50, Mt. Washington vs Highland Park.
Review, compare, revise, and modify related statements.

151 **p.93\S8-4/5** "Geophysical…**investigation** data [Z2G1; regarding the Raymond Fault]… **suggested** faulting but was **inconclusive**…**documented** in fault trenches near **Figueroa Avenue just west of Arroyo Seco**."
The entire effort of geophysical investigation failed to achieve definitive results regarding almost any geophycal issue and is typified by "inconclusive"
Referenced trenches do not lie within Zone 2 and closer to the western boundary of Zone 3. The location of Figueroa and Arroyo Seco waterway would be about Ave.60/Figueroa and well south of any known trace of the Raymond.
Review, compare, revise, and modify related statements.

152 **p.93\S8-4/5** "…**lineament study** revealed geomorphic features that **suggest** surface faulting along…hills north of York Boulevard."

Most of York lies north of Zone 2, and discussions would only apply to northerly-most route within Zone 2. Such discussions continue to highlight potential adverse conditions in Zone 2, northerly alignments which demonstrate a prejudice for a tunnel route in only part of the Zone 2 and thereby balance its conditions against more constraints in Zone 3.

Review, compare, revise, and modify related statements.

153 **p.93\S8-4/6** "Seismic reflection [Z2G1]...indicates two [east-west] faults, one north of York Boulevard and one to the south....**compelling [p.94\S8-5/1]** evidence of a zone of **active faulting** within the York Boulevard valley extending...Eagle Rock Boulevard...it is **uncertain** whether these features represent branches of the Raymond fault or whether they represent separate faults...**expected** to cross Zone 2..."

Plate 1 identifies the York Blvd. Fault which overwritten as "Raymond Fault" without explanation; additional traces are added in Zones 2 and 3 also without explanation, references, or investigation support.

As no explanation or discussion is presented as to the status of the York Fault, the Report is inadequate and incomplete and discussions regarding the unnamed faults north and south of York appear to be bias and poorly, if at all documented. What happened to the York Fault?

As indicated in earlier maps and on Plate 1, three lines of faulting are indicated as part of the Raymond Fault, zone or plexus and the geophysical survey line crosses all three which continue westward to north and west of SR-2.

The Seismic Reflection and surface wave information have not provided definitive "compelling evidence" regarding "active" fault designation.

No seismic information of cross-fault borings or trenches has been presented to compel designation of 'active" for the Highland Park Fault. Review, compare, revise, and modify related statements.

If designation of these and one more "faults" is "uncertain", why does the Report clearly identify the three traces of faults as "Raymond Fault"; furthermore in other portions of the section, the fault traces are referred as the Raymond Fault to terminating the northern end of the Highland Fault.

The maps and discussion do not relate the various traces to the designated "Active Fault Zone" for an "Active Fault" of the Alquist-Priolo.

Review, clarify, revise, and modify related statements.

154 **p.94\S8-5/1 "**...evidence of a zone...The zone of faulting is **expected** to cross Zone 2 **near the northwestern portal area**."

Faulting of the Raymond Fault only crosses the northerly third (radiant) of the northwestern Zone 2, east of Z2B1 boring site and Ave.40/El Paso; no active or potentially active fault is reported west of this boring. References to "near" and "northwestern portal area" demonstrate a persistent non-objective, bias, non-route/-portal neutral approach to both the portal and thereby an alignment of tunnels connecting with the proposed portal and approach areas.

Review, compare, revise, and modify related statements.

155 **p.94\S8-5/2 8.5 Groundwater and Surface Water Conditions**

The investigation has not provided any significant information or summaries regarding the "Surface Water Conditions" and the relationships between the "Surface Water", "Groundwater" (alluvial groundwater", and groundwaters in bedrock formation and fault zones. Comments and conjectures are made but without documentation and references to actual investigation results. No discussion is provided, and apparently no information was gathered from the commercial spring water supplier(s) in the Glassel Park area.

Discussions of the permeability clearly indicated that the Puente and similar formations and members would allow very little water to flow from the surface, from the groundwater table, or from any designated aquifer (Puente sandstones or fault gouge/zone) to move into the tunnel levels or portal excavations.

Review, compare, revise, and modify related statements.

156 **p.94\S8-5/6** "The rocks of the Fernando, Puente, and Topanga Formations are considered **non-waterbearing**."

The preparers' appreciation of groundwater is questionable. Bedrock formations may be saturated with water, water content of 22-32% or 100% saturated, and thus are water-bearing; however, their permeability may be very low, e.g., 10^{-8} cm/sec. Furthermore the formations include sandstones amongst the "rocks" and fault, shear, and fracture zones which could contain water and allow for water movement through such more permeable materials.

Review, compare, revise, and modify related statements.

157 **p.94\S8-5/6** "Packer tests performed on the bedrock within Zone 2 confirm the **very low permeability** of these materials."

No compilation of groundwater info – packer tests - is provided, and therefore conjectures are not based on valid comparisons and assessment of issues. No definition of "very low" is given; no quantifications provided.

Review, compare, revise, and modify related statements.

158 **p.94\S8-5/6** "...**localized fracture zones might** have larger groundwater inflow potential than reported."

No discussions or information is provided regarding identification and measurements of "localized" or "fracture" zone compared to shear and fault zones.

The Investigation included permeability testing and boring records of fractures, shears, and faults but these are not related to presence of absence of groundwater inflow potentials through fracture, not fault, zones.

Review, compile, and compare actual investigation results and revise, and modify related statements.

159 **p.94\S8-5/8 8.6 Hazardous Materials**

All statements are based on other studies not referenced and not part of the Technical Study Report and no information is provided to support the presence, absence, extent, etc. of hazardous soils and groundwater in the Zone 2 area. The conjecture (potential contamination in the vicinity of the "portals") presumes known locations for the portals in relationship to the portals, tunnels, and methods of construction. The previous section stated that the materials in the southern terminus area are impervious and not water-bearing, therefore it is difficult to understand how the excavations or tunneling may be affected. Therefore these statements and Study Report are bias and non-objective with regard to Zone 2 compared to Zone 3, which does not go into the levels of detailed conjecture represented herein.

Review, compare, revise, and modify related statements.

160 **p.94\S8-5/9** "...**located in proximity** (...less than 0.5 mile) to a **portal zone** for Zone 2:"
p.94\S8-5/9,Item1 "...**located within** 0.5 mile) to the northwestern p**ortal zone** for Zone 2."
p.95\S8-6/1,Item1 "...considered to have a potential to impact the project it is **located within** western p**ortal zone** for Zone 2."

All statements presume known locations for the portals which are not the most practical for tunneling and northern portal development connecting to the SR-2; therefore statement and study report are bias and non-objective with regard to Zone 2 compared to Zone 3.

Review, compare, revise, and modify related statements.

161 **p.95\S8-6/1, Item 2** "• ARCO...Alhambra Avenue...within 0.5 mile of...**southeastern portal...**"
p.95\S8-6/1 "...impacted with gasoline...considered...a potential to impact the project because it is located within the **southeastern portal zone** for Zone 2..."

All statements presume locations for the portals which are not the most practical for tunneling and northern portal development connecting to the SR-2; therefore statement and study report are bias and non-objective with regard to Zone 2 compared to Zone 3.

Review, compare, revise, and modify related statements.

162 **p.95\S8-6/2** "The **remaining six** sites with **localized soil or groundwater contamination...**in the **central** portion of Zone 2 and are **considered** to have **low potential** impact...**located greater than 0.5 mile from a portal zone** and are **characterized** with soil or groundwater contamination at a **depth of less than 150 feet bgs**."

No definitions are provided for several terms in this statement. No information is provided in Appendix F regarding the depths of contamination. No information is provided in any borings regarding encounter of any contaminated groundwater or materials

Review, compare, revise, and modify related statements.

163 **p.95\S8-6/3 8.7 Potential for Naturally Occurring Gas**

No relationship is provided between designation of the "Puente", all members, as "Gassy Ground" and the actual measured VOC gas levels in the borings of the investigations. Highest gas levels in boring log monitoring of VOC were not found in the Puente formation.

VOC monitoring has little relationship to non-volatile methane and non-organic carbon gas of hydrogen sulfide and therefore conjectures regarding ANY gassy ground is based on unsupported conjectures and bias toward portrayal of Zone 2 as high gassy ground compared to a moderate designation for Zone 3 and therefore reflects a bias, non-objective presentation of everything related to gassy grounds..

Verbal presentation indicated that the VOC levels were too low to be considered "credible" and gassy grounds were based on previous experiences in other tunneling projects, although specific information has not been provided to document that the gas levels resulted from the Puente formation, from the alluvium, or from groundwater.

Such changes appear to focus on designating the most gassy ground to the Puente formation and thereby bias screening designations against routes through Zone 2 rather than Zone 3.

Review, compare, revise, and modify related statements.

164 **p.95\S8-6/4**..."Puente Formation in Zone 1 **experienced** hydrogen sulfide and methane...under the Los Angeles River in Zone 1,...**similarity of geologic conditions** suggests that **gassy conditions could be encountered** in Zone 2."

No relationship is provided between designation of "Puente" as "Gassy Ground" and actual measured VOC gas levels in the borings of the investigations. Highest gas levels were not found in the Puente formation and not in Zones 1 and 2.

Verbal presentation indicated that the VOC levels were too low to be considered "credible" and gassy grounds were based on previous experiences in other tunneling projects, although specific information has not been provided to document that the gas levels resulted from the Puente formation, from the alluvium, or from groundwater.

Such changes appear to focus on designating the most gassy ground to the Puente formation and thereby bias screening designations against routes through Zone 2 rather than Zone 3.

References to previous gassy conditions encountered in the vicinity of Zone 2 does not provide the information as to where the gases encountered actually came from and were in fact associated with the transition of alluvium and Puente formation which has a greater permeability, while the Puente formation has a demonstrated very low permeability and could not have passed the estimated volume of gas encountered in the earlier project.

Review, compare, revise, and modify related statements.

165 **p.95\S8-6/5 8.8 Geotechnical Considerations for Tunnel Design and Construction**
8.8.1 Key Ground Characteristics

The stratigraphic descriptions are largely based on the surface maps and terminology of the maps differs markedly from that used in borings so that there is little or no concurrence.

Text has not been prepared by compilation of the investigation but upon generalized statements based on historic documents and maps.

Text does not reflect the presence/absence of swelling/expanding clays, of faults/shears/fractures, and of the massive or thinly bedded shales, siltstones, sandstones, etc., all of which are influences on the feasibility of tunneling.

Text focuses on the northerly portion of the northwestern Zone 2 and does not characterize the ground conditions in the southerly portion, making up more than 50% of the total northwest radiant/swath.

Review, compare, revise, and modify related statements.

166 **p.95\S8-6/5,** Item 1 "...locally, alluvium (or soil) is **expected near the portals**."
p.95\S8-6/5, Item 2 "The active Raymond fault crosses the zone at the northwestern end and **could be encountered within the portal area and/or the approach** [8-7]"

Text presumes the locations of both North and South Portals rather than a "route [portal] neutral" approach and goes beyond the specific mandate of the Investigation.

Text focuses on the northerly portion of the northwestern Zone 2 and predicted or assumed portal being within the delineated Raymond Fault zone which only relates to the northerly portion of the Zone and does not characterize or consider the better ground conditions in the southerly portion, making up more than 50% of the total northwest radiant/swath.

Review, compare, revise, and modify related statements.

167 **p.96\S8-7/1, Item 3** "Groundwater is **shallow**...approximately 20 feet below grade...**believed** to be **ponded** on top of bedrock...**low permeability**, and...**not expected** to **transmit large** quantities of groundwater into the tunnel **except possibly in the saturated alluvium of the portal areas."**
p.96\S8-7/1, Item 4 "**Some minor**...contamination, associated with two gas stations, **could** result in hazardous materials being encountered in the **portal and tunnel approach excavations**."
Definition of shallow is usually 5ft rather than 20ft, and other terms are not clearly defined and not related to the factual content of the Investigation and information presented in the Report..
Use of "some", "minor", "believed", "expected", or "could" are inappropriate for a factual technical study and reports thereof.
"Ponded" groundwater is usually called "perched" as used elsewhere and may reflect inexperience on the part of the preparers or editors of the Report.
References to "saturated alluvium" and "portal areas" clearly indicate an accepted route and portal locations which are specifically excluded from the "Route Neutral" basis of the Study and demonstrates the bias and non-objectivity against Zone 2 and thereby provides support for eventual screening down to Zone 3.
Review, compare, revise, and modify related statements.

168 **p.96\S8-7/1, Item 6** "There is a relatively high potential of encountering naturally occurring gas (methane and/or hydrogen sulfide) in this zone."
p.97\S8-8/3 "Naturally occurring gas **could** be encountered...**suggests** that gas **could** be present in the subsurface [not specifically the Puente formation]...excavating in formations...**a potential** for noxious or flammable gases or...contamination."
No relationship is provided between designation of "Puente" as "Gassy Ground" and actual measured VOC gas levels in the borings of the investigations. Highest gas levels were not found in the Puente formation and not in Zones 1 and 2.
Verbal presentation indicated that the VOC levels were too low to be considered "credible" and gassy grounds were based on previous experiences in other tunneling projects, although specific information has not been provided to document that the gas levels resulted from the Puente formation, from the alluvium, or from groundwater.
Such changes appear to focus on designating the "most gassy ground" to only the Puente formation, and thereby Report clearly demonstrates a non-objective and bias screening designations against routes through Zone 2 and eventually support the eventual presumed selection of Zone 3. This is not "Route-Neutral" as required by the sponsors of the investigation.
Review, compare, revise, and modify related statements.

169 **p.96\S8-7/2 8.8.2 Preliminary Assessment of Tunneling Considerations**
p.96\S8-7/3 "Except for the westernmost 6,000 feet where the tunnel will be in rocks of the siltstone (Ttsl) and sandstone (Ttss) members of the Topanga Formation...**eastern** half...of a **typical tunnel** along the **northern portion of Zone 2...**Puente Formation, whereas the **western** half would be in the siltstone (Ttsl) and in sandstone **(Tpsl)** units of the Topanga Formation..."
Tpsl should be Ttss if it is a sandstone of the Topanga rather than siltstone of the Puente.
References to "Topanga Formation" and "typical tunnel along the northern portion" clearly indicate an accepted route and portal locations which are specifically excluded from the "Route Neutral" basis of the Study and demonstrates the bias against Zone 2 and thereby support for Zone 3.
Review, compare, revise, and modify related statements.

170 **p.97\S8-8/2** "**A trace** of the active Raymond fault occurs at the **northwestern portal and the approach** excavation of the tunnel may cross this active fault."
"A trace" suggests only one trace was found while Plate 1 shows three parallel traces, two south and one north of York Blvd.
References to "portal" and "approach" clearly indicate an accepted route and portal locations which are specifically excluded from the "Route Neutral" basis of the Study and demonstrates the bias against Zone 2 and thereby support for Zone 3.
Review, compare, revise, and modify related statements.

171 **p.97\S8-8/3** "...can be excavated with **modern** tunneling equipment..."

"Modern" has not been defined elsewhere and most tunneling technologies have been around for 20+ years; modern tunneling equipment depends entirely on the type of materials and presence/depth of groundwater and related estimated inflow (=permeability). Modern vs Primitive/Ancient should be defined: perhaps NATM-hand mining as "primitive" vs "digger-shields" as modern, compared to much higher costs of TBM (rotating face shields).
Review, compare, revise, and modify related statements.

172 **p.97\S8-8/3** "Naturally occurring gas **could** be encountered…**suggests** that gas **could** be present in the subsurface [not specifically the Puente formation]…excavating in formations…**a potential** for noxious or flammable gases or...contamination."
This discussion seems to contradict other much more assured discussions in other sections regarding the potential gases in the "Puente formation". Thereby Report clearly demonstrates a confused non-objective and bias screening designations of gassy ground conditions against routes through Zone 2 and eventually support the eventual presumed selection of Zone 3. This is not "Route-Neutral" as required by the sponsors of the investigation.
Review, compare, revise, and modify related statements.

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173 **p.98\9-1/4** "Other important surface roads that cross Zone 3…from south to north, Valley Boulevard, Alhambra Avenue, **Mission Road,** Main Street**, Huntington Drive Road**, Mission Street, California Boulevard and Colorado Boulevard."
"…railroad tracks cross the southwestern part of the zone between **Mission Road** and Valley Boulevard."
As in other sections and all plates, the preparers and the Report's quality control appears to be unfamiliar with the streets and cities of the Zones, especially for Los Angeles. Referenced Mission Road is in fact Huntington Drive or Alhambra Ave. Mission Road related to Valley Blvd. is in fact Alhambra Ave. in Los Angeles, rather than Mission Road in Alhambra.
Review, compare, revise, and modify related statements.

174 **p.99\9-2/1** "…not become aware of any **major underground** utility or other infrastructure that could potentially impact the excavation of a tunnel at an **anticipated depth of 200 feet**."
The "Anticipated Depth" is not defined as 200ft to soffit/crown or 200ft to floor/invert. In other sections, 100ft to crown has been stated and thereby indicates inconsistencies or errors which have considerable effect on tunneling and types of tunnel shields.
Utilities and other infrastructure are most affected by portals rather than tunnels. Since in other text, the Report discusses the geology, groundwater, hazardous materials related to the portals, the Report appears to be deficient in disregarding utilities and other infrastructure interactions with the portals and approaches for the tunnels.
Review, compare, revise, and modify related statements.

175 **p.99\9-2/6 9.3.2 Stratigraphy**
No discussion of the presence/absence of the Topanga volcanic basalt layer in borings or geophysical surveys; only referenced to one boring in South Pasadena, but without relationships to the borings and geophysical investions/surveys.
No discussion of expansive soils encountered Z3B10-Z3/B11 ((Recovery >100% and RQD≤100%) and apparent absence from all other Recovery/RQD tests.
Expansive soils are discussed in Zone 2, Sec.8 text, but not in Zone 3 text.
Review, compare, revise, and modify related statements.

176 **p.100\9-3/3** "The **principal formation** in the **southernmost** portion of Zone 3 is the Fernando Formation…overlies the Puente Formation in the southern part of Zone 3.
No definition is provided for "southernmost", presumably southern 10% of 4.5 miles = 2500ft,

The principal formation in Los Angeles/El Sereno is the Puente Formation with only one very small exposure east of Z1/B8 and between Valley Blvd. and I-210/SR-134 within Zone 1-3. Some Fernando occurs south of Valley Blvd. and much more south of I-10. As different geological maps and mapped surface units occur between Zone 1-3 and Zones 4-5, presence or absence of the Fernando or its equivalent is difficult to assess.

Identification of the "Fernando Formation", Tf, in Boring Z1/B8 is suspect as the dominant formation in the area is Puente, and the preparers have not provide clear differential definition of these "very similar" formations.

Review, compare, revise, and modify related statements.

177 **p.100\9-3/4** "The central part of Zone 3 is...Puente and Topanga Formations **separated** by **a fault** on the **north flank** of the **South Pasadena Anticline**."

"South Pasadena Anticline" is not defined, designated, nor delineated in Plate 1or anywhere else but would supposedly be in South Pasadena and the north flank should be in northern South Pasadena, SR110 or Pasadena Freeway) but no information is provided.

The only fault in northern South Pasadena is the Raymond with more than one trace (i.e., fault zone). This fault could be a trace of the Raymond Fault, an active fault, but no fault zone corridor is provided for the area. No further discussion of this "Phantom Fault" is provided although discussion of the Raymond Fault is provided.

Bedrock discussion - Central 30% of Zone 3 includes only the Topanga; southern 30% is Puente, and northern 40% is Topanga. Since Topanga is older and lower in sections than Puente, surface Topanga means Puente has been eroded off of the Topanga north of Newtonia and just south of boundary between South Pasadena and Los Angeles, El Sereno.

Top – Raymond	Qal/Oal+Ttcg	41%	
Raymond – Monterey	Qal		12%
Monterey - Newtonia	Ttsl, Ttss + Qal	18%	
Newtonia – Valley	Qal+Tp	29%	

Review, compare, revise, and modify related statements.

178 **p.100\9-3/4** "The Topanga Formation north of the Raymond fault ...[=SR-110, Pasadena Fwy.]"...predominately sandstone, conglomerate, and **breccia**. [Ttcg and Ttss, but no Ttbr]

Between the Raymond and San Rafeal faults, the only mapped units are the Ttcg and Ttss, and no reference is indicated for a separable member of "breccia".

Discussions do not relate the Dibblee map units with those encountered in the borings, investigations, and surveys.

Review, compare, revise, and modify related statements.

p.100\9-3/4 "The Topanga Formation also has **intrusive volcanic rocks**...was encountered in previous Metro study within boring EMI-2, immediately south of the Raymond fault..."

Z3B7, Z3B9, Z3G3, and Z3G4 did not report any volcanic layers and since the tunnel depth would be expected at 150-200ft below the pavement level of the Pasadena Freeway, the Report does not provide any information required to demonstrate the presence of a volcanic layer in the vicinity of the Raymond Fault and its influence on tunneling feasibility, especially from any encounter with a 15-25ft thick layer and within 500ft of the Raymond Fault and SR110.

Review, compare, revise, and modify related statements.

179 **p.101\9-4/1 9.3.3 Structural Geology**

As briefly indicated in a total of 13 lines of text, structural geology is summarized but should include: folding, faulting, and seismicity while having two separate highly disproportionate sections for structural geology and faulting; all without seismicity appears bias and inadequate and insufficient.

Combined these two sections for all the zones. Review, compare, revise, merge, and modify related statements.

180 **p.101\9-4/4 9.4 Faulting**

"The faults of most interest...are the **active faults**...ground rupture and displacement...generate strong shaking of project facilities."

Having a separate section for faulting, without discussions of seismicity and along with the absence of clear definitions for active, potentially active, and inactive faults and delineation of regulatory zonations makes the whole section inadequate.
No estimates of ground shaking and a maximum credible earthquake event
No map provides any indication or delineation of the State of California recognized Aquist-Priola "Active Fault Zones" in relation with faults indicated in the text, as "inactive", "potentially active", and "active" faults.
Add subsections within faulting that relates boring log observations and delineated "Active Fault" areas to mapped traces.
Review, compare, revise, and modify related statements.

181 **p.101\9-4/4** "Depending upon **final route selection**...Raymond and San Rafael **faults will be intersected by tunnel alignments within this zone.**"
Presumes an anticipated route east and/or north of the San Rafael Fault and the intersection of San Rafael and SR-134. Thereby Report clearly demonstrates a non-objective and bias screening designations for faults within Zone 3. This is not "Route-Neutral" as required by the sponsors of the investigation.
Review, compare, revise, and modify related statements.

182 **p.101\9-4/5** In Zone 3,...[Raymond fault] may be a **few tens of feet to a few hundred feet wide**...Raymond fault might be associated with another fault or several faults to the **south near Monterey Road**...**existence of these unnamed faults is uncertain. If** these southern faults exist, the tunnel...through a **zone of faulting** *[Raymond fault zone]* **about 2,000 to 3,000 feet wide.**"
Review of Plate 7 shows the above statement is bias or totally inadequate. The Raymond fault is Located along the northern side of SR-110,
Separated southward by 4000ft of alluvium to the nearest bedrock,
Further separated to the south by an additional 6000ft of Ttss/Ttsl to the important fault between the Topanga (north) and Puente (south) near Newtonia.
No fault is visible under the alluvium south to Monterey Rd.
The "Fault Zone" as described with footage would be 10,000ft wide based on Plate 7.
Faults on surface maps have not been related to those indicated in boring logs of Zone 3.
Review, compare, revise, and modify related statements.

183 **p.102\9-5/2** **"**The Eagle Rock fault...**potentially active**...**Caltrans...fault database**...earthquake with a **maximum magnitude of about 6.8.**"
No reference is given for attribution of "potentially active" and by reference to Caltrans info the reviewer must assume that Caltrans considers the fault to be active but without reference to past siesmicity, microseismicity, and depth/distance effects for the fault and vicinity.
No information is provided as to whether the Eagle Rock fault is a designated Alquist-Priola delineated fault or its relation to such faults further south and east.
Review, compare, revise, and modify related statements.

184 **p.102\9-5/3** **"9.5 Groundwater and Surface Water Conditions** The rocks in the Repetto Hills *[Puente, Fernando, and Topanga]*...contain little groundwater (Eckis, 1934)...verified by permeability testing as part of this project."
As in other sections, the Report confuses water content, saturation, and permeable and here within a single sentence. The bedrock may be and probably is fully saturated (100%) of its pore space (15-35%) except where gases may occupy the void space. The bedrock, however, may not yield any water flow into a tunnel or excavation, i.e., it is relatively impermeable (e.g., <10-6 cm/sec).
Review, compare, revise, and modify related statements.

185 **p.103\9-6/1-2** **"9.6 Hazardous Materials**...identified **11 open cases** located within Zone 3...**Twelve sites** with localized groundwater **or** soil contamination...Two of these sites, summarized below, are located in proximity (that is, less than 0.5 mile) to a portal zone for Zone 3:"
Text does not identify differences between the 11 cases and 12 sites and how many may be the same.
Similarly, 12 sites should be separated into those with soil, those with groundwater, and those with both contaminations and should be related to the nearest boring or their geological description and permeabilitytests.

Two sites are reported to be within 2640ft of a "portal zone". Portals, however, like routes, supposedly are unknown at this time either at the north or south end or any where in between.
Review, compare, revise, and modify related statements.

186 **p.103\9-6/2** "...site is located within 0.5 mile of the northern **portal area** for Zone 3... This site is considered to have a potential to impact the project because it is located within the **northern portal zone** for Zone 3."
p.103\9-6/2 "...located within 0.5 mile of the south portal zone for Zone 3."
p.103\9-6/2 "...located within the southern portal zone for Zone 3."
p.103\9-6/3 "...greater than 0.5 mile from a portal zone and are at a depth of less than 150 feet bgs."
Sites are reported to be within 2640ft of the "northern portal area/zone" or the "south/southern portal zone". Portals however like routes, supposedly are unknown at this time at the northern area or zone.
Review, compare, revise, and modify related statements.

187 **p.103\9-6/4 "Sec. 9.7 Potential for Naturally Occurring Gas** Monitoring during drilling revealed potential gassy conditions in only one boring **(R-09-Z3B11). However, the Puente Formation is a major petroleum-bearing unit in the Los Angeles region, so there is risk of encountering petroleum in this formation."**
As indicated below, Zone 3 VOC monitoring of borings clearly show higher VOC levels than those in Zones 1-2, including those in Diorite/Gneiss, igneous/metamorphic rock formations.

Z3B1	*-254 bgs*	*Topanga*	*VOC - 15ppm*
	-223	*Topanga*	*21ppm*
Z3B2	*-65ft bgs*		***VOC - 135ppm***
	-121ft basement		*measured to BoH*
Z3B3			*No gas monitoring and measurements*
Z3B4	*-109ft Silt/Sands*		*VOC – 51ppm*
	-156ft Sand/Gravel		*VOC - 10ppm*
	-200, -210, -234, -274ft Diorite		*VOC – 17, 77, 11, 11ppm*
Z3B5	*-15ft - -145ft*		*VOC – 30 ppm, 32, 56, 75, 20, 36, 31, 19, 21, 17, 23, 21, 19, 9, 25, 18, 30, 14, 19, 21, 12, 3, 29, 34,*
	-150 - -250ft		*4,1,3,1,10,29, 3,27, 8,30,41,22,20,17,27, 7, 18, 33, 23, 7,*
	-255 - -314ft		*19, 7, 11, 29, 32, 38, 12, 10, 23, 17, 10, 31, 4, 13,*
	-315 - -402ft		*No recording*
Z3B6	*-231, -278; -303 - -322ft*		*VOC - 0.1ppm, 0.2; 0.4, 0.2, 0.6, 0.9*
Z3B7		*No monitoring conducted*	
Z3B8	*-5 - -160ft*	*VOC – 17, 15, 17, 11, 21, 15, 16, 17, 16, 16, 18, 19, 25, 22, 14, 17, 16, 24, 21, 22, 23, 16, 24, 27, 24, 24, 20, 18, 21, 26ppm*	
Z3B8	*-160 - -275ft*	*No monitoring conducted*	
Z3B9	*-10 - -160ft All./Sed.Rock*	*VOC – 8,9, 4, 13, 9, 7, 6, 9, 11, 16,7, 9, 8, 15,19,21,6,11ppm*	
		5, 4, 5, 4, 5, 10, 11, 7, 15, 21, 2, 11, 15ppm	
	-165- -300ft BoH Diorite	*2,12,3,0.2,1,4,4,6,7,1,4,12, 7,7,7,7, 3,3,4, 11,7,8,6ppm*	
Z3B10	*0- -239, -245 - -375ft*	*VOC - <3ppm;*	
	-240ft	*VOC – 14ppm*	
Z3B11		*46 VOC gas values, 0.9-20.6, 4:>20<21, 1:18, 1:13, 40:<8.5ppm*	
		-102, -156, -181, -182ft 20	
		-151ft 18	
		26 0-161ft alluvium, 19 >-161 - -275ft	
Z3/12	*54 0-38,*	*VOC - 1:>10, 53:<6ppm*	
Z4/B4	*21*	*3.4-51.5 6:<20, 15:>20, Median 25ppm Fernando Formation ONLY*	
		Check Z4B4 highest averaged values for all VOC tests	

As indicated above, the text is incorrect and the entire discussion of gassy grounds for Zone 1-4 avoids incorporation of actual monitoring of the investigation compared to bias and poorly related relation of gas and the Puente formation, especially given that the investigation also clearly indicated that the claystone, siltstone, and shales have very low permeability for water and thereby also gases.
Review, compare, revise, and modify the Zone 1-5 statements related to the Puente and gassy grounds.

188 **p.103\9-6/5 9.8.1** "Subsurface conditions vary...**strong granitic** basement rocks..."
p.104\9-7/1 "• Rock strength varies...to the higher strength **granitic** rocks...**Strong volcanic flows, dikes, or sills** are also present in the unnamed fault zone south of the Raymond fault."

p.104\9-7/3 "Tunnel excavation…a range of conditions including…stronger **granitic** rocks."
Other geological reports clearly state that granite does not exist in any zone of the Project area; preparers should remember not all igneous and metamorphic rocks are granite, although granite is an igneous rock and often is associated with metamorphic rocks.
Similarly, the investigation did not encounter volcanic rocks in any boring or surface exposure, although the text references a proprietary-not publicly available documented occurrence somewhere south of the SR-110.
Review, compare, revise, and modify the Zone 3 statements related to any granites and volcanics.

189 **p.105\9-8/2** **"Tunneling** through…faults…known that the **Raymond fault** is a groundwater **barrier**…**potential to act** either as groundwater barriers or **as conduits**."
Although not developed adequately in the groundwater section, tunneling through the Raymond fault should be documented as to whether the tunneling or the fault itself provides ormwould provide a barrier and/or conduit to groundwater.
Fault crossing across the Raymond zone requires an expanded facility to incorporate lateral/vertical movements.
Review, compare, revise, and modify related statements

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SECTION 10 - Site Conditions for Zone 4, pdf-pg.106-113\10-1 - 10-8

190 **p.106\10-1/1 10.1** "As depicted…Zone 4 extends northeasterly…through the **cities** of Alhambra…to I-210."
As indicated before, Zones 1-3 and Boring Z1/B8 begin in the City of Los Angeles. Detailed review of related Plates indicate the Zone 4-5 start at the east side of the I-710 interchange with the south side of Valley Blvd. Since the Zones 4-5 include transposed Boring Z1/B8 the City of Los Angeles should be added to the lists of jurisdictions included for both Zones 4 and 5.
Review, compare, revise, and modify related statements

191 **107\10-2/3 10.3.2 Stratigraphy** "Geologic formations…sedimentary rocks, and Quaternary-age non-marine alluvial sediments…rock formations are Topanga Formation, Puente Formation, and Fernando Formation."
Quaternary alluvial sediments have defined formational units for the many groundwater studies done in the western San Gabriel Valley and therefore in Zones 4-5. Discussions of Quaternary alluvium, especially at >100ft depths, should reflect know formations within the Quaternary "alluvium". These formations often have significant differences in groundwater (e.g., aquicludes, aquitards, and aquifers) and thereby are significant to tunneling and portal construction in the upper 200ft of "alluvium".
Review available groundwater and hydrogeological reports for the San Gabriel Valley, then review, compare, revise, and modify related statements and recirculate.

192 **107\10-2/5** "The Fernando Formation…southwestern portion of Zone 4 (Plate 8)….massive (unbedded) soft, dark gray to black, marine claystone and siltstone."
107\10-2/5 "Near…**southwesternmost**…Zone 4,…Puente Formation **might**…siliceous shale…[p.10-3] thin-bedded mudstone."
No definition nor quantification is provided for "southwestern portion", "southwesternmost", and "might".
The principal formation in Los Angeles/El Sereno is the Puente Formation with only one very small exposure east of Z1/B8 and between Valley Blvd. and I-210/SR-134 within Zone 1-3. Some Fernando occurs south of Valley Blvd. and much more south of I-10. As different geological maps and mapped surface units occur between Zone 1-3 and Zones 4-5, presence or absence of the Fernando or its equivalent is difficult to assess.
Identification of the "Fernando Formation", Tf, in Boring Z1/B8 is suspect as the description above does not accord with that in Boring Z1/B8 and Z4/B4 and as the dominant formation in the area is Puente, and the preparers have not provide clear differential definition of these "very similar" formations.
Review, compare, revise, and modify related statements and recirculate.

193 **108\10-3/2 10.3.3 Structural Geology** "As shown in **Plate 8**...deformed...folds and faults...continuations...in...west...trend southeasterly and continue...below...San Gabriel Valley...are the **Elysian Park Anticline** and the **South Pasadena Anticline**."

Plate 8 and others for Zones 1-3 do not show any designations for either "Anticline". North of Valley Zone 4 lies within the City of Los Angeles, Boring Z1B,

No information is provided or referenced with regard to continuation of anticlines or any other structure beneath the San Gabriel Valley.

Review, compare, revise, and modify related statements and recirculate.

194 **p.108\10-3/3** "The folds are offset by **many** faults...**no longer active**...**numerous small**-scale folds within the larger fold trends...changes in bedding orientation **should** be **expected**... **Many**...faults are intraformational features...offset rocks of the **same type**...these **faults are minor breaks**, they **may not significantly** affect a TBM."

The discussion is not supported by boring records, surface surveys, and referenced maps and documents. Text does not provide definitions of terms, such as faults, minor breaks, same types, etc. No comparison of "faults", "shears", "fractures", "minor breaks", and "intraformational" is provided.

Several borings indicate faults and shears within similar materials and thereby may be significant; the Report does not compile the faulting found in boring logs and does not relate such in boring logs with those on maps and those discussed in the Report texts.

Review, compile, compare, revise, and modify related statements and recirculate.

195 **p.108\10-3/4 10.4 Faulting** "The **faults** of most interest...active faults...**might** result in displacement..., and faults...**might generate strong shaking** of project facilities."

Text does not provide adequate discussion of faults (active and potentially active) and seismicity which "might" generate strong shaking and significant seismic waves. Strong, prolonged shaking has more importance to tunnels than fault displacement, as connections of the portals, shafts, passages, and the tunnels will respond adversely along with reactions/responses of the vehicular occupants in the tunnel.

Review, compare, revise, and modify related statements and recirculate.

196 **p.109\10-4/3 10.5 Groundwater and Surface Water Conditions** "**Significant** amounts of groundwater...only in alluvial deposits...Tertiary sedimentary rocks are **non-water-bearing** and do not **yield significant** groundwater volumes.

No definition is given of "significant", "non-water-bearing", and "yield".

As indicated before, investigations were conducted to quantify permeability and water contents which clearly showed that the "rocks" are water-bearing, 25-30+% porosity and water content while permeability or "yields" are very low.

The Report has not compiled the relevant study results and quantifications with regard to permeability, groundwater piezometer levels, and geological materials.

No coordination is provided between the groundwater permeability and that for "naturally occurring ground gases" or "gassy conditions"

Review, compare, revise, and modify related statements and recirculate.

197 **p.110\10-5/1** *Items 1 to 6:* Items 1-5 "This site is located within **0.5 mile of the northern portal...a potential to impact**...located within the **northern portal zone** for Zone 4 and **has impacted** the soil." *AND* Item 6 "...located within **0.5 mile of the southern portal** for Zone 4...a potential to impact the project...located within the **northern portal zone...has impacted** the soil."

As before, text indicates that locations of portals are known at both the north and south ends of Zone 4, although the Study Report is supposed to be "route neutral" which should include the portals and approaches of >5000ft in length.

No definition is provided for "potential to impact" and "has impacted" and no reference is given for this Investigation or previous studies.

Review, compare, revise, and modify related statements and recirculate.

198 **p.111\10-6/1 10.7 Potential for Naturally Occurring Gas** "...alluvium...not a producer of hydrocarbons...rocks that serve as the source for hydrocarbons...and **small oil fields are located around the southern margin**...important groundwater aquifer and no incidents of naturally occurring hydrocarbons

have been reported ...potential for naturally occurring gas to be encountered within Zone 4 is considered low."

In several tunneling projects, ground gases have been encountered most often within the more permeable alluvium rather than the more impervious (very low liquid permeability and presumably low gas permeability) sedimentary rocks, except for porous and permeable sandstones within the Puente and along faults and fracture zones. Gas monitoring in the Investigation clearly showed the highest median and most consistent gas levels were in fact found in the alluvium of Boring Z4/B4.

Based on the monitoring of Zone 4, Zone 4 should be considered as at least "moderate".

Review, compare, revise, and modify related statements and recirculate.

199 **p.111\10-6/2** Item 3 "The **active** Raymond...and Alhambra Wash fault[s]...**could** cause ground rupture during a **large** earthquake...inactive faults...cross the southwestern portion of this zone."

No discussion has been presented regarding the potential for ground rupture along the trace of the Alhambra Wash Fault. No discussion has been presented regarding the inactive faults, such as the Highland Park Fault or other known lengthy faults.

Based on the definition of "alluvium" of Zones 4-5, loose materials should not suffer the displacement expected in the firm bedrock of Zone 3, although they may be subject to risks of liquefaction. Both elements are not discussed in this section or similar sections for Zone 5

Review, compare, revise, and modify related statements and recirculate.

200 **p.111\10-6/2** Item 4 "**Most...**tunnel...at or below the water table. Depth to groundwater varies...could be as shallow as 100 feet below grade...Raymond fault is a groundwater barrier;...Groundwater inflows could occur...tunneling below the groundwater...in the saturated alluvium."

No design has been presented and the relationships of tunnel depths of 50, 100, or 150ft to the known groundwater depths has not been established within Zones 4-5. Such design and soil conditions are in contradiction to the concept of liquefaction provided later; liquefaction with groundwater depths of more than 100ft does not appear reasonable.

Review, compare, revise, and modify related statements and recirculate

201 **p.111\10-6/2** Item 5 "CDMG (1999d) identifies the alluvial materials within Zone 4 as potentially susceptible to liquefaction in areas where the groundwater location is in loose cohesionless soils."

No design has been presented and the relationships of tunnel depths of 50, 100, or 150ft to the known groundwater depths has not been established within Zones 4-5. Such design and soil conditions are in contradiction to the concept of liquefaction provided later; liquefaction with groundwater depths of more than 100ft does not appear reasonable.

Review, compare, revise, and modify related statements and recirculate.

202 **p.112\10-7/1** Item 6 "...also present in this zone **close enough** to impact the tunnel. Most of these sites are located in the vicinity of the northern portal."

No design or alignments has been presented nor allowed, and therefore the assumption of sites being "close enough" to impact tunnels has not been established within Zones 4-5.

Review, compare, revise, and modify related statements and recirculate.

203 **p.112\10-7/5** "An excavation method capable of tunneling...would need to be specified for this reach, such as a **pressurized-face TBM.**" [Earth-Balanced Pressure, EBP-TBM]

p.112\10-7/5 "The potentially running or flowing conditions...would depend on a variety of factors...cover above the tunnel (i.e., distance from the tunnel crown to the ground surface)...**ground cover of at least two tunnel diameters is desirable for minimizing settlement magnitudes.**"

Tunnel design, dimensions, and depths have not been presented consistently and are not allowed, and therefore assumptions of two or three tunnel diameters of cover have not been established within Zones 4-5. Tunnel depths of 2x – 3x tunnel diameters yields 100-150ft to top of tunnel, 130-180ft to road levels, and 150-200ft to bottom of tunnel borings as minima.

Such parameters apply to certain methods of tunneling and therefore would not be "neutral".

Review, compare, revise, and modify related statements and recirculate.

204 **p.112\10-7/7** "This zone has active and inactive…faults...active Raymond fault is a known major groundwater barrier [Alhambra Wash]…inactive fault zones have the **potential** to act as groundwater barriers or conduits…"

Although numerous geophysical surveys have been conducted in Zones 4-5, no investigation supported assessments of groundwater barrier effects from all "active", potentially active", and "inactive" faults, fractures, and shears within the Zones and their relationships with the liquefaction zones, groundwater tables and aquifers, and "expected" tunnel, portal, and approaches depths.

Based on boring logs, seismic and surface wave investigations and earlier groundwater studies in the San Gabriel Valley, the Study Report should have documented the actual rather than the "potential" barrier or conduit effects.

Review, compare, revise, and modify related statements and recirculate.

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205 **p.114\11-1/2** "Mission Road…Valley Boulevard and Las Tunas Drive run parallel to the zone in its **northern and southern limits, respectively**…railroad tracks cross…between Mission Road and Valley Boulevard."

The preparer is confused, Valley Blvd., runs along the southern and Las Tunas/Main St. runs along the northern boundaries of Zone 5.

Review, compare, revise, and modify related statements and recirculate.

206 **p.116\11-3/1-2** "Very limited outcrops of the Fernando Formation and Puente Formation occur at the **westernmost** portion of Zone 5…subsurface, the Fernando Formation…underlie Zone 5 east of the Highland Park fault…Puente Formation…occur to the west of the same fault at a very shallow depth…Fernando Formation in the western portion of Zone 5…underlying Puente Formation..."

If the Fernando formation underlies east of the fault and Puente underlies west of the fault, the Highland Park Fault appears to be more significant than just an "inactive fault", but no seismic history for this and other long major "inactive faults" in Zone 1-5.

If the Fernando formation is so limited in outcrops, then more borings should have been done or referenced in order to calibrate the numerous geophysical surveys which were conducted without borehole controls especially for groundwater levels, bedrock weathering, and competent bedrock and sound cores.

Surveys did not confirm the conjectures that the Highland Park Fault passes under the alluvium and virtual continuous urbanized land uses, resulting in limited exposures and needs for greater boring if in fact this is a feasible alternative Zone.

Review, compare, revise, and modify related statements and recirculate.

207 **p.116\11-3/3** "…alluvial deposits in this basin are nearly horizontal or have a gentle inclination to the south, similar to the slope of the existing surface topography." and "The most notable…are the Alhambra Wash, Workman Hill, and Highland Park faults…"

p.116\11-3/5 "…active Alhambra Wash fault, three inactive faults…Workman Hill fault, Highland Park fault, and Montebello fault are interpreted to cross Zone 5 in the western portion of the zone. None of these faults are well known…"

No information is provided regarding the alluvial geology and extensive hydrogeological investigations of the basin; therefore the conjecture regarding the lithology or structure of the alluvial deposits and its similarities to the surface topography is misleading and/or irrelevant. As a discussion of Structural Geology, the entire section, 11.3.3, of 8 text lines is irrelevant and further emphasizes that the preparers apparently do not understand that Structural Geology includes all faulting and seismology and folding

Text and plates do not provide the Alquist-Priola Active Fault zones and reviews/comparisons of such zones and traces or zones of "potentially active" and inactive faults.

The Report and this section do not explore historic microseismic activities within the San Gabriel Valley which could improve the seismological information for the zone and characterization of the activity of various fault zones.

Review, add references, add maps, compare, revise, and modify related statements and recirculate.

208 **p.116\11-3/4** **"...investigation** revealed deformed...sediments along the projection of this fault...**assumed** that the Alhambra Wash fault...intersect Zone 5 and is **considered to be active fault**...maximum earthquake...about 6.25...potential surface rupture displacement...much less than those...along the Raymond fault (less than 2 to 4 feet..."

No analyses and no relationships are shown for "recognized" active, potentially active, and inactive faults and similar length of known traces.

No information is given for the Highland Park Fault and Z3/G6 in earlier sections and in this Zone section.

Text and plates do not provide the Alquist-Priola Active Fault zones and reviews/comparisons of such zones and traces or zones of "potentially active" and inactive faults.

Review, compare, revise, and modify related statements and recirculate.

209 **p.117\11-4/2** "The **inferred** bedrock discontinuity...**might** explain a **significant** disparity...**might** correspond to an **unnamed fault zone** that extends across this area to the Raymond fault...**data** that led to interpretation...**not of high** resolution...feature may represent either the East Montebello fault or the Alhambra Wash fault (or both)."

The Report has not provided delineation of the "unnamed fault" found in several zones and those in the boring logs, and therefore text is inadequate at best and misleading.

Various conditionals above generally render the section unusable as "sound research" or even "best guess". Data from investigations should have been compiled and "conjectures" better quantified.

Review, compare, revise, and modify related statements and recirculate.

210 **p.118\11-5/3** "Four...sites...proximity (...less than 0.5 mile) to a **portal zone**...summarized below...[+4 listed items]"

p.119\11-6/2 "The remaining 32 sites...with localized...contamination were identified...Zone 5 and...**considered** to have a **low potential** impact...located greater than 0.5 mile from a **portal zone**..."

Design, layouts, and alignments have not been presented and are not allowed, and therefore the assumption of sites being "close enough" and whether within/beyond 2640ft is sufficient to define risk to impact portals or tunnels has not been established within Zones 4-5.

No definition or quantification is provided for "considered", "low", and "potential"

Review, compare, revise, and modify related statements and recirculate.

211 **p.119\11-6/4, Item 3** "Alhambra Wash fault is **considered** active and projects into this zone. The inactive Workman Hill fault projects toward the western portion of the zone."

No delineation nor definition of state recognized as active and whether the preparers are independently ascribing "active" and whether such zones are established and delineated within Zones 4-5.

If considered as "Active", are all agencies within the area subject to requirements of the Aquist-Priola designation for this zone?

Review, compare, revise, and modify related statements and recirculate.

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212 **p.126\12-5/1 12.1.3** "This twin-bore tunnel system was built in three different segments at different times. **Segment 1 extends from Union Station to the west along Wilshire Boulevard.**"

Actually Phase 1 or Segment 1 was constructed from south of US101, southeast of Union Station, and only extended to Alvarado Str. on the west side of the Downtown Area; Phase/Segment 2 extended from the Alvarado Station westward along and under Wilshire Blvd. and to Hollywood Blvd..

Review, compare, revise, and modify related statements and recirculate.

213 **p.126\12-5/2** **"Geologic Conditions:** Segment 1 was excavated through both the Fernando Formation and Los Angeles River alluvial deposits. The Fernando Formation consisted of well-stratified claystone and siltstone with significant cohesive strength...alluvium consisted of firm to very stiff silts and clays, and medium-dense to very dense sands..."

The Alluvium in the Union Station area contained considerable coarse sand to cobble/boulder gravels with high and sulfide and HC-contaminated groundwater.
Review, compare, revise, and modify related statements and recirculate.

214 **p.128/1, 12.1.3 "Relevance to SR-710 Project:** Many aspects of the Los Angeles Metro Red Line will be similar to those of the proposed SR-710 tunnel, depending on the alignment chosen. **Both tunnels are twin-bore transit tunnels with cross passages** and excavation in a very urban environment."

SR-710 is not a transit tunnel of less than 25ft diameter without compartmentalization and will not respond is the same manner. The anticipated size from this Report is >50ft diameter and because of the cross-bracing for ventilation and road compartments would not react to seismic waves in the same manner as the smaller transit tubes or the liquid(water/sewage)-filled tube in the ground.
Because of the larger diameter and variations in ground strength (due to lithologic or fractured changes), a significant seismic wave may cause differential movements between different portions of the tube (floor and crown).
As the largest-ever road tunnel(s) and twice the size of the Red Line tunnels, the proposed Project Tunnel(s) requires vastly different construction and ventilation and access requirements compared to electric-driven transit trains; SR-710 goes much deeper and requires perhaps a mile or more of portal to get down to tunnel road depths. Portals and approaches would form perhaps half (or more) of the total length of the project while portals for the Redline are less than 200ft in length.
The much smaller diameter rail transit would be expected to fit into a more uniform geological envelope and have a more consistent response to the same seismic forces as the proposed road tunnel; the rail tunnel would survive with less effects than those of the road tunnel.
Review, compare, revise, and modify related statements and recirculate.

215 **p.128/1, 12.1.3** "...projects in the Los Angeles area, the potential for naturally occurring gas (in Zones 1 through 5) or other contaminants (in Zones 1, 4, and 5) is expected in the SR-710 tunnel as it was encountered for the Metro Red Line tunnels."

Potential for encountering gas was realized only in specific areas. The Study conducted gas monitoring, but as stated in the public presentation of the Stud, the gas levels were so low, everywhere, as to make them irrelevant to any engineering feasibility. As a result the Report preparers threw out the results of the gas monitoring and solely attributed "gas" only to the Puente Formation. Higher gas (10% of LEL) levels in the Red Line were encountered in the Union Station alluvium (as it was in the Z4B4) and the Civic Center's Fernando Formation as stated elsewhere in the Report, not the Puente formation.
Referenced occurrences in NEIS excavations were based primarily on odor, sulfide gases, while methane could not have accumulated as it is a buoyant gas not a heavy gas. As indicated by the permeability testing for this Study, the Puente is a low permeability formation and has virtually no water flows/yields which would also indicate that gases would enter at similar rates to that of water. Therefore, attribution of gassy ground to the Puente is not based on monitoring during the Study and not based on Red Line occurrences.
Review, compare, revise, and modify related statements and recirculate.

216 **p.139/3 12.4 Similarities between Sewer, Water, and Highway Tunnels**
"All tunnels must adhere to fire-life-safety standards *[during construction]*...; however, a **highway tunnel** must have a permanent fire-life-safety system...proper emergency ventilation, fire suppression, communications, refuge areas, emergency exits (to the surface or a cross passage to an adjacent tunnel), and alarms...ventilation needed for a fire to clear out harmful chemicals...under normal operations to eliminate the products of combustion in vehicles traveling though the tunnels."

The discussion of other tunnels bear little if any relevance to road tunnel requirements as the tunnels contain vehicles which are gas and diesel fueled. With a typical lane/vehicle capacity of 1000+ cars/hr and 5 mi in length and 60+mph maximum lane speeds, we can expect at least 300 vehicles in each tunnel at LOS C-D carrying about 12,000 gal of flammable fuels (10 gal-gasoline/vehicle x 200 and 100gal-diesel x 100); this forms a major soft target for seismic-induced accidents and other more purposeful activities with devastating effects with realized risks.
Focus on road tunnels only and review, compare, revise, and modify related statements and recirculate.

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SECTION 13 Comparison of Zones - p. 140-146 (13-1 - -7)

217 **p.140\13-1/ Section 13 Comparison of Zones**
A tunnel in Zone 2 will encounter **mainly** the Puente Formation and the Topanga and Fernando Formations…**Less** alluvium is **expected** in the **portal areas**
No design or alignments has been presented nor allowed, and therefore the assumption of sites, areas, or alignments being "mainly" and "expected" to impact tunnels or portals has not been established within Zone 2.
The Report preparers have established a presumed alignment for Zone 2 which purposefully pass through the north half radiant of the Zone 2 arc, while other tunnelers would chose the southerly radiant, under Mt. Washington rather than the more northerly valley. This presumption bias the entire review of Zone 2 and assign a portion of the Raymond Fault, alluvium, and hazardous materials sites to the northerly portal and thereby an extension of the tunnel attached thereto. Similar assignments are given for the southerly portal which again clearly demonstrates assumed locations which would not be the location of choice for an experienced tunnel designer.
Review, compare, revise, and modify related statements and recirculate.

218 **p.140\13-1/3** Zone 3 "Variable geologic conditions…Alluvium (soil), low-strength rock, and **high-strength** rock…", "Bedrock material…weak rocks… **strong to very strong diorite.**", and "**Strong cemented layers** or concretions…cobbles and boulders…in…alluvium and conglomerate…"
Although the discussion of Zone 3 indicates the problems of diorites and other hard/strong materials in the northern third of Zone 3, no discussion is provided to characterize referenced occurrence of volcanic materials, "basalts" within the tunneling levels anticipated for the tunnel beneath South Pasadena. The inadequate description of the geology for Zone 3 clearly shows a bias for reducing adverse effects within Zone 3.
Review, compare, revise, and modify related statements and recirculate.

219 **p.140\13-1/6 13.1.2 Groundwater** "Shallow groundwater depth **could affect western end portal construction on the western end of the tunnel witin Zones 1 and 2…**water inflows within bedrock formations is **expected** to be low, except..."
No design or alignments has been presented nor allowed, and therefore the assumption of sites or areas for portal construction and the potential for groundwater inflow to impact tunnels or portals has not been established within Zones, assuming that the tunnel designers/planners would be stupid enough to port through the alluvial plains before having to rise to the above grade levels of existing freeway grades.
The Union Station Red Line Station in Phase 1 was constructed in more than 80ft of loose gravels with high groundwater tables and was successfully constructed for more than one year.
The Report preparers have established presumed alignments and profiles for Zones 1 and 2 which purposefully pass through alluvial plains with high groundwater tables, while other tunnelers would chose available drier and less permeable materials available under Mt. Washington. Similar assignments are given for the southerly/easterly portals which again clearly demonstrate assumed locations which would not be the location of choice for an experienced tunnel designer.
Review, compare, revise, and modify related statements and recirculate.

220 **p.141\13-1/6 - -2/1** **"…encounters porous** strata, fractured or fault rock…inflow **could** be **moderate to high** at fault crossings…fracture zones."
p.142\13-2/2 "Variable groundwater depths…anticipated in Zones 3 and 4…Raymond fault acts as a groundwater barrier in Zones 3 and 4. [high on north side, lower on south] feature acts as a potential groundwater barrier, resulting in **variable** groundwater depths.
These verbs bear little relationship to the actual observed conditions found in borings and geophysical surveys and appear to be arbitrary and bias. The Raymond Fault has been described groundwater barrier which appears to contradict the adjectives of moderate and high. The preparers appears to not recognize basic geohydrologic aspects of porous and permeable, as water content differs from water flow in geological formations. Use of "variable" appears to allow any interpretation the reader wishes to assign to the section, and therefore is arbitrary.
Review, compare, revise, and modify related statements and recirculate.

221 **p.141\13-2/2** "...majority of the tunnel excavation [in 4-5] would be in saturated ground.
The Report preparers have established presumed alignments and profiles for Zones 1 and 2 which purposefully pass through alluvial plains with high groundwater tables, while other tunnelers would chose available drier and less permeable materials available under Mt. Washington. Similar assignments are given for the southerly/easterly portals which again clearly demonstrate assumed locations which would not be the location of choice for an experienced tunnel designer.
Review, compare, revise, and modify related statements and recirculate.

222 **p.141\13-2/3** "...Groundwater...**encountered** during most tunnel projects...**important consideration** for design, construction, and operation of tunnels...[but] is **not considered a unique issue**."
No definitions or quantifications is provided for these conjectures of "encountered", "important", "consideration, and "unique".
As this and other sections have indicated, the three-five screening parameters are not unique issues for tunneling, but the Report does not provide the screening and relationships to criteria for screening parameters presented to the Technical Advisory and Steering Committees for this Study. The generalized conjecture that all conditions are important, and tunneling methods can deal with all conditions, and no condition limits tunneling by some tunnel method do not comply with the screening and comparison of criteria levels provided to the Committees.
Review, compare, revise, and modify related statements, return and comply with parameters, criteria, and screening submitted to and approved by the Technical Advisory and Steering Committees for this Study, and recirculate the revised document.

223 **p.141\13-2/4 13.1.3 Faulting and Seismicity**
"...**steeply dipping**, **inactive** faults in all five zones...active Raymond fault crosses near the northwest [NORTH side] end of Zone 2....Raymond fault, as mapped in Zone 3, is a groundwater barrier...Raymond fault crosses Zone 4...where it is also a groundwater barrier.
The section does not deal with structural geology and seismicity and thereby is inadequate and incomplete. The entire Report has not dealth with seismicity or with the maximum credible earthquake/seismic event and thereby remain inadequate and deficient to one of the stated parameters of the original Study and related funding.
The evidence and results found in the Report does not support the definition of "steeply dipping...faults" and the Report use of such should be referenced to actual field investigations presuming by others.
Review, compare, revise, and modify related statements and recirculate.

224 **p.141\13-2/4** "...**potential** fault displacement of 2 to 4 feet...during a **major** seismic event for the Raymond fault."
p.141\13-2/5 "...**potentially active** San Rafael and Eagle Rock faults...across Zone 3, as are several inactive faults...fault displacement...expected to be less than 4 feet."
p.141\13-2/5 "...crossing active faults...seismic-related fault displacement...special design and construction methods..."
The entire Report has not dealth with seismicity or with the maximum credible earthquake/seismic event and the relationship of seismic event and probable offset/displacement along the fault. A range of offset from a single event from 2 to 4 feet appear arbitrary and is not supported by the investigations or the information presented in the Report. For Zones 4-5, no consideration is given to the potential liquefaction based on the known ground and groundwater conditions during construction and operations of the world's largest road tunnel. Therefore the Report and Sec. 13 remain inadequate and deficient to one of the stated parameters of the original Study and related funding.
No mention of potentially active faults and their seismic events.
Review, compare, revise, and modify related statements and recirculate.

225 **p.141\13-2/7 13.1.4 Hazardous Materials**
"...**major contamination issues**...sites within Zones 1, 4, and 5.", "San Fernando Valley Superfund Site (Zone 1)", and "San Gabriel Valley Superfund Site (Zones 4 and 5)".
p.141\13-2/9 "... NPL listings will pose a particularly difficult situation...technically possible to construct [Zones 4-5] tunnels...risk could be beyond what can be accepted."
p.141\13-2/8 "...that have the potential to impact the project, depending on the final tunnel alignment."

Although the term, "major" would suggest some sort of constraint would be established for Zones 1, 4, and 5, some sort of tunneling method could be devised to deal with even major groundwater and soil contamination in the three zones, depending on how a competent tunnel and portal planner/designer would deal with the sites.

The Report, however, does not establish whether the portal areas or the tunnel route would encounter the contaminated soils and waters at all. Based on the boring logs for Zone 1 and 4, aquicludes and "fat clays" could be anticipated to reduce the influence on or from such contamination. Similarly a competent planner would not port a tunnel system in the LA River floodplain, but would port above the alluvium from beneath Mt. Washington and connect to the I-5 or SR-2 by overhead viaduct.

The suggestion that tunnel might encounter such contamination would require the Report to have a design/routing for the tunnels and locations for the portals. Such details have been referenced as not available and not appropriate to a "route neutral" study.

Review, compare, revise, and modify related statements and recirculate.

226 **p.141\13-2/7** "...localized...contamination sites within all of the zones..."

Although the term, "localized...contamination" suggests some sort of influence on the screening of zones, the lack of quantification renders raising such issues as arbitrary, especially as with tunneling methods, something could be devised to deal with localized, generalized, minor, or even major contamination in all zones, depending on how a competent tunnel and portal planner/designer would deal with the sites.

During the various Study's drillings, no contamination was encountered, apparently or none described, which would suggest that raising the localized contamination issue has other purposes. Since none was reported there appears to be bias in raising the issue, since there is no technical support from the investigation.

The suggestion that tunnel might encounter such contamination would require the Report to have a design/routing for the tunnels and locations for the portals. Such details have been referenced as not available and not appropriate to a "route neutral" study.

Review, compare, revise, and modify related statements and recirculate.

227 **p.142\13-3/1 13.1.5 Naturally Occurring Gas** "...naturally occurring gas...in the Puente Formation...potential for gassy conditions in other formations...considered low...", "...significant distances [in Puente]...potential [risk] for encountering gas in Zones 1 and 2 is higher than the other zones.", and "...moderate potential for naturally occurring gas in Zone 3 due to the extent of the Puente Formation."

As commented on elsewhere the Study included gas monitoring which showed that the alluvium of Z4B4 contained more consistent and highest median levels than other formation, which closely relates to the occurrences of sulfide and methane in the Red Line Phase 1 construction. Such would indicate the higher risks would be encountered in Zones 4-5.

The highest recorded level of VOC gas was found in the Zone 3 borings, not in Zones 1-2, but as stated by the preparers in presentations of the Report, the gas levels were too low and the preparers discounted the facts and evidence and chose to use their arbitrary designation of the Puente formation as being the only gassy formation. This appears to reflect evidence not in the Study and selected to offset the feasibility of Zones 1 and 2, compared to Zone 3, not route neutral.

In several tunneling projects, ground gases have been encountered most often within the more permeable alluvium rather than the more impervious (very low liquid permeability and presumably low gas permeability) sedimentary rocks, except for porous and permeable sandstones within the Puente and along faults and fracture zones. Gas monitoring in the Investigation clearly showed the highest median and most consistent gas levels were in fact found in the alluvium of Boring Z4/B4.

Based on the monitoring of Zone 4, Zone 4 should be considered as at least "moderate".

Review, compare, revise, and modify related statements and recirculate.

228 **p.142\13-3/4 13.2 Tunnel Excavation Methods** "Tunnel excavations in Zones 1 and 2 are considered to be **routine** with **modern** tunneling equipment, such as the TBMs used for the NEIS project.", "...uniformity of geological conditions in Zones 1 and 2 will simplify construction planning.", and "...cemented layers and concretions...might reduce tunnel advance rates..."

Tunneling methods have not been well classified and defined in the Report, however, the simplest tunneling of NATM/SEM and next simplest of Digger Shields with Road-headers could be easily used in most of Zones 1, 2, and 3. Reference to much more expensive TBM as being routine may now be correct but

that is primarily for those efforts influenced by high groundwater and poor ground risks, and perhaps over zealous and highly paid proponents.

The Report does not and should provide a simple classification of tunneling methods, select one (probably Digger Shield with Roadheader) and compare all zones.

Review, compare, revise, and modify related statements and recirculate.

229 **p.142\13-3/5** **"...**Zone 3...encounter varied geologic conditions...soil, low-strength rock, and high-strength rock.", "Cobbles and boulders in alluvium and Topanga Formation conglomerate... reduce...excavation rate.", "Diorite...harder rock...excavate differently than the sedimentary rocks...done with a specialized machine...", and "Alluvium...greater potential for surface settlement than tunneling through rock..."

The comparisons with Zone 3 do not reference the presence of Topanga volcanics (basalt layer) reference in the earlier discussions of geology. As indicated previously the presence of a 10foot layer of basalt (or cobbles and boulders or diorite layers) would be a major problem for tunneling, "mixed face" conditions, especially for a 50ft diameter rotating face TBM. The inconsistent reference to the Topanga volcanic layer suggests that the comparisons have been selective with regard to Zone 3 conditions whereas they have been more inclusive for hazardous materials and gassy ground conditions for Zones 1 and 2.

Review, compare, revise, and modify related statements and recirculate.

230 **p.142\13-3/6** **"**Alluvium...main materials in Zones 4 and 5...short reaches **near portals** in Zones 1, 2, and 3."

p.143\13-4/2 **"**Open excavations in alluvial soils...in the **tunnel portals in all of the zones**..."

As the portals and tunnel routes should not have been or have not been established the Report's description of alluvium for near portals in Zones 1-3 seems arbitrary and not based on facts in the Report or elsewhere, as well as being against the "route neutral" approach that the Study supposedly has been guided by. This is further compounded by the relating of "short reaches" of alluvium to being near the portals.

Review, compare, revise, and modify related statements and recirculate.

231 **p.143\13-4/3-5** **13.3 Seismic Considerations** "Tunneling through these faults...include fractured rock, clay gouge, and varied groundwater conditions. groundwater head/potential for groundwater inflow commonly change during a fault zone crossing."

The section does not provide evidence or Study results regarding seismicity and thereby this section is inadequate and incomplete. The entire Report has not dealt with seismicity or with the maximum credible earthquake/seismic event and thereby remain inadequate and deficient to one of the stated parameters of the original Study and related funding.

Review, compare, revise, and modify related statements and recirculate.

232 **p.143\13-4/4** **"**Raymond fault is **expected to cross near the *[northern]* portal area** in Zone 2 and to cross the tunnel in Zones 3...Special considerations...for excavating through a fault and lining the tunnel in an active fault zone."

As the portals and tunnel routes should not have been or have not been established, the Report's description of the Raymond Fault being "expected to cross near the portal area" and conflicting statements elsewhere in the Report that the fault actually lies within the portal area seems to be provided herein this section for other purposes and seems arbitrary and not based on facts in the Report or elsewhere. Any assignment of the portal areas for any Zones is in conflict with the "route neutral" approach that the Study supposedly has been guided by.

Furthermore to change the certainty from "in" to "near" in this later and comparative section appears to be based on the anticipated readership of this section compared to those of others.

Review, compare, revise, and modify related statements and recirculate.

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APPENDIX A – BORING LOGS
Appendix A.1 Current Boring Logs

233 *Boring logs and other activities related to the boring program are NOT compiled for supporting the various statements attributed to the boring program within the text. The single Table does not reflect presence/absence of hazardous materials contamination and gassy grounds/VOC monitoring above, at, or below the expected tunnel levels – say 100-200ft bgs.*

Protocols/procedures are discussed for RQD which are only considered as reliable for "hard rocks" in Zone 3 BUT procedures/protocols are NOT provided for hazardous materials, oils/tar, gases, and odors.

Table A-1 p.A1-2 values show 3 Zones with 5-12 borings; Zone 4 with 1 boring; and Zone 5 had no borings; some values given in the Table are NOT the same as on the boring logs. Inconsistencies and errors show poor quality or bias, non-objective development and results.

No Explanation is provided for the arbitrary 4ft changes at each page division in elevations and depths of boring for Boring Z1/B2.

Some earlier borings in Zone 5 do not penetrate to the tunnel depths or >250ft bgs and thereby do not satisfy technical coverage for "route neutral" investigations; a list of those borings to tunnel depths would be required.

Standardized, consistent procedures for recording, logging, and terms do NOT appear to be applied. As the text indicates the importance of several different members, but member designation should have been, but were NOT, identified in the logs.

Review of the boring logs shows inconsistent logging descriptions and delineations (e.g., some with many 1ft units and others of 10-15ft units in the same formations), references to formations, absences of references to formation members, lithologies and structure and measured.

References to granite or granitic appears INCORRECT and should have been diorite or dioritic or adequately documented to be granite.

Borings are not always located within the boundaries of delineated and assigned Zones.

Protocols/procedures for groundwater observations are NOT discussed and no reference/text is provided regarding hazardous materials, oils/tar, gases, and odors. Groundwater levels are not adequately compiled and do not support text conjectures regarding groundwater effects on tunneling and portal excavations.

on tunneling and portal excavations.

234 p.3\A1-1/3 "The continuous rock cores **were logged**, noting the lithology, **structure**, recovery percentage, **fractures per foot**, rock quality designation (RQD), and **coring rate** following the guidelines in the *Soil and Rock Logging, Classification, and Presentation Manual* (Caltrans, 2007).

Continuous rock cores were not logged and no compilation of boring:rock length:rock cores is provided.

Lithologic notations vary widely from boring to boring indicating that different observers used different approaches to the same units (e.g., Puente formation).

Structure notations vary widely and are not consistent or quantified regarding fractures, joints, shears, faults, etc..

No notations or quantification is provided for "fractures per foot" on the logs.

RQDs are provided even though they are noted to be irrelevant as some are considered to be not "sound cores".

No notations or quantification is provided for "coring rates" on the logs.

p.3\A1-1/4 "The majority of core samples obtained in this study are soft and weak and commonly do not meet the "sound core" definition for the ASTM standard RQD method (ASTM D 6032).

RQDs are provided even though they are noted to be irrelevant as some are considered to be not "sound cores".

p.3\A1-1/4 "However, the **density of fracturing** *[=number of fractures per foot]* (**reflected** by different RQD percentages) in weak and hard rock may play a **significant** role in the secondary permeability of those materials and may **directly influence** the occurrence of groundwater and its flow.

No notation or quantification is provided for how the "RQD" and "fractures per foot" on the logs are reflections in weak, moderate, and hard rock; no reflection nor demonstration is provided as to how the RQD/fractures directly influence the flow of groundwater in the borings, peizometer levels, and permeability tests.

No notation or quantification is provided for "fractures per foot" on the logs; arbitrary and ill-defined terms are applied in text and notations in boring logs.

No notation or quantification is provided for "fractures per foot" on the logs.

235 **p.4+5-16\1-12 Boring Z1/B2**

p.4\A1-2/	"Table A-1	R-09-Z1B2	498.9	**282**
p.5-16	R-09-Z1B2	498.9	**326ft bgs**	= +216.6 ft elev -
p.5-1\12	R-09-Z1B2	Elev. 498.9, Total Depth **326ft, BoH** = +172.9ft elev,		
p.16\12/12		but record bottom of hole elev.= +216.57ft or 216.6ft [217-44 =173]		

"...Boring R-09-Z1B2, which was drilled at an inclination of approximately 60 degrees...to intercept the Elysian Park fault."

Boring elevations and depths jump - Gaining 4ft elev./30ft Casing to bottom of hole on each Bore Log page, Adds >10%/page, without explanation or notation provided.

Preceding Page	*Following Page*		*Preceding Page*	*Following Page*		
1/12	*474.16/25*	*2/12*	*477.37/25*	*2/12*	*447.37/55*	*3/12*	*451.39/55*
...				...			
9/12	*265.51/265*	*10/12*	*269.53/265*	*10/12*	*239.51/295*	*11/12*	*243.55/295*
11/12	*213.55/325*	*12/12*	*217.57/325*				

Review this boring log, revise as appropriate, and recirculate revisions.

236 **p.5\1/12** Re: Groundwater - Backfilled with Grout and p.16\12/12: "Backfilled with Grout" and "...converted to piezometer at completion of drilling." No GW, NM-Not measured.

Apparent contradiction exists without notation or clarifications.

Review this boring log, revise as appropriate, and recirculate revisions.

237 **p.3-4\A.1, p.A1-1, -2/Text + Table A-1** *No VOC gas monitoring or hazardous materials is noted or discussed in the relevant text (p.3).*

p.5-16\1-12/12 *No gas monitoring values of VOC*

The Table does not reflect presence/absence of hazardous materials contamination and 100s of gassy grounds/VOC monitoring values above, at, or below the expected tunnel levels – say 100-200ft bgs.

Review this boring log, revise as appropriate, and recirculate revisions.

238 **p.16\12/12** "RQD below 146' depth are valid." (p.6/12, 146ft bgs, surface of the Puente formation)

Unlike other logs, this log indicates that portions of the Puente contain "sound cores" although Bore Log states "NO RECOVERY" 229.6-216.6/309-326ft, p.11-12/12.

Review this boring log and general RQD notations, revise as appropriate, and recirculate revisions.

239 **p.5-14\1-10/12** *Minimalist description – "Sedimentary Rock", 27 lines in 100ft, 497 – 395ft elev.*

Stated all "Sedimentary Rock"

Sed.Rock	Siltstone and Sandstone Puente	397/118-123
Sed.Rock -	Sandstone/Siltstone /Claystone Puente	391/123-146 3
Sed.Rock -	Sandstone/Siltstone Puente	372/146 – 319/203
Sed.Rock –	**Siltstone/Claystone ??**	**319/203 - 310.5/216**
Sed.Rock	Sandstone/Siltstone "Puente"	310.5/216 - 289.5/241
Sed.Rock	Sandstone/Siltstone "Puente"	289.5/241 – 230.6/309

p.5-16 Important geological notations:

Faults 0.33in displacements	**396-392/117-123**
Minor Faults	**385+/131-32**
Fault Inclination	262.5/272.5

Fault… slickensides	258.5/276.5
Minor Fault… slickensides	241.5/293
Minor Fault	235.5/303
Grass/Wood pieces	**421/85, 423/87**
Coal/Pyrite	240.5/294; 219.5/319-20; Coal, 233/305.5

All boring logs should have a consistent detailed notations and definitions and recording of variations of geology, as the Report text also emphasizes members of the various Tertiary formations, geologic descriptions should include assignments of member, even if with "??".

Review this boring log and general notations/descriptions, revise as appropriate, and recirculate revisions

.

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240 **p.17-27\1-11/11 Boring Z1/B3**

p.17\1/11 Remarks "RQD valid below -181.5ft depth".

p.23\7/11 The referenced level has no relevant notations and is well below the top of the Puente and other "Sedimentary Rock" units; no discussion at the end of the log is provided as is done in other logs.

Review this boring log and notations/descriptions, revise as appropriate, and recirculate revisions

241 **p.18-19\2-3/11** Gas monitoring 298/45 VOC- 0.4ppm

ONLY to -80ft FatClay

H_2S odor/OrganicSilt	282.2/61	VOC-	1.4ppm
H_2S odor	278.2/65	VOC-	0.3ppm
	268.2/75		0.1
	263.2/80		0.2

The Boring Log and Report texts do not provide any protocol, compilations, and relationship to the presence, absence, and levels of VOC gasses within the alluvium and/or Puente formation which could support, confirm, or reject the use of gasey grounds as a "screening" parameter.

Protocol like that of the groundwater monitoring should focus only on the approach, portal, and/or tunnel levels rather than arbitrary levels within some borings.

Review this boring log, revise as appropriate, and recirculate revisions.

242 **p.17-27\1-11/11 Boring Logs**

Notations	Elev/bgs ft	
Sand - granitic sources 318/25		
Puente Fm. SltS, SS	270/73	
Puente Fm. SS, SltS	262/81.5	
Puente Fm MdS, SS	210.2/133	
Puente Fm SS	173/170.5	
Puente Fm MdS, SS	164/179.5	
Puente Fm SS/MdS	92.2/251	
Puente Fm SS	46.2/297	
Puente Fm MdS	43.2/300	
Minor Vertical Fault	225/118	
Fault dipping	212/131.5	
Minor Faults	210/133	203/140
Breccia Zone No shears, Probably ancient fracture zone	187/157	
Fault	59/284	

All boring logs should have a consistent detailed notations and definitions and recording of variations of geology, as the Report text also emphasizes members of the various Tertiary formations, geologic descriptions should include assignments of member, even if with "??".

Faults indicated in Boring Logs atre not noted in text sections regarding faulting and structural geology.

Presence or absence of granite or granitic sediment is of geological importance as the watershed generally has only diorites and metamorphic rock bodies and presence of granites or granitic debris would indicate a granite body within the watershed, which does not exist at present.

Review this boring log and general notations/descriptions, revise as appropriate, and recirculate revisions

>>

243 **p.28-39\1-12/12 Boring Z1/B4**

Many >10 subdivisions for most pages (averaging 1 note/3ft) while other boring logs contain few notations, although in the same formation and lithologies.

Review this boring log and general notations/descriptions, revise as appropriate, and recirculate revisions

p.28\1/12 "RQD note to refer to last page"

p.39\11/12 "RQD values…based on intact core pieces…" "**Majority**…this boring are weak…not meet 'sound core' definition…should not be used to evaluate the rock mass quality."

"Majority" presumes that some of the RQDs may be based on "sound cores" and could be used for evaluation as was done for half of Z1B2 logs.

Review this boring log and general notations/descriptions, revise as appropriate, and recirculate revisions

244 **p.28-39\1-12/12** Gas monitoring

372.6/16	0.0
Down to	
126.6/262	1.7
120.6/267.5	3.5ppm
115/274	13.4
65.6/323	0.0

The Boring Log and Report texts do not provide any protocol, compilations, and relationship to the presence, absence, and levels of VOC gasses within the alluvium and/or Puente formation which could support, confirm, or reject the use of gasey grounds as a "screening" parameter.

Protocol like that of the groundwater monitoring should focus only on the approach, portal, and/or tunnel levels rather than arbitrary levels within some borings.

Review this boring log, revise as appropriate, and recirculate revisions.

245 **p.30\3-12/12** Puente Fm. Cgl 333.6/-55ft

No mention of Fault, BUT Fractures/Fractured/Incipient Fracture <299/>-89
Unfractured, Very Slightly, Slightly, Moderately, and Intensely Fractured
Shear, Fractured/shear, Fracture Zones (p.4-8/12 183.6, 181.9, 172.8, 178.6, 176.6)
Slightly fractured shear 110.6,
Observed Shear 185.9, 177.4, 176.9, 175.9, 173.1, 163.8,
Slickensided 185.9/203ft
Moderately hard, hard, very hard, extremely hard,
Extremely Weak, Weak, Strong, Soft, moderately soft, no sample,

No faults, but lots of fractures and shears

revise as appropriate, and recirculate revisions

Review this boring log and general notations/descriptions, revise as appropriate, and recirculate revisions

>>>

246 **p.40-57\1-18/18 Boring Z1/B5**

Gas monitoring 356/86 9.8; 11.5; 23.9 ppm
<64ppm 278/164:35 191/39.5 -60/502 : 0.9ppm
63.8 262/180

The Boring Log and Report texts do not provide any protocol, compilations, and relationship to the presence, absence, and levels of VOC gasses within the alluvium and/or Puente formation which could support, confirm, or reject the use of gasey grounds as a "screening" parameter.

Protocol like that of the groundwater monitoring should focus only on the approach, portal, and/or tunnel levels rather than arbitrary levels within some borings.

Review this boring log, revise as appropriate, and recirculate revisions.

>>

247 **p.58-71\1-14/14 Boring Z1/B6**

Gas monitoring 339/108 – 251/196 ONLY, <40

The Boring Log and Report texts do not provide any protocol, compilations, and relationship to the presence, absence, and levels of VOC gasses within the alluvium and/or Puente formation which could support, confirm, or reject the use of gassy grounds as a "screening" parameter.
Protocol like that of the groundwater monitoring should focus only on the approach, portal, and/or tunnel levels rather than arbitrary levels within some borings.
Review this boring log, revise as appropriate, and recirculate revisions.

>>

248 **p.276-285\1-10/10 R-09-Z4B4**

GAS After 100+ft Monitoring 352/102:32.6 <55ppm
340/224:49.2 345/109:51.5; 340.5/114.5:49.2; 246/208:48; 218/236:43;
Down to 180/274:18

The Boring Log and Report texts do not provide any protocol, compilations, and relationship to the presence, absence, and levels of VOC gasses within the alluvium and/or Puente formation which could support, confirm, or reject the use of gassy grounds as a "screening" parameter.
Protocol like that of the groundwater monitoring should focus only on the approach, portal, and/or tunnel levels rather than arbitrary levels within some borings.
Review this boring log, revise as appropriate, and recirculate revisions.

249 **p.278\3/10** **R-09-Z4B4** Fernando Fm. **Tfsl** 370.5/83.5
Uppermost sedimentary rock is identified as claystone, rather than siltstone as it would be for Tfsl.

p.279-285\4-10/10 Observed Shear – No faults
OS-358.2/95.8; 349/105; 346/108; 343/111; 338.2/116.2; 333.4/120.5; 331.7/123.7; 312-11/142-143; 307.5/146.5; 303-302/151-152; 299.2/154.8; 183/271; 178.5/275.5ft.

Review this boring log, revise as appropriate, and recirculate revisions.

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APPENDIX B - GROUNDWATER MONITORING DATA

250 p.2\B-1/1 "Approximately 100 feet of screen interval were used in each piezometer, **25 feet below invert** and **25 feet above crown** of the **anticipated tunnel**."
Intervals clearly should have a basic conceptual design of the tunnels, portals, and approaches involved in each Zone and comparisons for each boring and the piezometer; these piezometer design terms would indicate that the tunnel would have an anticipated diameter of 50 ft (=100-25-25ft). Based on other sections, the tunnel is suppose to have >x3 diameters of cover (>150ft from ground surface down (=bgs) to the top/crown of the 50ft diameter tunnel bore and bottom/invert would lie at >200ft. Based on these conditions, piezometer sections should lie >125ft bgs down to >225ft bgs.
Piezometer includes a 10-foot blank/unslotted casing for sediment and debris below the screen section.
Review, revise, and recirculate these appendices and the relevant text within the Report.

251 p.2\B-1/1 "Each piezometer was completed with a locking cap…except at boring locations R-09-Z1B8 and R-09-Z3B2 where standpipes were used because of **grassland at the surface**."
This standard for piezometers is not acceptable in an "dense" urban environment which precluded field geology investigations. If these piezometers remain unlocked, they should be fitted with locking caps or grouted.
Review piezometers, revise, and recirculate these appendices and the relevant text within the Report.

252 p.2\B-1/Footnote to Table B-1
1 –Because some of the piezometers were not developed, groundwater may not be stabilized at the time of reading.
p. 43 "After completion of the drilling, all but three of the borings (R-09-Z2B2, R-**09-Z3B4**, and R-09-Z1B2) were converted to piezometers..."

TABLE B-1 Summary of Piezometers Installation

1. Boring/Piezometer Designation **2. Ground Surface Elevation (feet)**
3. Depth of Piezometer (feet)
4. Depth to top of Screen (feet) **5. Depth to Bottom of Screen (feet)**
6. Date Measured **7. Groundwater Elevation1 (feet)**

1	2	3	4	5	6--All 7/1/09 7	X-Depth ft - bgs
R-09-Z1B1	Not bored					
R-09-Z1B2	----------					
R-09-Z1B3	343.2	300	190	290	313.3	30
R-09-Z1B4	388.6	325	215	315	353.2	35
R-09-Z1B5	442.2	500	390	490	419.5	23
R-09-Z1B6	447.2	390	280	380	425.7	22
R-09-Z1B7	480.5	285	175	275	440.5	40
R-09-Z1B8	419.6	200	**90**	**190**	394.6	25
R-09-Z2B1	451	150	**40**	**140**	437.1 (depth to GW 10.2 ft in drilling, NONE else	
R-09-Z2B2	----------					
R-09-Z2B3	546.9	350	240	340	498.9	48
R-09-Z2B4	558.1	371	261	361	548.1	10
R-09-Z2B5	452.4	277	167	267	441.6	10
R-09-Z3B1	885.1	285	175	275	861.2	24
R-09-Z3B2	781.4	275	165	265	637.0	144
R-09-Z3B3	802	276	**80**	**180**	666.0	136
R-09-Z3B4	----------					
R-09-Z3B5	698.2	400	290	390	675.7	23
R-09-Z3B6	750	324	214	314	698.8	51
R-09-Z3B7	596.7	320	210	310	582.2	14
R-09-Z3B8	594.3	275	165	265	- **	
R-09-Z3B9	624.3	300	190	290	550.4	74
R-09-Z3B10	626.8	375	265	365	578.3	49
R-09-Z3B11	533.1	275	165	265	375.1	158
R-09-Z3B12	501	240	130	230	488.2	13
R-09-Z4B1	Not bored					
R-09-Z4B2	Not bored					
R-09-Z4B3	Not bored					
R-09-Z4B4	454.4	275	155	265	408	46
R-09-Z5B.....	None bored					

	Grd. Elev+ft	Ft Below Top of Bor., NOT ELEV. PiezBDft	Topft	Botft	Water	Elev	+25'Cw Elev	-25'Inv Elev	GrdWtr LevBGL
R-09-Z1B1	NoBor.								
R-09-Z1B2	No Piez								
R-09-Z1B3	343	300	190	290	313	43	153	53	30
R-09-Z1B4	389	325	215	315	353	64	174	74	36
R-09-Z1B5	442	500	390	490	420	-58	52	-48	22
R-09-Z1B6	447	390	280	380	426	57	167	67	21
R-09-Z1B7	481	285	175	275	441	196	306	206	40
R-09-Z1B8	420	200	**90**	190	395	220	330	230	25

R-09-Z2B1	451	150	**40**	140	437	301	411	311	14
R-09-Z2B2	No Piez								
R-09-Z2B3	547	350	240	340	499	197	307	207	48
R-09-Z2B4	558	371	261	361	548	187	297	197	10
R-09-Z2B5	452	277	167	267	442	175	285	185	10
R-09-Z3B1	**885**	285	175	275	861	600	710	610	24
R-09-Z3B2	**781**	275	165	265	637	506	616	516	144
R-09-Z3B3	**802**	276	**80**	180	666	526	722	622	136
R-09-Z3B4	No Piez								
R-09-Z3B5	**698**	400	290	390	676	298	408	308	22
R-09-Z3B6	**750**	324	214	314	699	426	536	436	51
R-09-Z3B7	597	320	210	310	582	277	387	287	15
R-09-Z3B8	594	275	165	265		319	429	329	Xxxxx
R-09-Z3B9	624	300	190	290	550	324	434	334	74
R-09-Z3B10	627	375	265	365	578	252	362	262	49
R-09-Z3B11	533	275	165	265	375	258	368	268	**158**
R-09-Z3B12	501	240	130	230	488	261	371	271	13
B1-3	NoBor.								
R-09-Z4B4	454	275	155	265	408	179	299	189	46

Review piezometers, revise, and recirculate these appendices and the relevant text within the Report.

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p.3\B-2/Fig. B-1
Total Depth (D) **200 - 525** ft *No info; no reference to source.*
Total Depth of Casing (D1) 185 - 510 ft *150-500ft*
Depth to Bottom of Well Screen (D2) 175 - 500 ft *140-490ft*
Depth to Top of Well Screen (D3) 75 - 400 ft *40-390ft*

Examples from tables above include:	*R-09-Z1B5*	*442.2*	*500*	***390***	***490***	*419.5*
	R-09-Z2B1	*451*	*150*	***40***	***140***	*437.1*

As indicated above, quantitative dimensions are NOT accurate to the tables provided.
Review piezometers, revise, and recirculate these appendices and the relevant text within the Report.

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p.33\C.2/Table 5 Seismic Reflection Depth Control
Table provides groundwater levels used for the seismic survey interpretations which do not appear to be consistent with those provided by the peizometers and further confirm the need for borehole controls for each and every seismic line in addition to surface wave surveys.
Only two with boreholes as references Z3G1 and Z3G3

Line	*ft bgs*	*Boring*	*GW Elev.*	*Depth bgs*	
Z1-G4	*10*	*Z1B6*	*426*	*22*	
Z3-G1	*148*	*Z3B4*	*--*	*--*	*No piezometer*
Z3-G3	*10*	*Z3B7*	*582*	*14*	
Z3-G4	*56*	*Z3B9*	*550*	*74*	

Seismic interpretations referenced use of Z3B4 which was indicated as not be developed as a peizometer and therefore cannot provide the "148ft" depth bgs for use in interpretations.
Other boreholes lie within the vicinity of at least two seismic lines.
Review piezometers and seismic line controls levels, revise, and recirculate these appendices and the relevant text within the Report.

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APPENDIX C - GEOPHYSICAL INVESTIGATION DATA
C.1 - Down-Hole Geophysical Data

255 p.10\C1-8/4 "...boring images were analyzed and planar features such as bedding planes and **fractures**...identified for dip, azimuth and stereonet processing to **identify dominant fracture** and bedding planes."

Although one purpose of this data and analyses was to analyze fractures and identify "dominant fracture planes", no table was provided for those identified in boring logs and this down-hole survey. No analysis is provided as to the known faults and those identified through other elements of Appendix C and how they relate, confirm, or refute each other.

As in other sections and appendices, the published data, herein, should be coordinated to the "best guess" identification of faults and how they relate to the tunnels and portals.

Review, revise, and recirculate these appendices and the relevant text within the Report.

256 p.35, Table 3. Boring Deviation Data Summary

Boring No.	Surv. Depth ft bgs	Vert. Depth	Table A-1 Boring Logs Depth ft bgs
Z1-B3	**300.8**	**300.7**	303
Z1-B5	499.3	499.3	502
Z2-B4	**374.6**	**374.5**	**400**
Z3-B6	318.7	318.4	326
Z3-B12	**182.5**	**182.5**	**275**

*Borings not shown in general agreement; Underlined = Difference of 2ft<20ft, **Bolded** = Differences of >20ft.*

Above borings are those that differ significantly between Table 3 and Table A-1.

Comparisons show differences, but all data should be consistent between all sections and appendices and if not, such differences should be noted and explained.

Review, revise, and recirculate these appendices and the relevant text within the Report.

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SR-710 NORTH EXTENSION
TUNNEL TECHNICAL STUDY
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APPENDIX C -
APPENDIX C.2 - SEISMIC REFLECTION DATA
p. 1-72 pdf

257 p.2\C2-1/**TABLE C-1** Summary of Seismic Reflection Testing

Seismic Reflection Line	Approximate Location	City	Purpose/ Feature Evaluated
1. Z1-G3 Stadium Way	(NE/O Elysian Park Dr.)	Los Angeles	Elysian Park Fault
2. Z1-G4 Huntington Dr. So.	(NE/O Turquoise St.)	Los Angeles	Unnamed Fault
3. Z1-G5 N. Eastern Ave.	(S/O Twining St.)	Los Angeles	Unnamed Fault
4. Z2-G1 N. Avenue 46	(S/O Alumni Ave.)	Los Angeles	York Blvd./Raymond Faults
5. Z2-G2 N. Figueroa St.	(SW/O S. Avenue 54)	Los Angeles	Highland Park Fault
6. Z2-G3 Pueblo Ave.	(NW/O Huntington Dr. N.)	Los Angeles	Subsurface Evaluation
7. Z3-G1 So. Raymond Ave.	(N/O E. Glenarm St.)	Pasadena	San Rafael Fault
8. Z3-G2 So. Grand Ave.	(S/O Madeline Dr.)	Pasadena	Unnamed Fault
9. Z3-G3 San Pasqual Ave.	(SW/O San Ramon Dr.)	Los Angeles	Raymond Fault
10. Z3-G4 Pasadena Ave.	(NE/O Hawthorne St.)	So.Pasadena	Subsurface Evaluation
11. Z3-G5 Via del Rey	(N/O Camino Verde)	So.Pasadena	Unnamed Fault
12. Z3-G6 Winchester Ave.	(N/O Concord Ave.)	Alhambra	Highland Park Fault

13. Z3-G7 Westmont Dr.	(S/O, Valley Blvd.)	Alhambra	Unnamed Fault
14. Z4-G1 Oxford Rd.	(S/O Orlando Rd.)	San Marino	Raymond Fault
15. Z4-G2 Huntington Dr.	(SW/O N.Granada Ave.)	Alhambra	Alhambra Wash Fault
16. Z5-G2 East Shorb St.	(E/O S.Hildalgo St.)	Alhambra	Alhambra Wash Fault
17. Z5-G3 Edgewood Dr.	(S/O W.Valley Blvd.)	Alhambra	Highland Park Fault

As will be shown below and by comparisons of Table C-1, "purpose" and "feature evaluated" the purposes have not been achieved as no conclusive finding has been made for the above "features evaluated"; some discussions do not even mention the above features. The Table states that at least two surveys were focused on "Subsurface Evaluation"(Z2-G3 & Z3-G4, Subsurface Evaluation) *without any detailed definition.*

Review, revise, and recirculate these appendices and the relevant text within the Report.

258 p.6\1/1 "The purpose of the seismic reflection survey was to **locate geologic structures potentially associated with faulting** at each site.

As will be shown below and by comparisons of the "purpose", the purpose of locating "structures potentially associated with faulting" has not been achieved. The Appendix has not located the structures or features and have not provided detailed definitions for the above.

Review, revise, and recirculate these appendices and the relevant text within the Report.

p.6\1/2 "Seventeen (17) seismic reflection lines were located **strategically** throughout five…zones…"

Text and appendices do not provide any procedure for deriving locations based on the survey's "purpose" much less "strategically" locate the lines or even detailed definition.

Review, supplement, revise, and recirculate appendices and relevant text within the Report.

259 p.13\8/3 5.1 "…**primary purpose…**to locate potential faults…**rudimentary** depth scale…permit **identification** of **potential reflectors** (i.e. water table versus top of bedrock).

Text and appendices do not provide any procedures for identification of "potential reflectors" for "potential faults" or even detailed definitions of "primary" vs "secondary", "rudimentary", and "potential".

Review, supplement, revise, and recirculate appendices and relevant text within the Report.

260 p.13\8/4 "**Without borehole control,** estimates…to groundwater…P-wave velocity of unsaturated and saturated sediments…place a **rudimentary** depth scale…"

Without borehole controls should be replaced by quantitative statements of 17 Lines had borehole controls for 7 lines, while surface wave surveys were available for all 17 reflection lines.

Text and appendices do not provide clear and definitive locations for saturated/unsaturated transition for "rudimentary" depth scales or even detailed definition of rudimentary.

Review, supplement, revise, and recirculate appendices and relevant text within the Report.

261 p.14\9/5 "**Potential** faulting is **most easily** observed by looking for disruptions in continuous reflectors, diffractions, offset bedding, abrupt changes in apparent dip of bedding, and other potential geologic structures **indicative** of faulting. Without good reflectively [reflectivity]…fault interpretation is limited to identification of diffractions and other discontinuities and **may be highly subjective**. Depending upon the **amount of reflectivity** in the seismic section, alternate interpretations of the seismic data will be **possible**…**multiple offset reflectors** are necessary to **estimate the orientation of a possible fault** and to make **conclusive interpretation** of the presence of a fault. If **only a single strong reflector** is present…**apparent small offsets** or disruptions…are **not conclusive evidence** of faulting and **accurate identification** of fault orientation is **not possible**.

p.15\10/2 5.2.1 "…two anomalous **zones identified**…on the seismic line…disruptions in bedrock reflectors that **could be associated** with faulting. However, it is **possible** that at least one of these anomalies is related to the bend in the seismic line…associated change in apparent (along line) dip of geologic units."

p.15\10/5-16\11/1 5.2.2 Z1G4 HDrSo "There is **not enough**… reflectivity…to make an **accurate fault interpretation**. **Possible** discontinuities that **could be associated** with **minor** faulting are identified…on the seismic line; however,…**insufficient reflectivity** to make a **conclusive interpretation**."

p.16\11/3 …5.2.3 Z1G5 Eastern "…**significant** change in dip…which **could be associated** with faulting…**may just be related** to a syncline with the axis of the syncline…disrupted reflectors.., **however, may still be related** to faulting rather than only folding.

p.16\11/5 5.3.1 "...velocity models...are **very similar**...**indicating**...may not be **significant** lateral velocity variation..." = NO FAULTS

p.17\12/1 5.3.1 "**The absence of significant reflectivity within the bedrock unit makes accurate and conclusive fault interpretation difficult**...anomalous zones...on the seismic line that could be associated with potential faulting. Both of these anomalous zones were identified based on disruptions of **limited** bedrock reflectors."

p.17\12/3 5.3.2 "**The absence of significant reflectivity within the bedrock unit makes accurate and conclusive fault interpretation difficult**...anomalous zones identified...could be associated with potential faulting. Both of these anomalous zones were identified based on disruptions of **limited** bedrock reflectors."

p.18\13/2 5.3.3 Z2G3 ElSereno, NOHDr "There are **no apparent large offsets**...indicative of **conclusive** faulting. There is, however, a **minor discontinuity** in the upper bedrock reflectors near 650 ft on the seismic line, which **could potentially** be associated with **minor** faulting."

p.18\13/5 5.4.1 "...absence of **significant** reflectivity within the bedrock unit **makes conclusive fault interpretation impossible**...Many...bedrock discontinuities **may be associated** with topographic variation of the bedrock surface or bedrock weathering contacts...possible that some of the discontinuities are related to bedrock offsets **caused by faulting rather than erosion**."

p.19\14/2 5.4.2 "The **absence** of **significant** reflectivity...makes **accurate and conclusive** fault interpretation **difficult**...anomalous zones identified that could be associated with potential faulting...based on disruptions of limited bedrock reflectors."

p.20\15/1 5.4.3 "The seismic reflection survey was not designed to image to these depths and there is a **possibility** that the reflection events are associated with coherent noise."

p.20\15/1 5.4.3 "The absence of significant reflectivity within the bedrock unit makes accurate and conclusive fault interpretation difficult...anomalous zones identified...could be associated with potential faulting....based on disruptions of **limited** bedrock reflectors."

p.20\15/4 5.4.4 "...no reflectivity below the interpreted bedrock reflector because bedrock consists of crystalline rock...absence of significant reflectivity within the bedrock unit makes **conclusive** fault interpretation **impossible**...a significant drop in the interpreted bedrock surface...may be erosional or potentially related to faulting...other disruptions in the possible bedrock reflector..."

p.21\16/1 5.4.5 "The possible bedrock reflector is continuous except for minor discontinuities...could be associated with faulting...Although unlikely, the possibility that these diffractions are associated with minor faulting cannot be discounted."

p.21\16/3 5.4.6 [E side of Winchester,NOAlhambra] "...excellent reflectively...with multiple parallel seismic reflectors...interpret offset layers or discontinuities **potentially** associated with faulting. There is a significant disruption and possible offset of reflectors...may be associated with faulting...a minor disruption in reflectors...could be associated with faulting."

p.22\17/1 5.4.7 [E side of 710N,SOValley] "...good reflectively...below the interpreted bedrock surface in the southern half of the seismic line with multiple parallel seismic reflectors with which to interpret offset layers or discontinuities **potentially associated** with faulting...significant change in reflectivity in the northern portion of the line associated with a possible fault..."

p.22\17/1 5.4.7 "...minor disruption in reflectors...could also be associated with faulting..."

Text and appendices do not provide clear and definitive identifications, associations, or interpretation as indicated above and elsewhere. No detailed definition of "not enough", "accurate", "associated", "similar", "possible", and "conclusive" has been provided.

In general this and other "interpretations" were found to be "inconclusive".

No conclusion is achieved for Zones 1-3 and 4-5 with regard to the "purpose" of the entire seismic reflection lines activities and efforts.

No relationship is provided for the stated purposes, target faults, mapped fault lines/zones, Alquist-Priola maps, and inferred faults from the surveys, and the section is largely presented without achieving any significant decision.

Review, supplement, revise, and recirculate appendices and relevant text within the Report.

262 p.35\C.1/Figure 1, Site Map, Seismic Reflection Surveys
p.2\C2-1/**TABLE C-1** Merged with Summary of Seismic Reflection Testing
C.1\1:Fig. C-1:TABLE C-11 Table 5, Seis.Reflec.Dep.Cntrl

SRSurvey	Boring	Surf.Wave	Feature	Formation
Z1G3	B2/	Z1S5-6	Elysian Park	Puente fm

Z1G4	B6	Z1S14-15	Unnamed Fault	Puente fm
Z1G5	--	Z1S16-17	Unnamed Fault	Puente fm
Z2G1	--	Z2S2-3	York Blvd./Raymond Faults	Topanga fm
Z2G2	--	Z2S7-8	Highland Park Fault	Puente/Topanga fm
Z2G3	--	Z2S10-11	Subsurface Evaluation	Puente fm
Z3--	B2	Z3S2	----------	----------
Z3G1	B4	Z3S3-4	San Rafael Fault	Crystalline BR
Z3G2	--	Z3S6-7	Unnamed Fault	Topanga fm
Z3G3	B7	Z3S9-10	Raymond Fault	Topanga
Z3G4	B9	Z3S13-14	Subsurface Evaluation	Topanga fm/Crystalline BR
Z3G5	--	Z3S17-18	Unnamed Fault	Topanga fm
Z3--	B12	Z3S20	----------	----------
Z3G6	--	Z3S21-22	Highland Park Fault	Puente fm
Z3G7	--	Z1S20, Z3S23-24	Unnamed Fault	Puente fm
Z4G1	--	Z4S3-4 (Tab.5 S2)	Raymond Fault	Puente fm
Z4G2	--	Z4S6-7	Alhambra Wash Fault	Puente fm
Z5G2	--	Z5S8-9	Alhambra Wash Fault	Puente fm
Z5G3	--	Z5S12-13	Highland Park Fault	Puente fm

Review, supplement, revise, and recirculate appendices and relevant text within the Report.

263 *p.33\C.2/Table 5 Seismic Reflection Depth Control*
Table provides groundwater levels used for the seismic survey interpretations which do not appear to be consistent with those provided by the peizometers and further confirm the need for borehole controls for each and every seismic line in addition to surface wave surveys.
Only two with boreholes as references Z3G1 and Z3G3

Line	*ft bgs*	*Boring*	*GW Elev.*	*Depth bgs*	
Z1-G4	*10*	*Z1B6*	*426*	*22*	
Z3-G1	*148*	*Z3B4*	*--*	*--*	*No piezometer*
Z3-G3	*10*	*Z3B7*	*582*	*14*	
Z3-G4	*56*	*Z3B9*	*550*	*74*	

Seismic interpretations referenced use of Z3B4 which was indicated as not be developed as a peizometer and therefore cannot provide the "148ft" depth bgs for use in interpretations.
Other boreholes lie within the vicinity of at least two seismic lines.
Review piezometers and seismic line controls levels, revise, and recirculate these appendices and the relevant text within the Report.

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APPENDIX C - APPENDIX C.3
Surface Wave Data (Report, Surface Wave Measurements
p.1-149,

264 **p.9\1/1 1. Introduction** "The **purpose** of the [surface wave] investigation was to **support site characterization** and **screening of the five tunnel study zones**."
p.24\16/1 6. Conclusions "...purpose...was to support site characterization and screening efforts and a seismic reflection survey..."
Conduct of the many surface wave surveys has been done without adequate controls via boring log and peizometer information, without such information renders most of the results, uncalibrated, inconclusive, and gross interpretations. Such results cannot meet the purposes of "site characterization", presumably for the seismic reflection lines and of "screening" of Zones.
Review, revise, and recirculate these appendices and the relevant text within the Report.

265 **p.23\C-3,15/3** "**Bedrock is expected** to deepen…exception of the western corner of Zone 5…**significantly exceed…400 ft) in depth**…geology in Zone 5 is **expected** to be **similar** to that in Zone 4…***[because of the depth it]*** **unlikely** that S-wave velocity is useful for distinguishing bedrock from overlying sediments."
p.23\C-3,15/3 "Additionally, bedrock over most of Zone 5 is **much deeper than the surface wave soundings can image.**"

Using the same approach, most if not all of seismic soundings and penetrations would be suspected to suffer from the same lack of borehole controls, lack of actual direct depths of groundwater, alluvium (old and young), soil/weathered zone, and bedrock, use of "estimated" groundwater levels, and speculations as to the underlying geology, soil/weathering, and structures.

Complete absence of quantitative derivation from the field information (bottom-up analyses) and dependence on arbitrary definitions of "expected", "significantly", "similar", "unlikely", and "much" renders the entire Appendix, and especially the discussions for Zones 4-5, incomplete and inadequate.

The Appendix does not appear to support and achieve the "purpose" of the Appendix and the Surface Wave investigations.

Review, supplement, revise, and recirculate appendices and relevant text within the Report.

266 **p.24\16/4** "…**limited** borehole control in Zones 4 and 5, and with the exception of the **southwestern corner**…bedrock was **expected** to be **much deeper** than the exploration limits of the surface wave method.

Only one project borehole was in Zones 4-5, and no reference is made to all other known borehole logs within the Zones. No clear definition of "limited" or "corner" is provided.

Other boreholes lie within the vicinity of at least three seismic lines.

Review, supplement, revise, and recirculate appendices and relevant text within the Report.

Community Meeting Minutes

SR-710 Tunnel Technical Study
Community Meeting #1 Summary
January 20, 2010
Wilson Middle School, Glendale
6:30 p.m. – 8:30 p.m.

INTRODUCTION

The California Department of Transportation (Caltrans) held a community meeting on January 20, 2010, to present findings from the SR-710 Draft Geotechnical Summary Report (Draft Report) to community stakeholders. The meeting took place at Wilson Middle School in the City of Glendale. In attendance were fifty (50) members of the community.

SR-710 Study Team members who attended included the following project management staff from Caltrans: Richard Land, Interim District 7 Director; Abdi Saghafi, SR-710 Tunnel Technical Study Project Manager; Deborah Harris, Chief, Media Relations and Public Affairs; Maria Raptis, Public Information Officer; Pratheep Piratheepan, Geotechnical Lead; Derek Higa, Design Manager; and Garrett Damrath, Senior Planner. Los Angeles County Metropolitan Transportation Authority (Metro) staff Lynda Bybee, Deputy Executive Officer-Regional Communications Programs also attended. Additional Study Team members who participated in the meeting were: Yoga Chandran of CH2MHILL; Steve Klein of Jacobs Associates; Ramon Chavez of CH2M HILL; and Bruce Schell of Earth Mechanics; Rebecca Barrantes, Glenda Silva, and Sharon Martinez of The Sierra Group; Rena Salcedo and Debbie Rusas of GCAP Services; and Katherine Padilla and John Limon of Katherine Padilla & Associates.

MEETING FORMAT

The meeting began at 6:00 p.m. with an informal Open House and the presentation started at 6:30 p.m. There were informational displays set up in the lobby that depicted a range of topics, including: Study and Outreach Overview; Geological Conditions; and Modern Tunnels and Technologies. The Open House format provided community members with the opportunity to ask questions and engage in one-to-one conversations with expert Study Team Members.

The audience was welcomed by Richard Land, Interim Caltrans District 7 Director. Mr. Richard Land explained that the purpose of the community meetings is to share the results of the Draft Geotechnical Summary Report and to provide an overview of the data collected in each of the five (5) Study Zones. Mr. Land informed attendees that Caltrans and Metro would use the information from the Draft Geotechnical Summary Report and determine the next steps. Mr. Richard Land added that this is not an environmental study, and only is a geotechnical study. Mr. Land recognized Elected Official representatives who were in attendance, which included: Yvonne Hsu representing Congressman Adam Schiff; Julianne Hines representing Assemblymember Anthony Portantino; Hon. Donald Voss, Mayor Pro Tem of La Canada Flintridge; and Ann Wilson, Technical Advisory Committee Member from La Cañada Flintridge.

After the introductions, Mr. Land handed the meeting over to Yoga Chandran who began the presentation portion of the meeting at approximately 7:00 p.m.

Yoga Chandran and Steve Klein, the Study Team's geotechnical experts, provided a PowerPoint presentation that described the Study purpose and scope; exploration program findings; Draft Geotechnical Summary Report; key geotechnical factors for tunneling; and tunneling technologies used to mitigate such geotechnical factors. They also provided a summary of geotechnical data for each of the five (5) Study Zones.

Following the geotechnical presentation, Rebecca Barrantes, Outreach Project Manager, provided a brief overview of the neighborhood and community outreach process, including Steering and Technical Advisory Committee meetings, community meetings, presentations, and canvassing for the Exploration Program. Upcoming community meeting dates were provided to all the guests. Finally, attendees were encouraged to provide written comments related to the geotechnical findings by February 3, 2010.

COMMUNITY DIALOGUE

The questions and comments offered by community members are categorized and appear below. *Responses from Caltrans, Metro and Study Team members are indicated in italics.*

Exploration Testing & Analysis Methods

1) What criteria were used to determine the classification of faulting in the event of an earthquake? What offset for fault displacement was used to determine the feasibility of the extension chamber?

   The Raymond fault displacement was determined to be at 2 to3 feet. Both the Raymond and Alhambra Wash Faults are considered active by California Geological Survey and United States Geological Survey. The Eagle Rock and San Rafael Faults have not been proven to be active; however for the purposes of this study, these faults are considered to be potentially active. This means that they do not move as frequently as an active fault. The time between rupture of potentially active faults can be anywhere from tens of thousands to a million years. The York Boulevard fault was not considered to be active. As far as displacement, there has never been a historical rupture on the Eagle Rock or San Rafael Faults. To conduct our analysis an empirical world-wide based analysis was completed. All earthquakes in the world were studied to determine the displacements that certain magnitude earthquakes caused.

   There are calculations and formulas used to compare this data with the faults that are in the study area. Using this method, it was determined that based on the length of the fault, a 6.0 – 6.5 magnitude earthquake was capable of being produced. Previous studies suggested

that the Raymond Fault had the potential of causing a 6.7 magnitude earthquake. Using the 6.7 magnitude earthquake scenario, and compared that to world-wide data for earthquakes of that magnitude, a displacement of 3.2 feet was derived. Some conservatism was added and bumped the displacement up to 4 feet, which is about 30% more than what data would actually show. In addition, the fact that we used a 6.7 magnitude earthquake instead of a 6.5 magnitude adds another 20% of conservatism.

There are values that would exceed what would be expected based on previous experience with earthquakes. Not much consideration has been given to whether displacement would be strictly vertical or horizontal, however, it is expected that it would be a combination of the two. Specific displacements and vertical slips are items that would be considered in the future. More engineering is needed to provide more details about the amount of conservatism to include. For example, the Hollywood tunnel was designed for a 7 foot displacement.

2) What other methods were used for in-situ (in the field) testing other than boring?

In addition to the borings, pressuremeter tests were conducted, which is in-situ (in the field) testing of different geological materials encountered to determine the strength of the material. Collected samples were tested in the lab for strength as well. Multiple techniques were used to determine the strength of the material and seismic measurements were completed. Three testing methods were used for this testing. Core penetration tests were not conducted because they are not effective for the material types and depths of materials which needed to be tested.

Tunneling Technologies

3) What is the success with recent tunnels built in the last 15-20 years? There have been a lot of earthquakes in Asia (Japan) and in Southern California and we also have a lot of methane gas and groundwater. We have built some tunnels locally, as you have discussed in your presentation. Has our tunnel technology worked well? Have there been tunnel collapses? What has happened to these tunnels? I am not just referring to success in terms of safety and engineering but also in terms of costs. We pay taxes and would like traffic congestion relief but would like it to be done within a reasonable amount of costs.

Following the Northridge earthquake, the Red Line was up and running soon and there after with virtually no damage to pre-existing tunnels in operation. Metro Gold Line tunnels, which were completed this fall, were completed on time and within budget. There was no

settlement as a result of the tunnel excavating operations. There have been excellent outcomes with Metro tunneling projects.

Regarding seismic performance, worldwide experiences have shown that tunnels tend to perform well during earthquakes. This is mainly because they are surrounded by the ground and the tunnel structure moves with the ground. This is different from a building that is up in the air and not supported by anything, where it is subject to movement from the vibrations created by an earthquake. The ground dampens the vibrations in a tunnel. The track record for tunneling in Los Angeles has been very good. Cal OSHA is an organization that is required to enforce tunnel safety orders and regulate contractors very closely; especially when the hazardous gases during construction is high.

4) Do you see any logistical framework differences from our faults here with respect to the venting situation and tunnel stability versus those for the tunnels built in Madrid and Paris?

Ventilation and fault displacement are completely unrelated. The ventilation would have to be designed to function in an earthquake and it would not be any more of a hazard than anything else.

5) Do you feel that there is a concern regarding water contamination or water displacement if you tunnel? When Metro did the Hollywood tunnel, there was water displacement and pumping required. As we look at our future, Mayor Villaraigosa has outlined a water plan for the City of Los Angeles that will look at groundwater issues. One concern is the drought that will continue in Southern California, and will this be a problem because we are going to be displacing or contaminating water as part of this development?

There have been newer tunnel technologies introduced since the Hollywood Hills project. The special pressurized face tunneling methods, which have been discussed in the presentation, do not allow drainage of the groundwater and would not be affected by the tunneling. If tunneling in contaminated groundwater and water is brought into the tunnel, it would need to be handled and disposed of properly. It would be relatively a small amount of groundwater when compared to the entire groundwater table. The Hollywood Hills tunnel was built using a different technology and some groundwater did drain into the tunnel. This created some groundwater impacts to the area around the tunnel that had to be mitigated. That was avoided with pressurized method that was present. The reason examples from Madrid and Paris were discussed, was because in planning some of the tunnels in other areas it was recognized that in order to construct those projects, they had to avoid those groundwater impacts. This new technology was employed specifically to avoid those impacts.

Geotechnical Criteria for Tunneling

6) Doug Failing said at the beginning of the meetings that I attended, that nothing would stop them from tunneling in any of the five zones. What are the defining criteria that you knew of since the beginning of this process that would prevent tunneling in the five (5) Study Zones?

   A geotechnical feasibility study for the tunnel and The Draft Geotechnical Summary Report are now completed. The information from the Final Geotechnical Report will help determine if an Environmental Impact Report (EIR) is the next step.

   The tunnel can be built through anything and the criteria will come later, during the EIR. In the environmental phase, several other factors will come into the picture when comparing zones including costs and which alignment would provide the best air quality and congestion relief. That analysis was precluded during this study. This is strictly a geotechnical study. A complete cursory review of the factors was proposed under Task Order No. 5 but staff was told not to proceed with that by stakeholders. The criteria are part of the environmental process, which is a fairly standard process that Caltrans follows for all of its projects.

Geotechnical Report

7) Is it true that the Final Geotechnical Summary Report will not recommend a route preference or that any route will be pursued and that it will only show that a tunneing is technically feasible?

   The study will not recommend a route. Caltrans and Metro will take the information and data contained in the Final Report and use it to decide if additional studies are needed.

8) Attendee read a statement from Section 8.6 of the Draft Geotechnical Summary Report which refers to a portal for Zone 2. If this is a route neutral study, how can you have a portal location already chosen?

   References to a portal in the Draft Geotechnical Summary Report referred to a portal area in general, and not to a specific portal location. In each zone, there will potentially be a portal. This will be clarified in the Final Report.

Public Participation & Comments

9) How are you planning to incorporate public comments into the Final Draft?

Based on public comments, such as the one stated by the attendee about the portal in Zone 2, clarifications will be made to the Final Report. Also, all public comments will be included as an Appendix to the Final Report.

10) Are there other feasibility studies for other options outside of a tunnel? I attended the La Cañada Flintridge community meeting and there were a lot of people in attendance who opposed this project. When is the opposition going to be answered? What happens to our comments besides them getting buried in the back of the Final Report? Will Caltrans and Metro continue with the project without thinking about the communities involved and the effects on all of those people who had opposition to the project in the first place?

During this technical study process, community involvement has been encouraged. Community involvement will also be encouraged during an environmental document phase should that occur. Caltrans and Metro are public agencies that receive feedback from the public on all matters under their authority. The feedback and comments received during the Study will not be lost in the process. Public feedback is part of the process and becomes part of the record to move forward to Caltrans and Metro. As Caltrans and Metro are making decisions, the public feedback is not lost. There are decision points along the way, where public input will be invited. When Metro has Board meetings, they are open to the public. They have representatives that sit on their governing boards that certainly represent you. Your local, state, and federal elected officials have listened to you and have registered their feelings and comments. This is a public process and throughout that process your comment has various places where it is heard and considered. This community meeting is one of those places. Certainly, when moving forward to the environmental process, there will be many opportunities for questions to be answered and comments to be considered.

Funding

11) With the State's financial problems, how are you going to get money for a tunnel? With respect to our federal government, our government's infrastructure is far behind other First World countries. It really needs massive railroad, passenger and freight improvements. Where are you going to get the funding? There are great needs out there. I think that the two high speed trains in Spain seem to alleviate more traffic than the tunnel there.

The funding issue is a significant issue that is being discussed on both the state and national level, not just for this project but other infrastructure needs. A funding source would need to

be identified before moving forward with a project similar to this or even to address the regional congestion problem that is occurring now. There have been a number of solutions proposed, such as developing public-private partnerships, or charging a toll. There are a number of options that have been put on the table that Caltrans and the community partners would have to consider. This is a significant challenge going forward for people in California and across the County.

To put it in perspective, look at the existing infrastructure throughout the State, annual needs are over $6 billion to address needs for the existing system and keep the roads in shape. This does not include funding to address congestion needs. Only $1.3 billion per year is being spent on existing infrastructure and there is a funding gap over a few billion dollars. There are some significant issues and it will take healthy leadership in the country and state to address this.

The public understands that there are transportation needs that can be met and there is some support out there for understanding the need for a solution. When the public understands what can be done and that it can be delivered, this will create an environment to get the support needed for funding transportation.

12) When is the next Metro meeting where they will decide on Measure R funding? Is there a deadline date for the use of Measure R funding? If you do not get the additional funding needed to go to the next phase, is there a deadline date to return all the remaining money?

There was a formula included with Measure R which can be accessed on the Metro website. Included within that formula is a more than 30-year period of expected revenues from sales tax. If funds are not used for a project over a certain amount of time, the board can re-allocate those funds but there is a super-majority requirement to make that change. Relevant to that, the funds must be re-allocated in the sub-region that they were originally committed to. The next steps will be when the Final Report is submitted to Caltrans and the Metro Board who will be reviewing it for future considerations. It is not known what the policy will be at this time. The completion of the Final Report will be in March 2010 and it may come to the Metro Board as early as April 2010. Metro meeting agendas are posted on www.Metro.net, so the public can be informed on the process.

13) It was stated earlier that $11.4 million was dedicated to this study. If we had already completed borings and proven tunnel feasibility in the Metro Study, why did we have to complete a tunnel feasibility study? What have we gained from this study?

When Metro completed the study in 2006, there was criticism about whether all the options were looked at. The Metro study only looked at a portion of Zone 3 and conducted a total of 3 borings. During this study, detailed data from a broader area was collected. The extent of The SR-710 tunnel Technical Study builds upon the Metro study completed in 2006, and goes well beyond that study. The $11.4 million that was set aside was not all used. There were two consultants on board. CH2M Hill was the geotechnical consultant and The Sierra Group was the outreach consultant. The contract amount for CH2MHILL is $5.3 million and for The Sierra Group is $1 million. There were also additional costs added to pay for community meetings. The total cost of this study was $7 million.

14) Why did we spend all of this money on a study that is not going to answer all of these questions? Why didn't we complete an EIR instead of this study?

Only $7 million of the $11.4 million budget was spent on the geotechnical study. If tunneling is to be considered a viable option, technical feasibility is needed to be established before beginning an environmental phase. The expenditure of $7 million to complete the technical studies has to be compared with the cost of an environmental study, which would be $30-40 million and the actual construction of a tunnel would be $3-5 billion. The determination that it is technically feasible to build a tunnel in these zones is required before going into the environmental document phase and spending more money. There is no conclusion whether to go into the EIR, but that may be the direction.

Next Steps

15) You were not able to eliminate any of the 5 zones. What happens after the Final Report is done? My recollection is that this was funded by an earmark from one of our Congressmen. I assume the money is gone. When are you going to get to the phase of laying out a tentative route for each of these 5 zones? When are you going to get to the phase of costing it out and completing an environmental impact report? Are you funded for these next steps?

The decision about whether to proceed with additional studies has not been made by Caltrans and Metro yet. The Final Geotechnical Summary Report along with its findings is going to Caltrans and Metro for their consideration about what, if any, additional studies will be completed.

There were three components to funding. There was a funding component of $2.4 million dollars from Congressman Adam Schiff, through the Federal Highway Administration's Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) funds. There was an additional $4 million dollars from Caltrans through regional improvement funds. There was also an additional $5 million dollars from Metro from their regional transportation improvement funds. The funding for this Study was not exhausted. Metro has set aside Measure R money for the next phase. Measure R is a quarter-cent sales tax in Los Angeles County, passed last November and is being divided up amongst various projects, including this Study, if the decision is made to go to the next phase, which is an EIR. Caltrans and Metro will decide when and if to proceed to the next step, but the funding is definitely coming from Metro.

16) If we complete an EIR, what factors would you consider? Would you consider rail? Would you consider a rail option over a freeway option? Would you look into public-private partnerships? Would you consider carpool lanes and toll roads? Will all of these items be considered during an EIR?

For any transportation project, the study of alternatives is part of the process. It is required by law as part of the EIR process, which would take about 2 ½ -3 years to complete, if the Metro Board and Caltrans make that decision. A no-build option would also be studied in an EIR. As part of the other alternatives, other complimenting options would be studied as well. This study has focused on a tunnel only.

During the EIR process, other modes of transportation, are studied that could compliment the tunnel. One example is the SR-710 South Freeway Freight Corridor project, which adds truck lanes from the ports to the SR-60 Freeway. It is currently going through the EIR process and Metro is the lead agency on that project. The project looks at other modes, such as zero emission trucks and other technologies available besides just adding lanes to freeway. As part of the traffic study that is included in the EIR, traffic improvements on surface streets near the tunnel will be studied.

The discussion of funding sources is something that would be considered during the environmental phase but is a separate discussion from the EIR, which really looks at the impact.

17) Is Task Order No. 5 completely off the table or will it be done at the end of this process?

Task Order No. 5 is completely off the table because if the decision to proceed to the environmental document phase is made, that would accomplish much more than Task Order No. 5 had proposed to do.

18) Have you talked to your legal team about whether you can proceed to the environmental stage given the federal injunction on the project? It has been in place since 1999.

The legal aspects are not completely known; however the injunction could have only applied to the surface extension only.

19) If you do not believe that the federal injunction applied to a tunnel, why did you not finalize the case once and for all before you proceed with the tunnel?

The legal group in Caltrans would have to answer this question. The decision may have been rescinded in 2003. Staff needs to consult with the Caltrans legal team to understand how this injunction affects the current consideration of a tunnel.

20) When the Final Report is completed, will the advisory committees be disbanded?

Should further studies proceed, Caltrans and Metro are open to keeping the advisory committees intact and also support this with any other structures needed to assist with the environmental process. This is a very valuable part of the study that should be considered as we move on to the next phase.

21) Metro completed a feasibility study and when questions were asked, the public was told that it was just a smaller part of a feasibility study and they could not answer all of the public's questions. The public was informed that a feasibility study would be done before the environmental process and now we have this study. As we are getting through this study, there is a realization that this too is not a feasibility study and is simply a technical geological study. We have yet to see a study that looks at our regional problems, such as air quality and traffic congestion problems. We are looking at a very narrow scope that says there is a "gap" that needs to be filled. Some of the studies that have been done show that if we close this gap, the tunnel would open at a service level of F. From my understanding of Caltrans regulations, you cannot open a freeway that performs at that quality and I do not understand how you can open a tunnel where you cannot open a freeway at a certain service level. The additional problem I have with this study is that it does not give us

anything that enables public policy decision makers to make decisions. It does not give any direction. All we are told is given the time, given the money, and given the political will, we can build anything we want. We do not know what the best thing to do is and we do not know what the worst thing to do is. That does not give any direction to public policy makers and it feels a bit as if the public trust has not been honored with this study and we have great concerns about that. Assemblymember Anthony Portantino is persistent and consistent. We have been asking these questions since the beginning of the Study and will continue to ask these questions until we find some kind of resolution, answer, or solution. I went to a panel that the University of Southern California put on and Secretary Bonner from the Business Transportation and Housing, who has jurisdiction over Caltrans, was on the panel. Many other experts were on this panel. One of the experts, in my opinion, had a profound opinion. He said that you cannot come with a regional problem with a solution in place and study to the solution. You have to study the problem and let flow from the problem a solution that is correct for the region. You cannot force a solution. When do we get the feasibility study that we have been promised?

The legislation that funded this study mandated that the geotechnical feasibility of a tunnel would be considered on a route neutral manner. Before that, the Metro study had only looked at one zone or one route for extending the freeway. A surface route was discussed for 40 years and it did not work. Thus, the idea of using the tunnel as a possible solution was considered. Getting to the level of feasibility to address all issues requires a whole different level of study that we are not contemplating at this time. A decision has not been made at this moment. The public's trust is in the future remaining studies. There has been great feedback from the community meetings that will be considered during future studies and into the environmental process.

In order to get into the issues raised by the community regarding how to address congestion in the region, the environmental phase is required. The environmental phase is where traffic and air quality analysis, regional transportation needs and different alternatives are studied.

Miscellaneous

22) Can you explain what the Environmental Protection Agency (EPA) is doing regarding contaminants in Zone 1?

Treatment is in place for the contamination in Zone 1. The EPA is monitoring treatment and it is expected to take several years for it to be completed. At this point there is not much data available about the effectiveness of the treatment; however there may be more data in about a year or two.

SR-710 Tunnel Technical Study
Round 2 Community Meeting #2 Summary
January 26, 2010
San Marino Center
6:00 p.m. – 8:00 p.m.

INTRODUCTION

The California Department of Transportation (Caltrans) held a community meeting on January 26, 2010, to present findings from the SR-710 Tunnel Study Draft Geotechnical Summary Report (Draft Report) to community stakeholders. The meeting took place at the San Marino Center in the City of San Marino. In attendance were eighty-six (86) members of the community.

SR-710 Study Team members in attendance included the following Caltrans staff: Richard Land, Interim District 7 Director; Abdi Saghafi, SR-710 Tunnel Technical Study Project Manager; Deborah Harris, Chief, Media Relations and Public Affairs; Maria Raptis, Public Information Officer; John Ehsan, Chief, Geotechnical Design, South; Derek Higa, Design Manager; and Ainsley Chiang, Transportation Engineer. Staff team members from the Los Angeles County Metropolitan Transportation Authority (Metro) included: Doug Failing, Executive Director of Highway Programs and Lynda Bybee, Deputy Executive Officer-Regional Communications Programs. Additional Study Team members who participated in the meeting were: Yoga Chandran and Ramon Chavez of CH2MHILL; Steve Klein of Jacobs Associates; and Bruce Schell of Earth Mechanics; Rebecca Barrantes, Glenda Silva, and Sharon Martinez of The Sierra Group (TSG); Rena Salcedo and Debbie Rusas of GCAP Services; and Katherine Padilla and John Limon of Katherine Padilla & Associates.

MEETING FORMAT

The meeting began at 6:00 p.m. with an informal Open House and the presentation started at 6:30 p.m. There were informational displays set up in the lobby that depicted a range of topics, including: Study Purpose, Organization and Outreach Overview; Geological Conditions; and Modern Tunnels and Technologies. The Open House format provided community members with the opportunity to ask questions and engage in one-on-one conversations with expert Study Team members.

Rebecca Barrantes, meeting facilitator, began the meeting by thanking the City of San Marino for providing the venue. Elected Officials and representatives from the local area were introduced. Ms. Barrantes proceeded to review the ground rules for the Question and Answer portion of the meeting.

Richard Land, Caltrans Interim District 7 Director was introduced and gave welcoming remarks. Mr. Land reviewed the purpose of the SR-710 Tunnel Technical Study, which is to gather and

analyze geotechnical data that might be encountered if a tunnel is considered to extend the SR-710. He explained that the purpose of the community meeting was to share the results of the Draft Geotechnical Summary Report which contains exploration program data collected over the last two years.

Mr. Land informed attendees that Caltrans and Metro will use the Draft Report to determine the next steps. He added that this is not an environmental study, and is only a geotechnical study. Mr. Land thanked the community for attending the community meetings and staying involved throughout the Study.

Mr. Land noted that the study, which builds upon the Metro Tunnel Feasibility Assessment Study conducted in 2006, gathered and analyzed additional geotechnical data and identified the challenges for each of the five (5) Study Zones. He added that once the findings were finalized, Caltrans and the Metro Board would determine if they would move forward to the environmental phase.

Finally, Mr. Land recognized the elected officials and their representatives who were in attendance. They included: Hon. Mike Ten, Councilmember, City of South Pasadena; Hon. Dr. Allan Yung, Councilmember, City of San Marino; Hon. Eugene Sun, Mayor, City of San Marino; Hon. Richard Ward, Councilmember, City of San Marino; Hon. Dr. Richard Sun, Councilmember, City of San Marino; and Matt Ballantyne, City Manager, City of San Marino.

The Study Team's geotechnical experts, Yoga Chandran and Steve Klein, provided a PowerPoint presentation that described the Study purpose and scope; the exploration program findings; the Draft Geotechnical Summary Report; the key geotechnical factors for tunneling; and, the tunneling technologies used to mitigate such geotechnical factors. Mr. Chandran and Mr. Klein also provided a summary of geotechnical data for each of the five (5) Study Zones within the Study area. The Study Team reported that it is geotechnically feasible to tunnel in all five (5) Study Zones according to the Study's conclusion. The detailed presentation is available on the Study website at www.710tunnelstudy.info.

Following the geotechnical presentation, Ms. Barrantes provided a brief overview of the neighborhood and community outreach process, including Steering and Technical Advisory Committee Meetings, community meetings, presentations, and canvassing for the Exploration Program. Ms. Barrantes also provided the upcoming community meeting dates, including the next community meeting scheduled for February 10th in San Gabriel. Ms. Barrantes also noted that the Draft Geotechnical Summary Report was available on DVD in public libraries within the Study area. Finally, attendees were encouraged to provide written comments related to the geotechnical findings by February 9, 2010.

The following additional attendees were introduced by Mr. Land before the community dialogue portion began: Hon. Dr. Richard Schneider, Mayor of South Pasadena; and Julianne Hines, District Director, Office of Assemblymember Anthony Portantino, 44th District.

COMMUNITY DIALOGUE

The questions and comments offered by community members are categorized and appear below. *Responses from Caltrans, Metro and Study Team members are indicated in italics.*

Current Need for Tunnel

1) What is our current need to complete this Study, let alone go forward with an EIR?

   The project has been a part of the Southern California Association of Government's (SCAG) Regional Transportation Improvement Plan and Metro's Long Range Plan for many years. It is the single most important project for improving air quality and it is certainly something that Caltrans and Metro would like to do.

2) Pasadena conducted a study a couple of years ago that said that less than 25% of vehicles traveling through the corridor on the surface streets were through traffic. How will a tunnel to extend the 710 alleviate surface street traffic when less than 25% of the current traffic is through traffic and the tunnel would only be made for through traffic?

   Caltrans is not familiar with the referenced study. Assuming that this process moves into an environmental document, traffic analysis and generation is a very important part of the piece. The question will get answered in the next phase, if the decision to go on to the next phase is made.

3) The tunnel concept has bothered me. Where are all of these cars going to? The I-210 Freeway is very congested all the way down to the I-15 Freeway. Are you going to alter the I-210 Freeway to accommodate the trucks and cars? I am puzzled.

   Assuming that an Environmental Impact Report (EIR) is done, most people on the I-210 Freeway will continue to go north through different means. The question is how are they getting there and where are they coming from. Very old studies have suggested that the I-5 Freeway and Fremont Avenue are heavily congested because commuters are taking them to find their way through to the corridors they want to go. This route is not going towards an undeveloped area, so it will not produce additional traffic. Existing traffic patterns and re-distribution of the traffic will be a more efficient method of making the trip.

   Once outside a certain level of influence, the impact goes back to zero again and there is no impact as far as traffic flow is concerned.

Tunneling Technologies & Design

4) The Raymond Fault is a vertical slip fault. State geologists several years ago mentioned that the worst case scenario earthquake is capable of being a 7.5 magnitude. Your worst case scenario for the Raymond Fault could give a 9 foot vertical slip. That is an awful large distance to have engineers account for when designing a tunnel. What are your comments about this?

   The information mentioned is older information. Vertical displacement has a tendency to preserve itself. Regarding the magnitude of an earthquake, the Raymond Fault is about 12 miles long. A fault that is 12 miles long is not capable of generating an earthquake of magnitude 7.0 earthquake. There are actual numbers in the Draft Report that give more details about that.

5) During an earthquake, how will people get out of the tunnel if they are 200 feet underground? I have not seen any drawings of stairways or elevators. In the presentation, you mentioned that there would be bubbles around the outside of the tunnel to protect them in an earthquake. Are there going to be bubbles around the elevator shafts or the stairways? What happens if we lose electricity? Those elevators are not going to work. How far apart are the escape shafts going to be and how much area above ground will they take up? Not just the shaft itself, but the land that Caltrans will be required to take from the homeowners.

   A tunnel conceptual design has not been completed and experience with other projects, such as the Madrid tunnel can be used as project examples. In this country, there is a national regulation and requirement to insert cross passages that connect the tunnels every 650 feet along the tunnel alignment. The Madrid tunnel has emergency egress in the deck below the roadway deck so they can drive emergency vehicles in and out and use it to evacuate people. Alternatively, if one tunnel has a fire in it, the people in the tunnel would go through a cross passage to the adjacent tunnel where they would be taken out of the tunnel and evacuated. There is a lot of sophisticated technology available to be employed to operate these tunnels safely including operations centers with closed circuit television and cameras throughout the tunnel so emergencies can be seen and responded to quickly.

6) Will emergency exits be at each end of the tunnel?

One scenario is that there would not be any egress inside of the tunnel and evacuees would have to be taken out by emergency response vehicles and driven out of the tunnel. Alternatively, there could be points along the tunnel where they could go to the surface, but there would be a lot of stairs to climb as the tunnel would be 200 feet below surface. The most likely operational scenario is to find a way to evacuate the tunnel safely from end-to-end. Again, none of this has been decided and this is an important step in the design process.

Geotechnical Criteria for Tunneling

7) Who was responsible for changing the parameters of the scope? At one point, there were 10 parameters. Then it went to 3 parameters upon the request of the Technical Advisory Committee and Steering Committee. Now there have been 2 more parameters added to the evaluation table: gassy ground & hazardous materials. These were not included in the original scope and were only presented in the report. Who is responsible for the scope? Who is specifically responsible for the addition of gassy ground and hazardous materials without consent of the Technical Advisory Committee and Steering Committee?

In terms of the gassy conditions and hazardous materials, they have always been a part of the scope. They are part of the geotechnical exploration program. These conditions exist in the zones and all conditions were looked at to determine tunneling feasibility.

8) How do you rank tunneling feasibility criteria?

The advisory committees directed staff and consultants not to rank tunneling feasibility criteria, but only to present the geotechnical facts without making any conclusions.

Geotechnical Report

9) With respect to the tunnel projects that have been included in your Draft Report, I noticed that there was mention of a very recent tunnel project that was referenced in the presentation involving the Badlands. In light of the fact that this was a very significant and recent tunnel project, I wonder why that one or the Sylmar tunnel was not included? The Inland Feeder was completed within the last 6 months and that is also a very major project within Southern California. The Tunnel Boring Machine (TBM) used for that project was referenced during the presentation. The Inland Feeder project was problematic. Why did you not include another fatal and problematic project called the Newhall tunnel?

The tunnels discussed in the Draft Report under Relevant Experience are projects that are going through the same geological formations as those found in the five (5) Study Zones. Those other tunnels were not built in the same formations. The Riverside Badlands tunnel is not in one of the formations that we highlighted. The Riverside Badlands tunnel was discussed for the purpose of the presentation because it is a good example of tunneling through non-uniform conditions. Tunneling is possible through hard rock, sedimentary rock and other soil conditions. The Newhall tunnel had a gas explosion and it was constructed in the same formations. The other tunnels that were mentioned in the Draft Report were some of the larger highway tunnels that were similar in magnitude. They were used because it was important for people to recognize that certain technologies were available. There are so many tunnels built in the world and we had to draw the line somewhere and chose specific projects for specific purposes.

10) Has the tunnel panel reviewed the progress of this Draft Report or will they in the next few months? They are being supplemented on Thursday to review the SR-710 Tunnel Study. According to a Metro agenda item, Dr. Martin is getting paid a few thousand dollars a day specifically including the SR-710 Tunnel Study.

Dr. Martin reviewed the preliminary Draft Report. The Draft Report incorporates Dr. Martin's comments. He will also review the Final Geotechnical Summary Report (Final Report) and provide feedback, which will be incorporated into the Final Report. The other panel members were not available to review the report.

Public Participation & Comments

11) Your presentation shows that February 9th is the cut off for public comments, but you also said 10 days from the date of this meeting. If you attend the last meeting, do you have 10 days from that meeting?

People attending this meeting have 10 days from the date of this meeting to submit comments. If someone attends the last meeting, they have 10 days from that meeting to submit comments.

12) If you look at the maps, the grand majority of the communities that you are studying fall within the 44th Assembly District. In looking at the locations of the community meetings and not one of them is in the 44th Assembly District. Why are you showing such a lack of consideration for the people who live in the 44th Assembly District?

Thank you the comment will be taken into consideration.

13) Comments are supposed to be responsive to the Report, not to the public meeting. I have never seen a public process where the date will be arbitrarily set and then moved depending on when whether or not you happened to attend a meeting in El Sereno, San Gabriel or anywhere else. We would like to establish a date that is uniform for all.

Thank you the comment will be taken into consideration.

Funding/Costs

14) Have you done cost analysis for the tunnel?

Consultants were not asked to get into financial feasibility. The study did not look into specific cost estimates for each zone or financial feasibility analysis. Cost is an important question, but is not part of the current scope for determining tunneling feasibility in any of these corridors. Guidance as to what the next steps are will be sought from the Metro Board. These are very important questions for the environmental phase.

15) Should we have a fault that ruptures the outer of the tunnels, what are the potential costs of repairs to that damage?

The seismic events that are being considered are very severe, once in a lifetime seismic events. In the tunnel lining that was designed for the East Bay Mud Project, which is a water tunnel, the outer lining is designed so it forces displacements through sheer fuses. There are a couple of different places where the tunnel would be reinforced to handle the displacement and maintain the integrity of the tunnel. If a 7 ½ foot displacement of the tunnel, the tunnel would be taken out of service, inspected and repaired. These are severe types of criteria that are being discussed.

Next Steps

16) Have there been any surveys or will there be surveys completed about where people want to go to when they come off the North end of the SR-710 Freeway and where people are coming from when they get on the SR-710 South?

Once the Study is completed, it goes to the Metro Board, and the Board will make the decision to go into an environmental document. During the environmental document phase, traffic studies will be completed using regional traffic models. In some cases, origin and destination studies will be conducted. It is very easy to study routes that are pre-existing; however, in this case a route does not really exist and being able to find the people who are potentially going to use it is challenging. Usually there are models that show predominant travel patterns based on surveys that are done periodically and that is worked through a map to come up with origins and destinations.

17) This question is in regard to the Environmental Impact report (EIR), which has been referenced as the next probable step. I understand that the Final Report is not to culminate in a recommendation to proceed in any one of the five (5) Study Zones. Is it correct to assume that the EIR will encompass all five (5) Study Zones? Is the EIR intended to be compliant with the California Environmental Quality Act (CEQA)?

The decision to proceed to an EIR has not been made. The EIR could consist of five (5) Study Zones, or there could be direction to drop or add zones. An EIR starts with the basic purpose and need. All studies would have to be National Environmental Policy Act (NEPA) and CEQA compliant.

18) What are the criteria that would allow us to go forward to the next step? How do you weigh each of the criteria?

The Metro Board is made up of thirteen (13) elected official members that will make the decision regarding this study and constituent input is extremely important to each member. They also listen to discussions at their board meetings very carefully. The question that needed to be answered is: "Is it technically feasible to build a tunnel?" With that comes the question of whether there are enough questions out there to make a decision to go to that next step. People are asking questions about air quality, financial feasibility, and portal locations. Those are all excellent questions and if the Study goes forward, the questions deserve to be answered. There is no solid answer because 13 individuals will be making the decisions. The decisions will be based on their own experience and information that each board member receives. The criteria will change for each one.

19) Do you anticipate recommending to your respective Boards to obtain public comment if the scope of the EIR will not encompass all five zones?

There is no anticipation regarding this and decisions have not been made. The meetings where these decisions will be made are all public meetings where public comment is taken. The decisions to do an EIR are driven by purpose and need, which includes public comment.

20) I would like to know the decision making timeline. What meetings are coming up that we can attend? What actions that can be taken at those meetings?

There are four (4) remaining public meetings that were indicated and possibly the need to address the issue in the 44th Assembly District and adding another meeting. After that, once the Report is final, the schedule of meetings will be on the project website as soon as available. Staff has indicated that it is looking at early March 2010 for the completion of the Final Report. The last meeting is scheduled for Wednesday, February 24th. Ten days after that is March 5th, so in order to incorporate all comments from the public, the last meeting for the Steering Committee (SC) and the Technical Advisory Committee (TAC) will have to take place after March 5th. Next would be an issue of whether this is taken forward to the Metro Board and the time frame for that. Metro Board meeting agendas are published well in advance on their website.

Miscellaneous

21) What happens to the people in the tunnel during an earthquake? What are they going to feel? How are they going to react? Are there going to be collisions down the tunnel if there is an active earthquake?

If there is significant ground shaking, there is going to be activity in the tunnel. Activity in the tunnel during an earthquake is hard to predict. In addition to designing a tunnel that does not rupture, consideration will also be made on how to get people out of the tunnel. Fire safety, emergency egress, and so on will also be looked at. What would happen inside of the tunnel would be the same as on a surface freeway, if you are near or on an active fault, it can be very severe.

22) Is there a date for the SC and the TAC to meet at this time?

A date has not been set at this time for the Technical Advisory and Steering Committee to meet.

23) I believe there are other studies done by other experts that connect the Raymond Fault with Santa Monica and Hollywood Faults. The daisy chain could produce a rather large and rare event. Is that being considered? Is there some sort of risk level that would have to be considered?

The issue is a valid point. Some people have taken the extreme view that faults never end. However, when looking at the way that faults have ruptured, a connection cannot be found between the Hollywood Fault and Raymond Fault. It is assumed that these are discreet faults and have modeled according to that. Most recent opinions support this.

24) One of the big issues that Assemblymember Portantino has been talking about is ensuring that we have the public's trust. In that light, back at the beginning when the presentations were taken around to all the different communities, there was a commitment made that a full feasibility study would be done before going into the EIR. This [commitment] was made at a Board meeting at Metro as well. When asked the question before about when we are going to get these studies, the answer has always been that it will be done inside the EIR. But the commitment was made that the full feasibility study and analysis would be done prior to that. When you have this thing going on for as long as it has been going on and there is such little public trust around this project, you cannot simply say trust us. When are those commitments going to be fulfilled? Are they going to be fulfilled? If the answer is that those questions would be addressed during the EIR, then to me the answer is that public trust is not going to be honored.

This consists mostly of a statement, not a question. The decision to move forward or not will be made by a Board at the elected official level. Whether that consists of additional studies, or if this Study answers the base question, will be subject to the decision of the Metro Board.

25) There seem to be a number of issues regarding feasibility that have not been covered and that you do not plan to cover until some time way off in the future. Particularly with regards to financial feasibility, you have totally disregarded all costs. The Southern California Association of Governments (SCAG) projection provided in January 2008 was $11.8 billion. I would like to know if this has been shared with the Spanish company that has been geared up to do this project.

Secondly, the health consequences are infeasible considering that Huntington Hospital is on one end of the route and Grifols, the blood vaccination firm, on the other end. You have not addressed either one of those issues nor informed those institutions of your plans.

I understand that you are not selecting this potential route; however you are not determining anything except for going forward with a public-private partnership option this Thursday. I also think that the health consequences need to be addressed, considering Mr. Failing's comment last year in June 2009 in this very room, that cancer and emphysema rates are higher near tunnels is absolutely a true statement. It was published in the San Marino Tribune on June 2nd. It was quoted by Winston Chua and I have a copy of the article.

Doug Failing stated he did not make that statement that was in the referenced newspaper article.

A CEQA document, along with all the other things that address air quality in addition to greenhouse gasses, is certainly a part of what is being added to environmental studies. Health risk assessments are made under the NEPA. Those issues do get studied in the environmental document phase. A decision on whether to proceed with the environmental document will be made after geotechnical studies are appropriately incorporated. Health risk assessments, air quality assessments, and other things will be studied either separately or as part of that. There is no commitment to proceed to an environmental document. The $11.8 billion estimate did not come from Metro or Caltrans. The $11.8 billion is not a solid amount that has been endorsed as being the project cost.

26) As you showed in the presentation, regardless of the route taken, the community of El Sereno will be affected the most. In fact, El Sereno as we know it will cease to exist. I understand that you will have to take property for cut and cover. Once you start the tunneling, how far down do you have to go before you say that you will not need to take property? Where do you say we are not going to take your property because the tunnel is too far down?

No studies have determined where tunneling will begin and that is a function of what the geotechnical conditions are. At Valley Boulevard the bedrock is 100 feet plus or minus a few feet and going south it gets even shallower. If tunneling began in that end, the starting point of the tunnel would not be at Valley Boulevard; rather, tunneling would start further south and closer to the I-10 Freeway. By the time Valley Boulevard is reached, a depth of 100+ feet below the surface would be achieved and there should be enough cover. If this is true, most likely there would not be a need to take any property.

27) Will insurance companies of the residential or commercial building owners have to re-assess how they are going to cover these properties? How will this impact the property owners? Have you made any contact with any of these insurance companies?

There is a great deal of experience with tunnels in the Greater Los Angeles area, specifically with the Gold Line and Metro Red Line tunnels. There has been no known impact on insurance for those who have property above the tunnels.

28) There was mention that there would be a new assignment to the committee members by a gentleman at this meeting tonight. What is the answer to that question?

The structure of the Metro Board is made up of five (5) County Supervisors, four (4) people appointed by the City of Los Angeles, and four (4) more individuals assigned by city groups around the region. All Metro Board members are elected officials. In an election, they are subject to change; however, Caltrans is not aware of any election coming up in the near future.

The committees that Metro has are still in existence with no known changes to structure. Once a year, in June/July the Board Chair changes. The Board Chair gets the purview to appoint various members that are sitting on the Board to committees. At this time, membership on committees can change. The Board itself is based upon a series of elections, and there are not any elections due that should change membership until at least November 2010.

29) Since the technical study came out and you placed a portal in a residential area, we have been working with a Los Angeles Councilman and Caltrans to place the portal south of Valley Boulevard. The Los Angeles City Council passed a motion to move the portal south of Valley Boulevard. When are you going to do the same thing and put it on your plans moving forward?

The Study does not have a portal located at any particular place. Caltrans was directed to not locate portals. The Mayor of Los Angeles and Los Angeles City Councilman Huizar have made it clear that if a project were to move forward, the City of Los Angeles would like the portal to be south of Valley Boulevard. That is not a part of the Study that the consultants have been directed to complete. Appropriate direction from the Metro Board will be received assuming that it gets to that point in the process.

Participant Clarification: The portal is in your technical study report. It is located on Alhambra Avenue, Concord and Lowell.

The Report contains cross sections which identify the portal locations simply for the purpose of showing where the tunnel could be. It is for illustration of the extent of the Study area but it does not mean that this is where the portal will be. The consultants needed to have a way to express what was found. Specific portal locations are a part of the next steps in terms of picking an alignment. The issue of portal location has been raised before and it will be seriously considered in clarifying this point in the Final Report.

SR-710 Tunnel Technical Study
Round 2 Community Meeting #3 Summary
February 2, 2010
Los Angeles Christian Presbyterian Church, El Sereno
6:00 p.m. – 8:00 p.m.

INTRODUCTION

The California Department of Transportation (Caltrans) held a community meeting on February 2, 2010, to present findings from the SR-710 Draft Geotechnical Summary Report (Draft Report) to community stakeholders. The meeting took place at the Los Angeles Christian Presbyterian Church in the community of El Sereno. In attendance were sixty-five (65) members of the community.

SR-710 Study team members in attendance included the following Caltrans staff: Richard Land, Interim District 7 Director; Deborah Robertson, Deputy District Director; Abdi Saghafi, SR-710 Tunnel Technical Study Project Manager; Deborah Harris, Chief, Media Relations and Public Affairs; Maria Raptis, Public Information Officer; John Ehsan, Chief, Geotechnical Design, South; Derek Higa, Design Manager; Ainsley Chiang, Transportation Engineer; and Garrett Damrath, Senior Planner. The staff members from Los Angeles County Metropolitan Transportation Authority (Metro) included: Doug Failing, Executive Director of Highway Programs; Lynda Bybee, Deputy Executive Officer-Regional Communications Programs; and Shahrzad Amiri, Deputy Executive Officer. Additional Study Team members who participated in the meeting were: Yoga Chandran of CH2MHILL; Steve Klein of Jacobs Associates; Bruce Schell of Earth Mechanics; Rebecca Barrantes, Glenda Silva, and Sharon Martinez of The Sierra Group (TSG); Rena Salcedo and Debbie Rusas of GCAP Services; and Katherine Padilla, John Limon of Katherine Padilla & Associates.

MEETING FORMAT

The meeting began at 6:00 p.m. with an informal Open House and the presentation started at 6:30 p.m. There were informational displays set up in the lobby that depicted a range of topics, including: Study Purpose, Organization and Outreach Overview; Geological Conditions; and Modern Tunnels and Technologies. The Open House format provided community members with the opportunity to ask questions and engage in one-to-one conversations with expert Study team members.

The audience was welcomed by Councilmember Jose Huizar. He assured the community that as their representative, he would be involved in the process, adding that he along with Council members Gil Garcetti and Ed Reyes passed a motion that would oppose tunneling in Zones 1 and 2. Councilmember Jose Huizar clarified that as city representatives, they do not have jurisdiction over this matter; however, as a city they passed the motion to document their

stance on the issue. He promised that, as a member of the Metro Board, he would assure that this Study remains transparent process.

Councilman Huizar informed attendees that he voted "No" on the proposal to study the possibility of constructing a tunnel through a public-private partnership approach. He stated that he believes that it is premature to discuss such methods until Caltrans and Metro complete the community meetings to discuss the results of the Study. The Councilman thanked Caltrans and Metro for discussing the Study with the community and obtaining their input.

The meeting was then handed over to Richard Land, Caltrans Interim District 7 Director. He explained that the Study was designed to explore the feasibility of utilizing a tunnel to address a regional transportation issue. He added that the purpose of the Community Meetings was to share the results of the Draft Geotechnical Summary Report, which presents the exploration data collected in each of the five (5) Study Zones, and provide an overview of the contents of the Study. Mr. Land clarified that this is not an environmental study, and is only a geotechnical study that would provide a better understanding of the soil formations in all the five zones in the Study. He informed attendees that Caltrans and Metro would use the information from the SR-710 Draft Geotechnical Summary Report and determine the next steps.

Mr. Land recognized elected officials and representatives who were in attendance, which included: Julianne Hines representing Assemblymember Anthony Portantino; Alana Yanez representing Assemblymember Kevin De Leon; Arturo Chavez, District Director for Senator Gilbert Cedillo and Hugo Garcia, President, El Sereno Neighborhood Council.

After the introductions, Mr. Land introduced Yoga Chandran of CH2MHIll, who began the presentation portion of the meeting. The presentation portion of the meeting was convened at approximately 7:00 p.m.

Yoga Chandran and Steve Klein, the Study Team's geotechnical experts, provided a PowerPoint presentation that described the Study purpose and scope; exploration program findings; SR-710 Draft Geotechnical Summary Report; key geotechnical factors for tunneling; and tunneling technologies used to mitigate such geotechnical factors. A summary of geotechnical data for each of the five zones within the Study area was also provided.

Ms. Rebecca Barrantes, Outreach Project Manager, provided a brief overview of the neighborhood and community outreach process, including the Steering and Technical Advisory Committee meetings, community meetings, presentations, and canvassing for the Exploration Program. Upcoming community meeting dates were provided to all guests. Finally, attendees were encouraged to provide written comments related to the geotechnical findings by March 10, 2010 and explained that the rolling due date from previous meetings had been replaced with the new fixed date.

Mr. Land interjected to introduce Mr. Henry Lo, Field Representative for Senator Gloria Romero.

COMMUNITY DIALOGUE

The questions and comments offered by community members are categorized and appear below. *Responses from Caltrans, Metro and Study team members are indicated in italics.*

Exploration Testing & Analysis Methods

1) Are proposed routes going to be completely contained within each zone? You have sections between zones. Are these possible areas for routes and what about the areas that have not been explored?

   The tunnel is envisioned to be in one zone or the other. This study is route neutral and the tunnel could go from one zone to another, but that is not highly probable. These zones are considered to be the practical zones for constructing this transportation link. There is no alignment implied by these zones. In reviewing the Study area, zones were chosen according to practicality and could possibly connect the SR-710. The route is unlikely that it would cross from one zone to the other. The zone lines are somewhat arbitrary. If this goes to the environmental process, a number of specific alternatives could be developed.

Tunneling Technologies & Design

2) This tunnel is not desirable unless it has the least impact for all communities. A few months back, I asked Mr. Doug Failing if it would be feasible to put the southern portal between the I-60 and I-10 freeways. El Sereno is going to be inundated with tons of traffic and pollution, having the tunnel begin at Valley Blvd. does not work. We will have to contend with maybe two or three scrubbers. My question would have been included in Task Order No. 5, which was not conducted. Is that specific southern portal location possible and can you seriously consider it? Has this been seriously analyzed?

   Beginning the portal south of the I-10 Freeway will be fairly difficult. The portal could possibly be located before Valley Boulevard. The south portal will most likely have much less impact, if any impact at all.

   Is it feasible from a technical standpoint? Yes, as far as the tunnel location itself, whether it is before Valley Boulevard, after Valley Boulevard or further down the SR-710 Freeway is something that has not been looked at. This would be considered at the time alternatives are being looked at to address regional traffic issues. There has not been any study about

where to locate the tunnel and all the alternatives for portal locations, and which zone is the most viable. This study was meant to be as route neutral as possible for looking at all five zones to study the feasibility of building a tunnel as an option.

3) Where is the tunnel going to start and end? What is it going to look like? How will it affect traffic on the main streets in the area?

   The assumption would be between the I-10 Freeway and Valley Boulevard. Based on the space and distance available, the portal will most be located before Valley Boulevard and from that point it will be underground going north. Where it ends will depend on which of the zones is chosen and this is something to be decided further down the line. No intermediate access is anticipated to the tunnel at this point but that will be determined at an environmental document phase. Benefits of having intermediate access or not will be looked at if there are more studies. Most of the time, portals are designed with aesthetic consideration for how it will fit in with the communities around it. Concepts will be created to protect those inside the tunnel during design.

4) How will the pollutants from the tunnel affect the community of El Sereno? In this very building I heard the scrubber technology would be the most expensive process for constructing a tunnel. Can you address the feasibility from a cost perspective?

   There are technologies available to clean air and discharge clean air. If it was determined that discharges were environmentally unacceptable, it would have to be mitigated. The technology available can deal with those types of issues. Cost estimates and technical evaluations have not been made at this point. It is unknown if the tunnel would be expensive or inexpensive.

5) At the Raymond Fault in Zone 3, how much additional excavation is involved to make the monstrous tunnel vault? What is on the surface at the route point where the tunnel crosses the Raymond Fault?

   This would depend on how much movement the fault was anticipated to make during an earthquake. The Study only addresses the general geotechnical feasibility of building a tunnel through these zones. Later studies would dictate where exactly the zones would cross faults and therefore exact streets are unknown at this point.

6) I would like to correct your statement saying that you did not do any studies where the portal is going to be. You do have portal locations in your technical feasibility study for the portal in El Sereno. You are saying that this is route neutral. No matter where you go, El

Sereno is going to be affected. This is not route neutral. Why did you pick Concord and Alhambra Avenue for a portal?

The Study did not look at any portals. The Draft Report identifies the south portal near the end of the SR-710 Freeway in the El Sereno neighborhood. A separate portal study, would choose an alignment, evaluate it, and make sure it meets the standards. Caltrans has not completed a portal study. The next step is to evaluate that. The portal is identified there for schematics only. This study is guided by the route neutral concept; a specific alignment has not been looked at.

7) It is our firm objection to have the portal; north of Valley Boulevard. The portal has to be south of Valley Boulevard as the Los Angeles City Council has taken a stand on as well.

In these recent community meetings, it has been highlighted that a portal could be feasible south of Valley Boulevard. With more studies, details about a portal south of Valley Boulevard could be provided. Without looking at this in depth, it is not 100 percent certain that a portal will located in this general area.

8) Will you have to complete additional geotechnical studies south of Valley Boulevard?

There was no need to conduct geotechnical studies for that area because of existing data. The data from the area provided enough information on the geological conditions to substantiate it for the purpose of feasibility.

Geotechnical Report

9) The gassiest ground in the Draft Report is located either in Zone 3 or Zone 4. Zone 4 has highest median level of gassy ground. In Zone 3 you have the highest level of recorded gas for the entire project. Why did you identify Zone 3 as only moderate and Zone 4 as low in gas potential when they have the highest recordings? When Metro constructed the Red Line's Phase 1 at Union Station, gas was not a problem in the rock areas, it was a problem in the alluvium. That was the same finding in Zone 4, Boring 4, where we have a lot of gas in the alluvium. Assigning the Puente formations as being the gassy unit when it has the lowest permeability in Zone 1 and 2 and a little bit of gas in Zone 3 seems strange. The borings are not consistent with the text. By the way, there were two borings given in El Sereno as having oil. There is oil in El Sereno under Eastern Avenue. In the text it says that oil was also found in Zone 3, but not at the boring that you indicated in El Sereno. There seems to be a lot of difference between the borings and the text.

Gassy conditions recorded in the borings were pretty low. Although, gassy conditions were encountered during the borings, they were not high enough to be of concern. The data and tunneling conditions in each sewer tunnels where there are gassy conditions exist and it was reported that Puente formations are known to have higher potential for gas. This was the reason for stating that this formation has more potential for gas.

It is common to find some oil staining and residue in borings in the El Sereno neighborhood. Those localized small oil deposits are common types of formations. The deposits found were recorded.

Public Participation & Comments

10) This meeting is to inform the community about what you found and hear back from the community about what they think about this. The most direct line is from Alhambra to South Pasadena to Pasadena. It is also the segment that has the most earthquake faults and now I am hearing that it has gassy conditions. You have no hearings or presentations in Alhambra, South Pasadena, or Pasadena. These potentially follow the closest alignment that has been proposed since 1949. Those people have to go some place else to go to a meeting. Why did you not have any meetings in Alhambra, South Pasadena or Pasadena?

Meetings were held in these cities where exploration was conducted; in addition all of these cities were notified about the Exploration Program when it occurred. Meetings were publicized in all communities within the Study area. An additional meeting was added for Northeast Los Angeles. There were six meetings held to cover a lot of cities in a very broad area. In the second round, we had a great expanse to go through. The decision to hold six geographically-based meetings was made to capture a grouping of cities. An extra effort was made to ensure that all cities knew about the meetings.

<The participant prompted the Study Team to answer the question again>

All 6 meetings were scheduled and regionally grouped to target all cities in the five (5) Study Zones. Staffed worked closely with those cities to make sure that their constituents knew about the meetings. The information on the meetings was posted on the website as well.

11) I have a suggestion. I have been a resident for almost 40 years. I am also an environmental specialist and I understand what you are talking about. What I am hearing is that you have not clarified well enough what point you are at in the process. The answers are sounding very vague and insufficient to everybody here. You might need to consider some type of workshop to better explain where you are in the process because while I understand and know what you are talking about, not everybody does. There is a process and it is a

transparent and complex process. It takes many years and a lot of time but there is a process. I can take time to explain it to you, as a local resident who understands the process, where your voice will be heard. This Study is just to talk about the feasibility of doing a tunnel. They may not do a tunnel. They may do something else, maybe mixed use. There may be other considerations they will have to look at.

12) I understand that you are frustrated with the question; however Councilman Huizar was here to say that he wanted to ensure that people had fair access to these meetings and that there was transparency in understanding how these meetings are conducted. Rebecca herself said that she has been talking to the elected officials to assure them that her constituents have fair access to these meetings. What were the criteria for how you chose where you are having these meetings? Did you simply look at the map and go 1, 2, 3, 4, 5, and 6? There had to be some criteria in there. As the representative of an elected official, Assemblymember Portantino, I do not believe that the constituents had equal access to these meetings. When you came around the first time, you told them you would be back to present this material to them but you are not going back to my district. I am very concerned about this. And I am going to tell you right now, if this ends up being through our district and my constituents have not had an adequate chance to hear this for themselves, I do not know what my boss will do. So I am just letting you know that I am very interested in understanding what your thought process was. What were the criteria for having chosen these meetings?

The meeting locations were chosen geographically. Meetings were dispersed throughout the five (5) Study Zones.

Next Steps

13) I have not received literature regarding this meeting or the SR-710 Freeway. I found out about this meeting from my neighbors. You are discussing all of these things such as rocks, gasses and so on, but have you taken a vote on what the residents think about this? What is going to happen to our neighborhoods? Are our property values going to go up or down? What happens if you are digging something and our properties are damaged? Who is going to be responsible? How are you going to ensure our safety?

At this point, only one alternative, the potential of a tunnel as an option, is being looked at to address regional traffic issues. No other alternatives are being looked into at this moment. The next phase will look at all the different alternatives, including doing nothing, to address traffic impacts in the region. For each one of the alternatives, community impacts, and traffic and air quality studies will be addressed. In that phase, an alternative, including a tunnel alternative would be chosen. This is where the process of evaluation will try to

address traffic congestion in the area. There is no determination that the only way to address the traffic situation is through a tunnel.

The environmental process would be present the alternatives and different impacts. Along with the preferred alternative, and this is typically not put to a vote. How that final decision is actually made depends on the transportation agencies involved and funding and moving forward with a project. The community and elected officials will be involved during the process. This is a very transparent process. Caltrans or Metro are not going to be making decision without public input.

14) You mentioned that during the Environmental Impact Report you will be looking at all alternatives. Does that include alternatives other than a tunnel? Can you tell me what those alternatives are?

All alternatives have not been identified but all would be considered as part of the environmental process. All modes will be looked at during this process. The funding has not been allocated for the EIR. Some funding has been allocated as part of Measure R, but Caltrans and Metro still have to make a decision about budget.

Miscellaneous

15) I went online and found the results of all the borings with the exception of the Pullman Street boring, which is near and dear to me due to a cause that is very close to my heart, which is the Elephant Hills issue. That data will be very useful. I know it happened because my friend lived right across the street from it. It was listed with a boring number but says data in unavailable.

A boring was completed there. Leave your contact information and the information will be emailed to you.

16) Can you provide the 3-D files from the presentation online?

Yes, the 3-D files can be posted on the website.

SR-710 Tunnel Technical Study
Round 2 Community Meeting #4 Summary
February 10, 2010
Jefferson Middle School, San Gabriel
6:00 p.m. – 8:00 p.m.

INTRODUCTION

The California Department of Transportation (Caltrans) held a community meeting on February 10, 2010, to present findings from the SR-710 Draft Geotechnical Summary Report (Draft Report) to community stakeholders. The meeting took place at Jefferson Middle School in the city of San Gabriel. In attendance were forty (40) members of the community.

SR-710 Study Team members in attendance included the following Caltrans staff: Richard Land, Interim District 7 Director; Abdi Saghafi, SR-710 Tunnel Technical Study Project Manager; Deborah Harris, Chief, Media Relations and Public Affairs; Maria Raptis, Public Information Officer; Derek Higa, Design Manager; and Garrett Damrath, Senior Planner. Los Angeles County Metropolitan Transportation Authority (Metro) staff included Doug Failing, Executive Director of Highway Programs. Additional Study Team members who participated in the meeting were: Yoga Chandran and Ramon Chavez of CH2MHILL; Steve Klein of Jacobs Associates; and Bruce Shell of Earth Mechanics; Rebecca Barrantes, Glenda Silva, and Sharon Martinez of The Sierra Group; Rena Salcedo and Debbie Rusas of GCAP Services; and Katherine Padilla and John Limon of Katherine Padilla & Associates.

MEETING FORMAT

The meeting began at 6:00 p.m. with an informal Open House and the presentation started at 6:30 p.m. There were informational displays set up in the lobby that depicted a range of topics, including: Study Purpose, Organization and Outreach Overview; Geological Conditions; and Modern Tunnels and Technologies. The Open House format provided community members with the opportunity to ask questions and engage in one-to-one conversations with expert Study Team Members.

The audience was welcomed by Katherine Padilla, meeting facilitator, who outlined the format of the meeting and asked for their cooperation in creating a respectful environment during the question and answer portion. Ms. Padilla introduced Richard Land, Caltrans Interim District 7 Director.

Mr. Land explained that they would be discussing Study results to address the tunnel as a potential alternative for traffic challenges in the region. He added that the Study merely looks at a tunnel and whether it is technically feasible as an option in the corridor. He also added that Caltrans and Metro had been mandated to look at this option in a route neutral manner.

Mr. Land stated that the purpose of the community meeting was to share the results of the Draft Geotechnical Summary Report (Draft Report) and to provide an overview of the data collected in each of the five (5) Study Zones. It was noted that this meeting was the fourth of six (6) planned community meetings. He informed attendees that Caltrans and Metro would use the information from the Draft Geotechnical Summary Report and determine the next steps. He added that an environmental phase would provide the opportunity to look at all alternatives, including the option to do nothing.

Mr. Land recognized elected official representatives who were in attendance, which included: Julianne Hines representing Assemblymember Anthony Portantino. After the introductions, Mr. Land handed the meeting over to Yoga Chandran who began the presentation portion of the meeting at approximately 7:00 p.m.

Yoga Chandran and Steve Klein, the Study Team's geotechnical experts, provided a PowerPoint presentation that described the Study purpose and scope; exploration program findings; Draft Geotechnical Summary Report; key geotechnical factors for tunneling; and tunneling technologies used to mitigate such geotechnical factors. Mr. Chandran and Mr. Klein also provided a summary of geotechnical data for each of the five (5) Study Zones. In closing, they stated that the Draft Geotechnical Summary Report was completed in November 2009 and the Final Geotechnical Report would be completed in March 2010.

Following the geotechnical presentation, Rebecca Barrantes, Outreach Project Manager, provided a brief overview of the neighborhood and community outreach process, including the Steering and Technical Advisory Committee meetings, community meetings, presentations, and canvassing for the Exploration Program. Upcoming community meeting dates were provided to all the guests. Attendees were encouraged to provide written comments related to the geotechnical findings by March 10, 2010. Ms. Barrantes informed attendees that the Final Report would be presented to both committees tentatively on March 18th, 2010 at Lake Avenue Church in Pasadena.

Katherine Padilla opened the community dialogue portion of the meeting by stressing that the focus is to ensure that attendees have a thorough understanding of materials presented.

COMMUNITY DIALOGUE

The questions and comments offered by community members are categorized and appear below. *Responses from Caltrans, Metro and Study Team members are indicated in italics.*

Tunneling Technologies & Design

1) In Zones 4 and 5 there is an area with bedrock discontinuity. There is a possibility that a fault not designated as active could destroy the tunnel. Are you going to consider all active faults in your design?

   There are a number of active faults. In Zone 5, there is a bedrock discontinuity, which was addressed in the Draft Geotechnical Summary Report. The bedrock discontinuity seen is probably the result of a fault, but it might not be an active fault. The Alhambra Wash Fault, which is considered active, goes through Zone 5. There is a feature that shows some movement that happened within the geological material. It does not mean it is an active fault.

   If the Study moves forward to the design phase, all faults and features will be taken into consideration and designed for these conditions.

2) How do you plan on adapting to the transition in the very dramatic lane change on the SR-710 Freeway as it currently exists above ground to what you are proposing to build underground?

   This question would be answered in the environmental phase. The connections and transitions to the I-10 Freeway northbound would have to be designed. A design has not been made because that was not part of the scope of work.

3) The SR-710 Freeway is already about five lanes. Are you going to build a seven lane tunnel? Are you planning on this having three lanes in each direction?

   This would have to be designed from a geometric standpoint. Multiple lanes, such as seven lanes, would be designed in a future environmental phase.

4) Zones 4 and 5 have stable soil. I am worried about the rest of the zones and sinking. What kind of mitigation would be done to prevent this?

   Depending on the zone selected and conditions of the zone, a pressurized face boring machine would be used, which mitigates groundwater pressure and unstable soil. This type of boring machine was recently used on the Eastside Extension Project. The technology is available and if designed appropriately, constructing a tunnel in this manner will appropriately mitigate these conditions.

   From a faulting standpoint, the primary concern is safety in the tunnel. During a major earthquake, if there is a surface rupture, shaking can be felt whether in the tunnel or in a building.

5) What experience does Caltrans have to undertake the job of building a 50-foot diameter tunnel that is 7 miles long?

In looking at the tunneling industry and firms in Southern California, many experts in tunnel design and contractors with extensive tunnel building experience can be found. Whether a 30-foot diameter or 50-foot diameter tunnel is built, the design and the technology is the same. Contractors have to make sure that the tunnel design is done appropriately. Caltrans is currently building a 30-foot diameter tunnel up in the Bay area and using similar technology. Metro has also built many tunnels, some that are 30-feet in diameter.

6) I trust that tunnel design is feasible. I am from Madrid and know that tunnels work and do not fall down. How many lanes, how deep, how many exits are all important. I understand that we have not decided on these yet, but only that it is feasible. When are we going to know the practical information about the tunnel? Who will be studying how to design it?

Over the last few community meetings there have been a number of questions about if tunneling is feasible and where would it start. All of the zones begin at where the SR-710 ends. There has been a lot of concern about where it will start and there are no studies addressing this nor the geometric aspects and tunnel options. Those questions may or may not be addressed in an environmental phase because various alternatives will be considered. In finalizing an environmental document, geometrics for various options, such as the tunnel as a particular option would be studied. What zones are the best from an environmental standpoint? How large will the entry be? At which location the tunnel will go down underground? These questions have not been studied.

Geotechnical Criteria for Tunneling

7) Based on the diagrams and models that you have shown which zone has the best characteristics or most cost prohibitions for building a tunnel?

This assessment has not been made. This would be addressed in an environmental phase. For geotechnical purposes, challenges have been identified.

8) Groundwater is a prominent feature in Zone 5. In the two summary tables that you provided (Table #'s 32 and 42) there was no mention of groundwater. I presume that is not considered important? In the report, it indicates that the top of the shields will most likely be 150 feet below the surface and the bottom of the shields will be 200 feet below the surface. That is approximately 40 pounds for square inch (psi) at the top edge and 60+ psi at the bottom of the shield. These are very high pressures for under the ground and usually tunnel machines do not like to have more than 1 ½ bar of atmosphere, or pressure

differential, because it is too hard to prevent blowouts. Why is there little discussion regarding the groundwater in Zone 5 and its impact to the tunneling method?

Tunnels have been constructed previously with similar conditions and have been successfully completed.

9) Out of the five zones, which one would most likely be the zone picked for the route?

The Study has determined that the tunnel is technically feasible as an option. Which zone is best and what makes sense from traffic and air quality standpoints, will be studied in a future environmental phase if Caltrans and Metro decide to proceed.

Geotechnical Report

10) In the maps you are producing, there are not enough landmarks to show where the zones actually are.

In the Draft Geotechnical Summary Report, there are maps that provide street references that help locate the zones. Some of the maps seen in the presentation are more detailed in the report, which are available online.

Public Participation & Comments

11) I am a little frustrated because there have been a lot of comments about how elected officials have asked for this or that. I want to make it clear that my boss, Assemblymember Anthony Portantino, believes that the very first step going forward needs to be a concerted effort to win back the public's trust in any potential project. In the 40 to 60 years that something has been going on with the SR-710, there has been a lot of back and forth. There has been a lot of betrayal, and a lot of confusion, and a lot of upset about this extension. We are talking about your tax payers. We are talking about your community. We are talking about your air quality, your congestion, and this should be about serving the people and not about connecting two routes on a map. Assemblymember Anthony Portantino feels that the first step needs to be helping the public understand what is going on and for everybody to have access to this. There is confusion because I think that for a lot of you this is the first time you are hearing about a lot of this stuff, based on the questions that I am hearing. There was a first round of community meetings in other parts of these communities, and they did the Study and now are coming back with this second round to different communities. I am not pleased with how the outreach meetings have been placed. I personally am really upset because I do not feel that the constituents of our district had fair access to hearing back the results from this Study. I do want to pledge to you that are here tonight that Assemblymember Portantino is absolutely committed to holding Caltrans and

Metro and everybody else involved in the project, by holding their feet to the fire and continuing to push for them to be transparent and accessible to you, the people, because no project is so important that it should come at the expense of the public trust. This is your money. This is your community and you need to be respected in this process.

Next Steps

12) I read somewhere that it would take approximately five years of studies if you were to decide to tunnel. Is that correct? Based on your experience, is there a ballpark figure of how long it would take to complete a tunnel in Zone 5? Are we talking about 10 years for studies and construction? Is that about right?

It would definitely be less than 10 years for construction of a tunnel, possibly about 3 to 5 years; however, there are no studies on the exact time frame.

13) I have some understanding that this may be funded by a public- private partnership. Is that true?

There are financial feasibility studies being done for different funding options. The public-private option can be considered an option.

14) The Alameda Corridor dropped down 10 to 15 feet. Can you do something like that through Zone 3, rather than design a tunnel that will go 150 feet down?

This is a question that would be studied during an environmental phase.

15) If you do have a tunnel, will trucks be allowed? One suggestion is to have the trucks separated out from the traffic and deal with them in some other way.

This is a question that would be studied during an environmental phase.

16) Is it true that you are considering charging a toll?

The tunnel could be privately funded or it could charge a toll. It could be a private entity that comes forward and advances money, which Caltrans or Metro pays back over a long period of time.

Miscellaneous

17) I do not understand how you can talk about extending the SR-710 Freeway without already knowing how you can connect the existing SR-710 Freeway to any of the five zones. It tells me that you have an option of not connecting the SR-710 Freeway to any of the five zones and can do an independent transit just like we have in Long Beach which dies in Alhambra and ends at Long Beach. I do not understand.

The Study was limited to looking at the geotechnical feasibility. The options to extend and connect the SR-710 would be studied in the future and is not a part of the current scope.

This is a route neutral technical study where we looked at five (5) different zones. The intent was to provide more information on the technical feasibility of a tunnel as a potential option to address traffic conditions in the corridor. The next logical step for addressing the traffic conditions in the corridor would be done in an environmental phase. The tunnel as an option, different types of mass transportation as options, and a "no build" option would be studied. The point of this Study was to determine whether a tunnel could be considered as a technically feasible option.

18) My understanding was that the freeway was going to continue from the SR-710 Freeway on Valley Boulevard and go under Pasadena, which is a connector to the I-210 Freeway. What happened to that simple plan?

A number of elected officials asked for a route neutral concept for extending the SR-710 Freeway. Route neutral means looking at all the practical options for extending the SR-710 Freeway within all of the five (5) Study Zones. There was no focus on specific alignments or looking into any traffic studies. After this Study is completed, Caltrans and Metro will make decisions about what the next steps are.

19) In your introduction, Mr. Land, you mentioned traffic mitigation and improving traffic in the corridors. I would like to know specifics about the traffic that Caltrans thinks needs to be mitigated. What is the official purpose and need statement for the project? Is it the same purpose and need statement as the surface route?

A purpose and need statement is an official part of an environmental document. This project does not currently have an environmental document being developed. There would be a need to develop an official purpose and need statement as part of the environmental document process. A reference that was made to an old environmental document done many years ago by Caltrans and the purpose and need statement could be different or could be the same. The environmental document process would need to begin in order to develop

a purpose and need statement. There was a specific request to look at developing a purpose and need for this specific project a few years ago before beginning the tunnel evaluation. The concept came of a tunnel instead of a surface route was introduced because of a number of environmental concerns. A number of elected officials became concerned and asked whether a tunnel is feasible before establishing it as an option and moving forward with an environmental process.

20) I assume ventilation would be necessary, in particularly longer tunnels. How will the ventilation system work?

Ventilation would be needed for a longer tunnel, but it will depend on flow and a function of speed.

21) Are we really married to the idea of a tunnel? Is this about a tunnel or something else?

This particular technical study is only about the feasibility of a tunnel as an option for the further study in a future environmental phase.

22) The Alhambra Wash Fault is active and goes through Zones 4 and 5. Would this indicate that the areas above the Alhambra fault be suitable for zoning as an active fault area? Will owners within that property have to notify new buyers that they are potentially in an active fault zone?

Yes. Faulting and seismic activity has to be well defined. The California Geological Survey is very reluctant to confirm zone faults that are uncertain. Whether it gets zoned as a fault zone or not is not important to the Study. There were two to three possibilities about where that fault may go and that is why there are a couple of geophysical lines going across. Based on that information, and the geological survey, it is not going to be zoned as a fault zone.

23) Is this being reviewed by tunnel experts from Caltrans? Are there other people besides Caltrans experts, not consultants or committees that can help with the Study?

Yes. Dr. Jeff Martin, a tunnel expert from USC and a member of the Metro Tunnel Panel, reviewed the Draft Report. Both the Technical Advisory and Steering Committees also have reviewed the report. Members of the Committees are not necessarily tunnel experts however; they represent the different jurisdictions within the Study area. Agency and private sector tunnel experts were also used to review the Draft Report and advise us during the Study.

SR-710 Tunnel Technical Study
Round 2 Community Meeting #5 Summary
February 17, 2010
Ramona Hall, Highland Park (NELA)
6:00 p.m. – 8:10 p.m.

INTRODUCTION

The California Department of Transportation (Caltrans) held a community meeting on February 26, 2010, to present findings from the SR-710 Tunnel Study Draft Geotechnical Summary Report (Draft Report) to community stakeholders. The meeting took place at Ramona Hall in Highland Park. In attendance were one hundred and three (103) members of the community.

SR-710 Study Team members in attendance included the following Caltrans staff: Richard Land, Interim District 7 Director; Abdi Saghafi, SR-710 Tunnel Technical Study Project Manager; Deborah Harris, Chief, Media Relations and Public Affairs; and Maria Raptis, Public Information Officer. Los Angeles County Metropolitan Transportation Authority (Metro) team member Doug Failing, Executive Director of Highway Programs also attended. Additional Study Team members who participated in the meeting were: Yoga Chandran and Ramon Chavez of CH2MHILL; Steve Klein of Jacobs Associates; and Bruce Schell of Earth Mechanics; Rebecca Barrantes, Glenda Silva, and Sharon Martinez of The Sierra Group; Ed Salcedo and Claudia Gonzalez of GCAP Services; and Katherine Padilla and John Limon of Katherine Padilla & Associates.

MEETING FORMAT

The meeting began at 6:00 p.m. with an informal Open House and the presentation started at 6:30 p.m. There were informational displays set up in the lobby that depicted a range of topics, including: Study Purpose, Organization and Outreach Overview; Geological Conditions; and Modern Tunnels and Technologies. The Open House format provided community members with the opportunity to ask questions and engage in one-to-one conversations with knowledgeable Study Team Members.

The audience was welcomed by Katherine Padilla, meeting facilitator, who outlined the format of the meeting and asked for their cooperation in creating a respectful environment during the question and answer portion. Ms. Padilla introduced Richard Land, Caltrans Interim District 7 Director.

Mr. Land explained that this meeting would discuss Study results to address the tunnel as a potential alternative for the traffic challenges in the region. He added that the Study looks at a tunnel and whether it is technically feasible as an option in the corridor in a route neutral manner.

Mr. Land stated that the purpose of the community meetings was to share the results of the Draft Geotechnical Summary Report and to provide an overview of the data collected for each of the five (5) Study Zones. It was noted that this meeting was the fifth out of six planned community meetings. He informed attendees that Caltrans and Metro would use the information from the Draft Geotechnical Summary Report and determine the next steps. Mr. Land added that an environmental phase would provide the opportunity to look at all alternatives, including the option to do nothing.

Mr. Land then introduced Los Angeles City Councilmember Jose Huizar, who made the following statement to the community:

"*Thank you, I wanted to come by and say hello and thank all of you for being here and being involved. This meeting tonight here in NELA, I thought it would be very important to have this meeting here considering that we have alarmed many of the residents in this area. This process that is going on, the boring process, the agencies call it route neutral. One thing the Los Angeles City Council did is to oppose Zones 1 and 2 through NELA. We heard the community loud and clear, it just makes no sense to come here to NELA. In the event there is a tunnel that goes through El Sereno, we want to make it clear that the portal begins and ends south of Valley Blvd. I sit on the Metro Board of Directors. There was a proposal for a study for private/public partnership for a tunnel, and I was the only vote against that. I thought it was premature, I thought it was unnecessary and I thought that all the proposals were route neutral. So I agreed with many of you that we need to look at this intently, ask the right questions and we need to get through this community outreach. So I did want to stop by and say hello and thank you for your involvement and activism. Two of my staff members are here to listen and inform the community. Finally I wanted to, as we go forward and the city of Los Angeles is taking its official position, I think it's important to look at the agencies that are making these decisions. Although we, the City Council of Los Angeles have some say, we are members that are representing these areas and we are advisors in this role.*"

Question and answer session for Huizar:

Q: You have heard that your community is opposed to tunneling in Zones 1 and 2, but most people in this room are opposed to Zones 1 through 5. We do not want a tunnel anywhere. Metro needs to look at other options. We need to look for other options and get the people out of their cars and the freight on the trains.

Huizar: *As we get more information we can look back and see what the City of Los Angeles' position should be. This is a step by step process.*

Q: Where should we be pushing, if the city of Los Angeles is only in an advisory role?

Huizar: *Caltrans and Metro are the appropriate agencies who will be making these decisions. I sit on the Board at Metro, so I do have a vote there.*

Q: We represent the area of Hollywood with the Metro tunnel. I suggest we wait for the star trek solution. Let's wait 200 years and beam all the traffic up.

Huizar: *Thank you and I look forward to further discussion. Thank you very much.*

Mr. Land thanked Councilmember Huizar for his comments and attendance to the meeting. He then recognized elected official representatives who were in attendance, which included: Edel Vizcarra, Planning and Transportation Deputy for Los Angeles Councilmember Jose Huizar; Suzanne Jimenez, Field Deputy representing Los Angeles Councilmember Ed Reyes, Julianne Hines representing Assemblymember Anthony Portantino; and Hampden MacBeth representing Congressmember Adam Schiff. He then turned the meeting over to Katherine Padilla.

Katherine Padilla outlined the guidelines for the meeting and introduced Yoga Chandran from CH2MHILL for the presentation portion of the meeting.

Yoga Chandran and Steve Klein, the Study Team's geotechnical experts, provided a PowerPoint presentation that described the Study purpose and scope; exploration program findings; Draft Geotechnical Summary Report; key geotechnical factors for tunneling; and tunneling technologies used to mitigate such geotechnical factors. They also provided a summary of geotechnical data for each of the five (5) Study Zones. In closing, they stated that the Draft Geotechnical Summary Report was completed in November 2009 and the Final Geotechnical Report would be completed in March 2010.

Following the geotechnical presentation, Rebecca Barrantes, Outreach Project Manager, provided a brief overview of the neighborhood and community outreach process, including Steering and Technical Advisory Committee meetings, community meetings, presentations, and canvassing for the Exploration Program. Upcoming community meeting dates were provided to all the guests. Attendees were encouraged to provide written comments related to the geotechnical findings by March 10, 2010. Ms. Barrantes informed attendees that the Final

Report would be presented to both committees tentatively on March 30th at Lake Avenue Church in Pasadena.

Katherine Padilla opened the community dialogue portion of the meeting by stressing that the focus is to ensure that attendees have a thorough understanding of materials presented. She explained that her role as facilitator is to maintain an atmosphere of respect, and to create a learning environment.

COMMUNITY DIALOGUE

The questions and comments offered by community members are categorized and appear below. *Responses from Caltrans, Metro and Study Team members are indicated in italics.*

Tunneling Technologies & Design

1) In several different places, the report refers to the portal in Zone 2. It indicates that the Raymond Fault will cross it. Since only 40% of the Northwest end has the Raymond Fault, it indicates that you have determined the portal to be on the Raymond Fault and not in Mount Washington? Can you please comment?

   Specific portals have not been located at any of the ends of any of the zones. No locations or portals have been sited as a result of this study.

   [The meeting attendee noted that they quoted the specific sections from the study at the Glendale meeting that stated that a specific portal had been sited.]

   No locations or portals have been sited as a result of this study.

2) This question is for Mr. Chandran: You talked about various faults. I lived through the Northridge earthquake. What about faults that have not been identified? How do you account for construction for faults that have not been found? What about horizontal displacement? All you have spoken about is vertical displacement.

   Studies show where a fault line exists. As far as vertical movement, technology exists to address this. Most faults have about 8-1 laterally to withstand those types of movements. There is a mixture of lateral and vertical displacements of only about 200 feet. The Northridge earthquake came up about a mile deep at its shallowest point.

3) If there are faults that are unknown, will you design the tunnel to withstand an unknown earthquake?

There was no displacement in the Northridge earthquake. It was all the shaking that caused the damage. Displacement is the breaking of ground surface wherein one side moves relative to the other side. The tunnel will be designed to withstand shaking, but will only be able to withstand displacement at the identified fault locations. With Northridge, there was some uplift, but that was something that would not have been felt or affected any structures. The tunnels will be designed to withstand all the shaking in the region. Tunnels are designed to sustain about 20% vertical movement and 7.5% horizontal movement.

4) The first gentleman that spoke said that this tunnel would to alleviate congestion. I would like to have seen photographs of the tunnels constructed here and in other countries that have been used and how they affect their communities. It seemed like you were showing us what gun we would like you to shoot us with. It is pretty painful to watch all of these graphics, when we do not want a tunnel here.

   The point of the Study is to address the regional transportation issues on the north-south corridor on the SR-710 Freeway. The point of the Study was to determine whether a tunnel is a geotechnically feasible option to address those issues. The tunnel in Madrid went through the downtown area which is a very densely populated and historic region. There is also a tunnel under downtown Los Angeles.

5) As you well know, we had a lot of rain recently and this is one of the things I am concerned about in addition to costs, air pollution etc., and is that the existing SR-710 freeway had a huge amount of standing water on the freeway. Where is the water going to go if we have a tunnel? I also started thinking about the fire on the I-5 freeway in a very short tunnel where lives were lost and all the cars that had 20 gallon gas tanks that can explode on impact. I was concerned about a 4 to 5 mile tunnel with all those vehicles that have gas in the tanks or possibly terrorism in the tunnel. What are the emergency parameters that go into a tunnel to address water drainage and putting out fires?

   The water that runs into the tunnel would be very limited and would only come into the tunnel through the ramps. There will be drainage and pumps and back-up pumps and back-up systems specifically for this purpose. Regarding the issue of tankers and normal cars, recognition is given to the fact that all the vehicles going in are carrying flammable cargo. The tunnels are designed for incidents that could occur. There are sophisticated ventilation systems to clear the smoke and specific procedures in the event of an incident in the tunnel. There is an operations center that monitors conditions in the tunnel 24/7, which monitors all situations and personnel are available that are prepared to respond and help the public evacuate, should the need occur.

6) I was listening to the response to the last question, in terms to the safety. In Switzerland in 2001, a tunnel filled with black smoke and killed many people. It was a 10 ½ mile tunnel and I assume that we have the same or similar safeguards as they do. Please comment on this.

Tunnels here would not be constructed with the same safety regulations that they have in Switzerland. The United States have more stringent requirements. Subsequent to that, Switzerland tunnels are not built like this anymore. Europe has some tunnels that lack ventilation systems or lights. Tunnels in the United States are fully ventilated, with lights and drainage systems.

7) Was the Holland Tunnel that had the fire in 1949 retrofitted to current standards?

The retrofit method for the Holland Tunnel is unknown. The Caldecott tunnel in the San Francisco Bay area, which was built in the 1930's has been updated regularly and has been brought up to code as much as possible and retrofitted to current standards. Retrofitting a tunnel is a difficult process and the public depends on the tunnel for transportation and they cannot be taken out of service for very long. Tunnels are retrofitted regularly to keep up to code.

8) It causes me concern that during every rainstorm, the SR-710 Freeway floods. What has been done to address flooding in tunnels?

Caltrans is well aware of flooding in tunnels and has designed pumps that can carry the water away. The issue is that the nearby streams are not sufficient enough to carry that water as they pump it away. The State of California would rather close the freeways down than flood homes in the surrounding areas. The State drew an agreement with the County of Los Angeles and other entities that when the storms drains get to a certain point, they will accept the flooding on the freeway systems as opposed to flooding homes in the nearby communities.

Geotechnical Criteria for Tunneling

9) Given all the data that you have collected and all the maps that you have to date. What is the most favorable route? What zone will you go through?

Identifying a preferred route would be a violation of California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA). There are processes that need to be followed. We are very conscious of our responsibilities to CEQA/NEPA and we follow it to the best of our abilities.

10) This was a technical study to define whether the tunnel is a feasible option. Is it feasible to build a tunnel in the San Gabriel Valley?

Yes, from a geotechnical point of view, it is feasible to build a tunnel in the San Gabriel Valley.

11) Since it is feasible, what is the next step that you would take?

There will be one more community meeting. A Steering/Technical Advisory Committee (SC/TAC) meeting will be held in March 2010, where the Final Report will be presented. The Metro Board will be informed about the Study results and Caltrans will seek guidance under their direction as a public agency.

Public Participation

12) I was called a couple of months ago about these meetings. I asked why there was no meeting being held in La Cañada Flintridge? We, as a community have not been given an opportunity to address the findings of the study. I would really have liked to have seen a method neutral study. They should have started to consider rail tunnels, surface rails-all with the same priority, with the effectiveness and benefits considered equal. This is a backwards process.

In response to your questions, the city of La Cañada Flintridge is represented in the SC and TAC. At each committee meeting, community input and future outreach plans are discussed. At the last SC and TAC meetings in November 2009, La Cañada Flintridge did not request a meeting in their community. The San Gabriel Valley Council of Governments (SGVCOG) and the City of Los Angeles, Council District 14 were the only two entities who requested additional meetings. Three meetings were added, one for the Northeast Los Angeles and two in the San Gabriel Valley. The City of La Cañada Flintridge did not request a meeting in their community, nor did the cities of Pasadena and South Pasadena.

In regards to the sequence of the process, what this study attempted to do is to see if tunneling is technically feasible and should it be considered as an option to address traffic flow. If this moves into the environmental phase, all options will be looked at but as of now, the tunnel is a feasible option to be considered.

Next Steps

13) There was not an environmental study specifically done for this study? Why? And if so, where will you be presenting the environmental study?

This study is not an environmental study. At that time, the elected officials came up with a clear message: Is tunneling feasible? Can it be done in a route neutral manner? If a decision is made to move forward, there are a series of other steps that will be taken, one of which will be an environmental document.

14) Could you share with us who those elected officials were? You mentioned the schedule for the community meetings. What role or what impact will the community comments have on the decision?

The input received from the public will be documented and the information has been modified per the community requests to make it more understandable. When the decision is going to be made, it will be the Metro Board making a motion in an open meeting with public input and public comments. It would not be fair to name any of the officials. It consisted of elected state, federal and local leaders representing the area.

15) What are some of the modifications based on community input?

Statements made in the Draft Report text to ensure that portals are not addressed and only look at the zones. Texts and statements in the reports were modified because the TAC and SC asked us for discussion on concepts. Comments are still under review and additional modifications will be made.

16) After reviewing a Study Zone Map, I noticed that none of these meetings were held in the 44th district. Questions about financials or traffic patterns can not be answered outside of an Environmental document. Why can't we do simple traffic models? Assembly member Anthony Portantino has we asked for the outcome of the neutral study, to find out what is best. When are we going to get that study before the Environmental Impact Report (EIR)? What is being done with the input? We need the responses in writing so we can respond. We submitted a letter to Caltrans in November 2008, but we have not received a response. If, when people submit these, how do they know if their comments are incorporated or ignored and when should we expect a response?

After all comments are collected by March 10, 2010, responses will be posted on the website, and will be included in the Draft Report as an appendix. All of the comments will be addressed in a matrix.

There could be independent studies of cost along with independent studies regarding air quality and traffic. These are all in the realm of possibilities. The Metro Board would be taking action on it at some point in time.

Miscellaneous

17) I want you to come on my tour. The Red Line is falling apart. I will show you the walls of the station, they are falling apart. These people are just doing their jobs. The enemy is the corrupt contractors and corrupt politicians. I give tours of the tunnel and there will be a major earthquake disaster. The End.

18) My question is for Steve Klein: You mentioned a tunnel in San Francisco. What is the size in diameter and length and how much did it cost to build? For comparison for the audience, think in terms of doubling that, as you may have a twin bore for this project, since we need two directions of travel.

This was a rehabilitation of an existing water tunnel and it was tunneled through a fault zone and created a bypass tunnel vault that connected back into the original tunnel. The cost was approximately $30-35 million and the tunnel is about 3.5 miles long, although only 500 feet go through a fault zone. The finished diameter of the tunnel was about an 8 foot pipe and the tunnel diameter for this freeway, if it were to be built, would be at least 50 feet.

19) This question is for Doug Failing: There are alternate modes of transportation other than a tunnel. So far, this request has been ignored. Why does Metro continue to ignore our requests? How much money has been allocated to study the different modes of transportation?

Community input is not being ignored. The environmental process would be where the purpose and need is identified. The feasibility study is not selecting an alternative, a route, or what the transportation solutions would be. The financial issue would be studied in the environmental document and part of a budgetary process.

20) Recently, there was an article in the L.A. Times about traffic pollution and how it hardens the arteries, and other studies on the impacts of lung function in adults and children living 500 feet from freeways. Essentially your facilities are killing people. During the last EIR, the

communities had to sue and won in court because the study was inadequate. Do you look at these studies that show the effects on people and do a cost benefit analysis? Southern California Association of Governments (SCAG) came up with an estimate of $11.8 billion. Do they look at these health studies and the cost of this before they plan to spend another $30 million on the EIR Study?

There are some new appropriate health assessments that are being developed outside of this process. There are also Caltrans environmental studies along with the Environmental Protection Agency and the Federal Highway Administration that would be looked at, along with cost. A route and alternatives will be researched during the environmental process.

21) Who has designed this tunnel? I want to know if a tunnel of this magnitude has been constructed in an area with so many earthquakes.

The purpose of this study was to assess the geotechnical feasibility of a tunnel. Therefore, no tunnel has been designed here at this location. There are similar tunnels in other areas with seismic conditions, such as the Caldecott Tunnel in Northern California, which is about 40 feet in diameter and is close to the Hayward fault. Spain and China also have larger road tunnels.

SR-710 Tunnel Technical Study
Round 2 Community Meeting #4 Summary
February 24, 2010
El Monte Community Center
6:00 p.m. – 8:00 p.m.

INTRODUCTION

The California Department of Transportation (Caltrans) held a community meeting on February 24, 2010, to present findings from the SR-710 Draft Geotechnical Summary Report (Draft Report) to community stakeholders. The meeting took place at the El Monte Community Center in the City of El Monte. In attendance were twenty-five (25) members of the community.

SR-710 Study Team members in attendance included the following Caltrans staff: Mike Miles, District 7 Director; Richard Land, Interim District 7 Director; Deborah Robertson, Deputy District Director, External Affairs; Abdi Saghafi, SR-710 Tunnel Technical Study Project Manager; Deborah Harris, Chief, Media Relations and Public Affairs; Maria Raptis, Public Information Officer; and Derek Higa, Design Manager. Los Angeles County Metropolitan Transportation Authority (Metro) staff Lynda Bybee, Deputy Executive Officer-Regional Communications Programs also attended. Additional Study Team members who participated in the meeting were: Yoga Chandran and Ramon Chavez of CH2MHILL; Steve Klein and Steve Dubnewych of Jacobs Associates; and Bruce Schell of Earth Mechanics; Rebecca Barrantes, Glenda Silva, and Sharon Martinez of The Sierra Group; Rena Salcedo and Debbie Rusas of GCAP Services; and Katherine Padilla and John Limon of Katherine Padilla & Associates.

MEETING FORMAT

The meeting began at 6:00 p.m. with an informal Open House and the presentation started at 6:30 p.m. There were informational displays set up in the lobby that depicted a range of topics, including: Study Purpose, Organization and Outreach Overview; Geological Conditions; and Modern Tunnels and Technologies. The Open House format provided community members with the opportunity to ask questions and engage in one-to-one conversations with expert Study Team Members.

The audience was welcomed by Katherine Padilla, meeting facilitator, who outlined the format of the meeting and asked for their cooperation in creating a respectful environment during the question and answer portion. Ms. Padilla introduced Richard Land, Caltrans Interim District 7 Director.

Mr. Land introduced the newly appointed Caltrans District 7 Director, Mr. Mike Miles, who was previously the Deputy Director of Maintenance for various Caltrans Districts. He explained that the Study was initiated by Caltrans and Metro to consider a tunnel as a potential option for

addressing traffic challenges in the region. He added that the Study began in 2008 to consider a tunnel for extending the SR-710 Freeway from where it currently ends. Mr. Land noted that the Study did not incorporate specific studies, such as air quality or traffic studies for the area. He also added that Caltrans and Metro had been mandated to look at this option in a route neutral manner.

Mr. Land noted that this was the last of six community meetings. He stated that the purpose of the community meetings was to share the results of the Draft Report and to provide an overview of the data collected in each of the five (5) Study Zones. The Draft Report summarized two years of planning, field exploration, and analysis. Attendees were informed that tunneling is possible in any of the five zones, although each presents unique challenges.

Mr. Land made it clear that valuable community input gained and public comments received during the meetings would be documented. He let attendees know that the Study team was working on a date for the advisory committees to meet and see the Draft Final Geotechnical Summary Report. He informed attendees that Caltrans and Metro would use the information from the Final Geotechnical Summary Report (Final Report) and determine the next steps. He added that the next logical step would be an environmental phase which would provide the opportunity to look at all alternatives, including the option to do nothing.

Mr. Land recognized elected official representatives who were in attendance, which included: Monica Aleman representing Assemblymember Mike Eng; and Jorge Marquez, representing Assemblymember Ed Hernandez. Casey Lo, Field Deputy for Senator Carol Liu was introduced later in the meeting.

After the introductions, Mr. Land handed the meeting over to Yoga Chandran who began the presentation portion of the meeting at approximately 7:00 p.m.

Yoga Chandran and Steve Klein, the Study Team's geotechnical experts, provided a PowerPoint presentation that described the Study purpose and scope; exploration program findings; Draft Report; key geotechnical factors for tunneling; and tunneling technologies used to mitigate such geotechnical factors. They also provided a summary of geotechnical data for each of the five zones within the Study area. In closing, Mr. Chandran and Mr. Klein stated that the Draft Report was completed in November 2009 and the Final Report would be completed in March 2010.

Following the geotechnical presentation, Rebecca Barrantes, Outreach Project Manager, provided a brief overview of the neighborhood and community outreach process, including Steering Committee (SC) and Technical Advisory Committee (TAC) meetings, community meetings, presentations, and canvassing for the Exploration Program. She noted that this was the last meeting of the second round of community meetings. Ms. Barrantes informed

attendees that the Final Report would be presented to both committees in March 2010 at a date to be confirmed. Attendees were encouraged to provide written comments related to the geotechnical findings by March 10, 2010. Finally, she let attendees know that public comments would be included as an Appendix to the Final Report along with responses to the questions.

Katherine Padilla opened the community dialogue portion of the meeting by stressing that the focus is to ensure that attendees have a thorough understanding of materials presented.

COMMUNITY DIALOGUE

The questions and comments offered by community members are categorized and appear below. *Responses from Caltrans, Metro and Study Team members are indicated in italics.*

Exploration Program

1) Can you describe how the seismic reflection line evaluation studies and surface wave measurements were done?

   The seismic reflection line is generally a linear array of about 1500 feet long lines of geophones spaced at 8 foot intervals. A vibration moves along the line and the geophones. As the vibration moves along the line, the vibration is measured on all the geophones. The reflection is measured as the waves go down into the ground and they reflect off various layers of soil. The timing of the vibration indicates what type of material, at what depth, and if there is a variation in strength. Depending on material type, the vibration can be picked up in terms of the return time. It will give a two-dimensional profile along that land. Generally if they use 1500 foot long lines, the depth of influence is about 400+ feet. If the array intercepts a fault, some offsets will be picked up in the subsurface profile which is how some of the faults in the Study were picked up.

   The surface wave lines are one-dimensional arrays with depths of about 100 feet. It is a similar concept with 4 to 6 foot spacing of geophones. The vibration sources are much smaller in this case. Hammers were used as a vibration source and the concept is the same, where noise waves traveled down and reflected back.

Geotechnical Criteria for Tunneling

2) You used the term major earthquake. The Raymond Fault is an active fault. If it was subject to 7.0 magnitude earthquake, you would have 3 meter displacement. When you use the term “major” are you talking about 5.0 magnitudes as being major? Are you talking about 6.0, 7.0 or 8.0 magnitudes? What are your parameters for construction?

In terms of the Raymond Fault, a 6.7 magnitude earthquake was calculated and that was corresponded to displacement of 3+ feet that was rounded up to 4 feet to be on the conservative side.

Geotechnical Report

3) I understand that Metro has a tunnel advisory panel. Has the tunnel advisory panel contributed to, reviewed, or been a participant in the Study?

   Yes. Professor Jeff Martin was involved in the review of the Draft Report and in the early stages of planning as well. The Tunnel Advisory Panel has reviewed the Draft Report and given us their comments.

Public Participation & Comments

4) At the last meeting, Rebecca spoke about the comments. Are the comments from the public on the Geotechnical Summary Report going to be responded to? If we submit our comments and questions in writing, will we get a written response?

   The comments will be responded to in the Final Report. All comments will be put into a matrix and listed with responses. The public comments will be posted on the website and also will go into an Appendix to the Final Report.

5) There was a deadline for the comments received by the committee when you released the Draft Report. Are those comments having any effect on the Draft Report? Is the Draft Report being changed depending on what the comments received from the committee are?

   Yes. There are revisions being made to the Draft Report based on the comments. The report will include the comments and responses from the SC, TAC, elected officials and the public. The Final Report will be presented to the committees and will note what changes have been made to the report so that it is transparent.

Next Steps

6) One year ago when they began community meetings for the Study, I asked Doug Failing about the sales of the Caltrans properties. At that time, he indicated that once the Study was completed, and if it showed favorable results, he would be much more willing to consider selling us our homes, whether it is under conventional financing, the Roberti Bill or whatever is available to us. I wanted to see if our new Director Richard Land has thought about this and had a chance to talk to Doug about whether it will be a new possibility in the future if we can buy our homes, now that we have determined that the tunnel is very feasible.

[Rick Land clarified that he is the Interim District 7 Director]

There have been some very brief discussions and no conclusions have been reached. It certainly is a good question that should be asked and considered. No definite decisions have been made yet. There are a lot of things that both Caltrans and Metro have to consider relative to the next steps. The question of what will be done about the properties should be on the table now that it has been concluded that a tunnel is an option that could be considered. This had not been ruled out and there have not been any significant discussions about it.

7) AB 2316 introduced by Assemblymember Eng talks about selling the properties and identifies excess properties, which means those properties required to construct a surface freeway for the Cities of Los Angeles, Pasadena, South Pasadena, and Alhambra. If this is on the horizon with regard to the sale and use of proceeds, which are supposed to be used for local alternative transportation improvement programs, it seems as though (in the construct of this legislation) someone is already considering the fate of these homes. Can you comment on that and whether Caltrans has taken a position regarding this legislation?

   There is no Caltrans position on this legislation. As information is gathered and the tunnel has become an option, different people may introduce legislative solutions or proposals.

8) The City of Los Angeles passed a resolution unanimously regarding Zones 1 and 2 and the southern portal location in Zone 3. Councilmembers Jose Huizar, Eric Garcetti and Ed Reyes recommended against any tunnel in Zones 1 and 2 and they recommended that the south portal for Zone 3 be completely south of Valley Boulevard and not enter the City of Los Angeles. Will that have any affect on the considerations weighed on by Caltrans and Metro?

   Input from Councilmembers Jose Huizar, Eric Garcetti and Ed Reyes would be considered by Caltrans and Metro going forward.

Miscellaneous

9) How many tons of concrete would it take under each configuration? How will you remove the left over material (spoils) under each construct? An average in terms of number of trips by truck or rail would be good. If it is by truck, how many trips would be needed per ton? Where would you move these spoils? If you are going to tell me that this is a subject to be explored in further study, tell me what you have done with past work when you have encountered this.

Disposal of spoils has not been determined because an alignment has not been chosen. There are many options for disposing of spoils that have been successful for various tunnel projects. For example, the Riverside Badlands Tunnel that was shown during the presentation, all of the spoils for the eight mile tunnel came out at one site. A large five acre park happened to be near the portal area and the site was leveled, raised, and used to build soccer fields. This park was an example of a beneficial use of spoils.

For this particular project, it is not known exactly how big the tunnel is going to be so the volume would not be known. The tunnel alignments are pretty long, in the neighborhood of 4 ½ to 11 miles long so there would be a significant amount of material. It would be a significant issue to address, in the next step of the process, if the project proceeds. In the Riverside project there were probably several hundred thousand cubic yards of 18-foot diameter excavated tunnel. Trucks are usually used to move the spoils but in some cases, they could be moved by rail. Most of the time, spoils are moved by truck to some kind of facility. Quite often spoils are taken to land fills and used for daily cover. For the California High Speed Rail all of the spoils from the tunnels will be used for adjacent sections, with a balanced cut and drill approach for that project, to avoid and get rid of excess materials. This method not only reduces impacts, but also reduces costs.