Comment Set B1 – Margot Eiser, Save Montebello Hills

Estrada, Andres

From: Mesa CPUC
Sent: Sunday, May 22, 2016 11:17 AM
To: Estrada, Andres
Subject: FW: Mesa 500 KV Substation Project-DEIR Comment/request

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From: Margot Eiser
Sent: Sunday, May 22, 2016 11:17:20 AM (UTC-08:00) Pacific Time (US & Canada)
To: Mesa CPUC
Subject: Mesa 500 KV Substation Project-DEIR Comment/request

From:

Margot Eiser
323 728 7066 savemontebellohills@gmail.com
2828 Via San Delarro
Montebello, CA 90640

COMMENTS/REQUEST:

Due to the magnitude of this matter which affects so many concerned citizens, please extend the time period during which the public may comment on the DEIR for the Mesa 500 KV Substation Project to at least 90 days. B1-1

1

Response to Comment Set B1: Margot Eiser, Save Montebello Hills

B1-1 California Environmental Quality Act Guidelines section 15105(a) requires that, in general, the minimum time for public review of a Draft Environmental Impact Report (EIR) submitted to the State Clearinghouse for review by state agencies is 45 days. The California Public Utilities Commission (CPUC) initiated a 45-day comment period starting April 29, 2016, and extending through June 13, 2016. The CPUC extended the comment period to 60 days and accepted written comments on the Draft EIR through June 27, 2016. All written comments must have been postmarked or received by fax or email no later than 5:00 p.m. on June 27, 2016.

Comment Letter B2 – George Kim, MORGNER PCS

Estrada, Andres

From: Mesa CPUC
To: Black, Kristi
Subject: RE: Mesa Substation Project

Andrés Estrada, *Environmental Planner*
505 Sansome St. Suite 300, San Francisco, CA 94111
Phone: 415-398-5326 ext. 4718
aestrada@ene.com • www.ene.com

From: Black, Kristi
Sent: Tuesday, June 21, 2016 9:57 AM
To: Mesa CPUC <Mesa.CPUC@ene.com>
Subject: FW: Mesa Substation Project

From: George Kim [mailto:gkim@morgnerpcs.com]
Sent: Tuesday, June 21, 2016 9:56 AM
To: Orsaba, Lisa
Cc: Black, Kristi
Subject: Re: Mesa Substation Project

Thank you for your reply Lisa.

Have a nice day.

On Mon, Jun 20, 2016 at 3:31 PM, Orsaba, Lisa <lisa.orsaba@cpuc.ca.gov> wrote:
Mr. Kim-

The CPUC handles the environmental review under CEQA. I can't help with anything other than that.

The Final EIR will likely go out in September 2016. The CPUC Commission then needs to consider the FEIR and then issue proposed and final decisions regarding the project. Construction can't begin until sometime after the final decision.

I know nothing about contractor bidding on the project.

Regards-

Lisa Orsaba
CPUC
Infrastructure Permitting & CEQA
415/703-1966

1

On Jun 20, 2016, at 3:24 PM, George Kim <gkim@morgnerpcs.com> wrote:

Hell Lisa,

I have been contacted by Kiewit to provide them a quote for the Noise section of the Mesa Substation project.

Could you please provide me with a planholder's list or similar document that contains which Contractors are interested in bidding the project? Or point me the best direction to the contact that would have that information.

B2-1

Thanks in advance.

--
George Kim
Estimating

5055 Wilshire Blvd., Suite 333
Los Angeles, CA 90036
office: 818.461.8100 I fax: 818.461.8111

PRE-CONSTRUCTION SURVEY
CONSTRUCTION MANAGEMENT
TRANSPORTATION ENGINEERING

--
George Kim
Estimating

5055 Wilshire Blvd., Suite 333
Los Angeles, CA 90036
office: 818.461.8100 I fax: 818.461.8111

PRE-CONSTRUCTION SURVEY
CONSTRUCTION MANAGEMENT
TRANSPORTATION ENGINEERING

Response to Comment Set B2: George Kim, MORGNER PCS

B2-1 The commenter requested information regarding contractor bidding on the proposed project. In an email reply, the California Public Utilities Commission (CPUC) explained to the commenter that the CPUC conducts environmental review under the California Environmental Quality Act and does not have information regarding contractor bidding on the proposed project. Because the commenter did not comment on the content of the Environmental Impact Report, no further response is necessary.

Comment Set B3 – Margot Eiser – Citizens for Open and Pubic Participation[1]

Estrada, Andres

From: Mesa CPUC
Sent: Tuesday, June 28, 2016 8:57 AM
To: Estrada, Andres
Subject: FW: Mesa 500kV Substation Project EIR Comments and supporting materiel
Attachments: ground motion MESA copy of previously sent.txt; Peer review.doc; SHMA CODE CITES MESA.doc; Whittier Fault extension notes.doc; current codes.doc; LiquefactionHazardAssessment.pdf; FINAL - OPR Amicus Curiae Brief (2).pdf; sydnor-july2005.pdf; Air Quality Bibliography 2010 MPMkt.pdf; ARS10.php.png; Biology Comments.doc; Climate Change, Air Quality, Greenhouse Gasses comments.doc; gnatcatcher quotes.doc; ground motion II.doc; ground motion.doc; Hydrology.doc; MESA GMED notes.doc; Mesa overview copy previously sent.txt; Mesa Project Comments Geotechnical.doc; montebello thrust bibliography.doc; Near Field Mesa copy.txt; Physics based SHA reference.doc; References for BACKTHRUST.doc; San Andreas Day and Olsen.doc; seismology.txt; Transportation and Traffic comments.doc; Uplift- Upper Elysian Park Thrust.doc; Vertical Ground Motion Mesa.txt; Whittier-EMB connection.txt

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From: Margot Eiser
Sent: Monday, June 27, 2016 1:00:13 PM (UTC-08:00) Pacific Time (US & Canada)
To: Mesa CPUC
Subject: Mesa 500kV Substation Project EIR Comments and supporting materiel

Citizens for Open and Public Participation
non profit public benefits association
Margot Eiser Chair

Lisa Orsaba, CPUC Project Manager

California Public Utilities Commission
RE: Mesa 500kV Substation Project
c/o Ecology and Environment, Inc.
505 Sansome Street, Suite 300
San Francisco, CA 94111

comments on DEIR

http://www.cpuc.ca.gov/Environment/info/ene/mesa/mesaDraftEIR.html

attachments - links are to be considered as if submitted in full- save trees
Previously submitted items are to be considered as re-submitted

1

[1] The commenter provided links to several websites containing supplemental information. Some of these links were broken. Refer to Attachment 2 File 1 for copies of the supplemental information provided by these links.

Geology and Soils

B3-1

http://www.cpuc.ca.gov/Environment/info/ene/mesa/attachment/DraftEIR/13GeologySoilsMinerals.pdf

SEISMIC HAZARD MAPPING ACT- no report attached and no peer review
see SHMA Code Cites required for structures for human habitation

Geotechnical - there is no Report, EIR section does not comply with LACOUNTY GMED MANUAL requirements for an EIR much less SHMA must be recirculated

Regulatory Setting Building Codes are Minimum and not currently designed for resilience however this is coming, They are also not for essential service structures which require site specific investigations and design see current codes attached

see Peer Review attached
see FEMA
Introduction to 2014 NEHRP Recommended Seismic Provisions
https://c.ymcdn.com/sites/www.nibs.org/resource/resmgr/BSSC2/150617_BSSC_Webinar_Intro_to.pdf
see regulatory flowchart page 5

http://www.fema.gov/media-library-data/1440422982611-3b5aa529affd883a41fbdc89c5ddb7d3/fema_p-1050-1.pdf

fema_p-1050-1.pdf

https://www.fema.gov/media-library-data/1436903055388-0eaf09be942e02c790440ec0322c7476/fema_p-1050-2.pdf
Commentary is not cumulative- consult prior commentaries

B3-2

See Structural Performance issues relative to extreme events
http://www.structuremag.org/wp-content/uploads/2016/02/C-StrucPerform-Ghosh-Mar161.pdf
performance issues relative to extreme events

"The next edition of ASCE 7
Minimum Design Loads for Buildings and Other Structures, ASCE 7-16 (ASCE, 2016), is expected to be published in September 2016, in time for adoption into the 2018 international Building Code(IBC) (ICC, 2018)."
see also https://c.ymcdn.com/sites/www.nibs.org/resource/resmgr/bssc/asce-003_asce_7-10_commentar.pdf

B3-3

See Whittier Fault Extension notes attached

B3-4

The proposed Gold line NW of the 60 freeway adjacent to the project must be considered and considered for cumulative.
The Gold line proposes raising transmission lines in the vicinity of Paramount and 60 freeway- this must be considered in the EIR- we suggest doing it before Techachapi lines are powered or new communication lines installed
We suggest a Gold line station and park and ride on the NW side of the 60 freeway in the area of the Montery Park Marketplace with shuttle service for SCE employees, This must be considered Obvious Greenhouse Gases, climate change win

2

Traffic for park and ride must be considered and cumulative impacts although we consider projects impact to be minimal. B3-4 cont.

CalTrans ARS program can be used for a Scoping level snapshot see ARS attached

dap3.dot.ca.gov/ARS_Online/

Citizens for Open and Public Participation
Margot Eiser
Chair

3

Biology

figure 4.2-1
Non native vegetation must be removed and replaced with Area specific California Natives especially exotic invasive species
Example looking at map 4.3.1 the finger N-E of San Gabriel blvd has yellow and ??? on top
It is infested with Russian Thistle- tumbleweeds which were not present prior to Tehachapi project.
They are a serious fire hazard directly under lines 7 and 8 at the Mesa Y
There are also poisonous invasive Castor Beans
Both of these seedbeds take a consistent program of 7-10 years for eradication
Compare with the great FT gnatcatcher habitat on the SW side of San Gabriel and along Montebello blvd.
On the map it is labeled as ruderial however before Techachapi it had large stands of Southern Sycamore which must be replaced
Map shows Darlington Ave it's Darlington Street

B3-5

Example 2 There is exotic invasive tree of heaven -alanthus in the Segment 11 ROW W of San Gabriel Blvd and segment 7-8 S-W of San Gabriel blvd (S-W of the Y)which must be removed
Example 3 Eucalyptus is highly flamable and must be removed from near power lines, along Montebello's Plaza drive for example.
Example 4 Pampas grass along Montebello blvd
The maps must show locations of exotic and invasive species and a removal and mitigation must be provided.

"According to USFWS, there is very little habitat left for the gnatcatcher between these areas (Medak pers. Comm. 2015)"
provide a copy in the appendix

B3-6

We suggest that the Project at the MESA Y work with Chevron to the SE on habitat to connect SCE Habitat mentioned above with the Whittier Narrows (vicinity of telecommunications line shown on map NE of San Gabriel Blvd
Providing Wildlife Mitigation Corridor

B3-7

4.3.14 and elsewhere It's San Gabriel Blvd not San Gabriel Avenue

B3-8

Mitigation must be provided for any disturbance for FT/FE Species/ Critical Habitat Cactus Wren?

B3-9

Tehachapi ROW between Montebello Blvd and 60 freeway must be restored to native habitat Or it could be used for Park and Ride for the Gold line and habitat mitigation elsewhere (Chevron property?)

B3-10

It is unclear if Mitigations required for Tehachapi can be used for MESA

B3-11

Air Quality, Climate Change, Greenhouse gasses, global warming

Nice Job

We expect all AQMD suggested Mitigation measures be adopted
We expect all CAL-EPA ARB Mitigation measures to be adopted

B3-12

There are many helpful resources that set forth potential mitigation for greenhouse gas emissions (the type of pollution that causes climate change).
These include the 2008 Technical Advisory. pdf. issued by the Governor's Office of Planning and Research (OPR) and the 2008 white paper, CEQA and Climate Change, issued by the California Association of Pollution Control Officers (CAPCOA).
The update of the CEQA Guidelines in March 2010 also provides additional guidance

a couple of recent opinions for guidance

2012
http://oag.ca.gov/sites/all/files/agweb/pdfs/environment/sandag_ruling.pdf?
Plaintiffs represented By COPP Attorney Cory Briggs
read the slip opinion here
https://oag.ca.gov/sites/all/files/agweb/pdfs/environment/ct-app-slip-op-cleveland-nat-forest-foundation-v-sandag-d063288-11-24-2014.pdf?
Read the Attorney General's Answer Brief on the Merits. pdf.
https://oag.ca.gov/sites/all/files/agweb/pdfs/environment/people-answer-brief-merit.pdf?

2013
https://oag.ca.gov/sites/all/files/agweb/pdfs/environment/ct-app-slip-op-cleveland-nat-forest-foundation-v-sandag-d063288-11-24-2014.pdf?
Attn Johnson submitted comments on behalf of Save the Montebello Hills Sierra Club task force in the neighboring MHSP project.

See Exhibit A we expect similar mitigation for the MESA project
Best available Technology for diesel on and off road- earth-movers, construction equipment
The Heavy duty truck GHG mitigation and the On-Road Heavy Duty Diesel Vehicle regulation migrations are inadequate

B3-13

APM-AIR-02: Tier 3 Engines. Is inadequate see 4.2.4 and rationalize
Cal EPA-ARB Tier 4 equipment for this project with no waiting till 2023
Electric charging stations
idling mitigation
use the latest methodology/ court rulings in determining GHG compliance

B3-14

In enforcing CEQA, Attorney General Harris focuses on the need to address those impacts that affect our most vulnerable residents – children, the elderly, and people who already are bearing an unfair share of pollution (see Environmental Justice) Montbello and unincorporated South San Gabriel are heavily Hispanic, Monterey Park Chineese

B3-15

Newhall Ranch Case

B3-16

Gasses

Justice Kathryn Mickle Werdegar, writing for the court, said the environmental impact report failed to provide sufficient evidence that the project would not affect greenhouse gas emissions.

Without more evidence, "decision makers and the public are left with only an unsubstantiated assertion that the impacts — here, the cumulative impact of the project on global warming — will not be significant," Werdegar wrote.

Just because a project is designed to meet high building efficiency and conservation standards "does not establish that its greenhouse gas emissions from transportation activities lack significant impacts," she wrote.

4.14 Traffic and Transportation

Since the Preparation of the DEIR the METRO GOLD LINE Phase 2 has relocated the light rail to the Project side of the 60 freeway requiring analysis for the EIR. B3-17

There is a proposal for a station on the North West (project) side of the 60 freeway which would impact the project.

We suggest that SCE and PUC and Monterey Park support such a station and Park and Ride

WE do not see that the Gold Line traffic study was utilized but wish to point out that it did not consider the Monterey Park Market Place or MHSP and the Monterey Park Market Place does not consider the Gold line or the Montebello Hills Specific Plan. B3-18

The Montebello Hills Specific Plan does not consider the Gold Line or the Monterey Park Market Place (or the Mesa Project).

In other words all fail on cumulative effects

The Montebello Hills Specific Plan (MHSP) is especially flawed in that it was done during non peak season and school traffic was not included, it was also way out of date by the time the FEIR was approved.

It should not be utilized for anything especially freeway off ramps where they currently back up onto the mainline freeway during pm rush hour- which is not shown in the MHSP EIR
appendix p 13 item 14

We do not think SCE Mesa will have an affect on traffic volumes and apologize for the quality of reports which are available to you (Rosemead's Wal Mart was even worse)

"For the major roadways, growth rates were applied to the through volumes. These growth rates are consistent with the Traffic Study for the Montebello Hills Specific Plan, Montebello, California B3-19

The MHSP is completely bogus, there is currently grid lock where the report shows wondefullness.

Hydrology and Water Quality

We would like to see bioswales and recycling of stormwater runoff B3-20

Flood-zone- 100 year flood is inadequate
Please utilize the USGS "Arkstorm" report as a basis of flooding, especially in Whittier Narrows B3-21

4.5 Geology and Soils

There does not appear to be an Appendix prepared by qualified professionals including a Seismologist, Engineering Geologist and Geotechnical (Soils) engineer, and Civil Engineer specializing in Soil Foundation interaction.
There is no support for, or references for the EIR the Geology and Soils Section is only of Scoping level and must be recirculated. B3-22

There does not appear to be any Seismic Hazard Mapping Act (SHMA) Report
There does not appear to be any independent Peer review which is required prior to approval of the project. Permitting agency (Monterey Park) must require
See current codes- attached B3-23

We do not see a hazard of fault rupture at the MESA site but do at the Techachapi lines crossings of the Whittier Fault (7,8,11) and Raymond Hill, Sierra Madre, San Gabriel faults (7, 11) B3-24

There may be minor faults in the project area, movement of lechate from the adjacent superfund site must be investigated and considered B3-25

4.5.9 Table 4.5.3 must be revised and updated - it is totally useless there is no clue where this erroneous data came from, the internet? B3-26
The Elsinore Fault Zone, East Montebello Fault and Whittier Fault are all the same fault.
As shown in the "Whittier Fault Extension notes" attached
Maximum Moment Magnitude of 6.8 would only be for the Whittier fault segment stricto senso utilizing Santa Ana River to San Gabriel River for calculations. Current regulations, especially for critical infrastructure, require consideration of multiple segment breaks – Whittier-Elsinore from Baja to Raymond Hill including East-Montebello and Alhambra Wash segments.
During planning for the Beverly Blvd Bridge over the Rio Hondo LA COUNTY DPW GMED division even then had calculated 7.5 for Whittier-Elsinore- they then had a consulting report from URS corp which verified their findings. This report is available from LA COUNTY GMED. Since then CalTrans in their investigation for the 710 freeway have found the Whittier fault in the Vicinity of Huntington Drive in San Marino/ South Pasadena- they calculate 7.85 The data must be updated,
That's the good news Complications follow

San Andreas Fault- Mojave section is irrelevant except for Vincent- the real hazard for MESA in the San Gabriel Valley and MESA Substation is the Southern San Andreas.
Probabilistically it is the most frequent.
Probabilistically and Deterministically it is the most hazardous at longer wavelengths and durations.
Project must consider the Love and Raleigh Waves traversing the chain of basins along the San Gabriel Mountains and turning south down the San Gabriel River Channel toward the project.
You must consider the effect of these waves on segments 7 and 8.
For starters see the Terrashake report ca 2005 et seq San Diego State University
Geology department professors Kim Bac Olsen and Steve Day
And the Shakeout Report USGS Lucy Jones et all

see complications following

Omissions must be corrected "Active and Potentially active:
The E-W Montebello Fault (not East Montebello or Montebello Thrust) is considered potentially active

by So Cal Gas- see the PUC decommissioning report, is not mentioned (we do not consider it to be a fault rupture hazard but may channel energy toward the project) B3-26 cont.

The Puente Hills Thrust is Active and directly under the project. The project MUST consider multi segment Thrust breaks in the 7.5 range
see complications following

The Upper Elysian Park Thrust of Oskin 2000 (now UC Davis) fault tips are near the project and thrust plane slopes toward the project- it must be considered
see complications following
The Lower Elysian Park Thrust must be considered.

Lines 7 and 11 cross the San Gabriel, Sierra Madre and Raymond Faults as well as Whittier-Elsinore
Sierra Madre was the source of the 1971 San Fernando earthquake and could generate ground motion similar to the similar Owens Valley fault/ earthquake-
Raymond may be connected to Santa Monica Fault on the west and faults on the east- the magnitude for critical infrastructure may be greater than shown
discussion is needed on the affect on these lines. Communications

4.5-10
USGS-Calculations are inadequate especially for Critical Infrastructure, site-specific investigation and calculations by a seismologist are required which must be included in this EIR and SHMA report. B3-27
The Citations used are way out of date in addition to being incomplete. USGS and CGS do not consider pulse, directivity, basin depth or Community Velocity Model data, near field effects- these must be calculated by a professional working in the field of seismology.

Figure 4.5.3 does not show Whittier-Elsinore crossing the Whittier Narrows as is shown on recent CGS Maps- See Tan 2000 and CGS Fault Evaluation Report FER 222 and City of Rosemead General Plan B3-28
It does not show the EW Montebello Fault from its intersection with Whittier-Elsinore near the 19 on the map to the vicinity S of Mesa substation
The map dos not show water or recycled water, storm drains, serwers- must be shown somewhere

4.5.13 CGS has not mapped all liquefaction areas- that is something that must be done in this EIR And SHMA report B3-29

Subsidence Mesa is located over an old river channel and alluvium filled structural bowl and must be site-specific investigated for subsidence and VS-30

fig 4.5.5 shows wells however we do not see analysis of core samples or down hole logging- this must be analyzed. B3-30

4.5.2.1 Regulatory Setting
1997 UBC-- U gotta be kidding -see current codes attached B3-31
4.5.2.2
Earthquake Hazards Reduction act
we have attached links to the latest B3-32

Seismic Hazards Mapping Act in Southern California has been Strengthened by the LACODPW

GMED manual. And Grading Guidelines

CBD The LA County amendments to the CBC must be followed

B3-32 cont.

4.5.2.3
Los Angeles County Municipal Code (sic)- we have attached references for you- look again

See LA County General Guidelines and other references referenced in the attachment

B3-33

The City of Rosemead General plan specifically extends A-P zones and zones for critical infrastructure- - it affects segment 11 look again

City of Rosemead's excellent General Plan and Beverly Blvd and Garvey Bridges were done BEFORE the major hazard of the Southern San Andreas was found ca 2005 Terrashake and 2008 Shakeout reports

B3-34

4.5.3.1
a) ii and iii must be reanalyzed are recirculated
b) must be addressed, topsoil must be banked and reused
c) the basin under the project must be analyzed- specifically is it subject to amplification during strong shaking (the bowl of jello effect, the perfect storm effect) which impacts both the severity and duration of strong seismic ground shaking see complications following

B3-35

4.5.3.3
Geo 1,2,3, and 6 are all premature and not supported by the investigation and report
Impact GEO-5 must consider the banking and reuse of valuable topsoil

B3-36
B3-37

Mitigation Measure MM GEO-1 must be accomplished as part of the DEIR and the DEIR recirculated. Decision makers do not have enough information to make a decision on this project from the Scoping level analysis presented as a DEIR

B3-38

Obviously documentation must also be provided to the permitting agencies
The public must be included.

B3-39

Complications
As shown in the 1993 Bullard and Lettis paper previously provided- the MESA project sits in the Potrero Grande Paleo Channel, and evidently in a small basin
The Paleo Channel (old river Chanel) begins near the intersection of Potrero Grande and San Gabriel blvds, near the Whittier-Elsinore Rosemead Alquist Priolo zone and the source of the 1987 Whittier earthquake.
From this wide area it is shown to narrow like a funnel pointed toward the MESA project and the Gold Line extension down to the 60 freeway Garfield area.

The funnel effect as in the similar one in the Whittier Narrows focus seismic waves toward the project creating what we call "roaring rapids amplification.

From the Whittier-Elsinore fault NEAR FAULT amplification must be considered as well as directivity, pulse, fling, etc.

B3-40

From the Upper Elysian Park Thrust near fault and directivity- comparison must be made with Northridge where the fault break sloped away and downward to MESA where the fault plane slopes upward and toward the project. The fault tips of the UEP must be located and if in the project area must be mitigated. (We hope not as we no way to construct the project over fault tips) B3-40 cont.

The Puente Hills Thurst may also break towards the project from any direction.
Puente Hills thrust must be analyzed both as a single segment and as a multiple segment break
We suggest that the project utilize the SCEC Simulation by Robert Graves now with USGS Pasadena
A site specific spectrum analysis must be provided for each fault.
For near fault and distance calculations the Puente Hills Thrust is at 0.0 distance using the CGS methodology of measuring distance from the 10 km depth line, anything less than 10 km deep is 0.0, horizontal measurement from that line, in this case to the North. Do not measure/ calculate to the fault tips in Bellflower or depth to the fault plane vertically.

There may be a Montebello Thrust sloping up to the North from down sloping to the north Puente Hills Thrust. This is one explanation for the uplift and structure of the Montebello (Merced) and Monterey Park (Repetto) Hills (which are cut by the paleo channel in the project area) It is shown in many papers by John Shaw

The Southern San Andreas is amplified by the Paleo Channel funnel effect at longer wavelengths than the others and for longer durations. A site specific spectrum analysis must be provided

Basin analysis must consider those faults where seismic energy comes from outside the basin and the Puente Hills Thrust which could come both from inside and outside the basin.

IT must be shown if the basin can be excited- the bowl of jello effect.
Basin wall reflection must be analyzed for the "perfect storm" effect of waves trapped in the basin and having a reflection/ interference effect.

The effect of the Potrero Grande Sycline must be shown.

Horizontal and Vertical accelerations, velocities and ground motions must be calcualted.

The critical periods of all structures and substation components) must be shown and compared with the seismic spectrums.
The resilience of each structure (and substation components) must be provided and the maximum time to return to service.

The structural engineer and Civil/ Geotechnical engineers need this data for structural and soil-foundation interface and design. We expect that mat foundations will be required

Any water system used for fire fighting and any tanks associated must be analyzed and designed as critical infrastructure. B3-41

Ground motions, standing and dynamic ground waves must be calculated and extrapolated to transmission tower tops to determine if adequate drop is available. B3-42
IE tower 1 swings west, tower 2 sways east at the same time
Especially in the basin and Whittier Narrows for segments 7 and 8 and up the river channel to the San

Gabriels. The river channel is 5000 feet deep alluvium in the critical area along the 605 freeway, considerable basin depth amplification, reflection and funnel effect past the segment 8 crossing. B3-42 (con't)

WE suggest that the project utilize the SCEC Cybershake program as a first cut at the problem and consult with USGS Pasadena Robert Graves who may have later data and a more detailed data set than the published simulation. (SCEC Community Velocity Model) B3-43

Basin Depth Amplification must be considered, we suggest that the basin under the site be modeled by a qualified professional.

WE have attached a printout from CalTrans ARS tool which is suitable for a Scoping level quick look
As with the CGS/USGS websites CalTrans does not consider Vertical or Maximum Rotated shaking (which is required by current code) It also does not yet utilizes the latest Velocity Models not only for the Site selected but from the PATH earthquake source to the Site.
Notice the use of 5%50 years 2008 instead of latest data and 2%50 of current code and perhaps 1%50years for Critical Infracture
It also does not consider the Path effects on the biggest hazard- the Southern San Andreas
It does not show multi segment events
It does give a list of the faults which must be considered with the addition of multi segment breaks on Whittier-Elsinore, Puente Hills thrust and the Southern San Andreas
Note that it shows both Upper and Lower Elysian Park.
Proposed structures must be analyzed for their periods against the Periods shown in a similar site specific analysis by a registered professional.
Durations must also be considered which implies seismograms or synthetic seismograms

WE have attached a copy of Dr Syndor's CGS monograph for Special Service Structures- he does not like the term Critical Infracture, it needs to be brought current to latest regs but then so does everything

One of the problems I see with the EIR is that there are no periods, structural responses, associated with any proposed structures or tunnels, or non structual components like generators or tanks.
As long structures tunnels (and Tanks) may have long period structural responses which are not found in ordinary buildings, and as such require specific analysis.
Approximate structural period relationships MUST BE PROVIDED

B3-43 (cont.)

B3-44

The 2014 NEHRP Recommended Seismic Provisions for New Buildings and Other Structures (NEHRP Provision) even in final draft form must be considered as current standards of professional practice

The primary intent of the NEHRP Recommended Seismic Provisions for New Buildings and **Other Structures**
is to prevent, for typical buildings and structures, serious injury and life loss caused by damage from earthquake ground shaking.
Most earthquake injuries and deaths are caused by structural collapse; therefore, **the major thrust of the Provisions is to prevent collapse for very rare, intense ground motion, termed the maximum considered earthquake (MCE) ground motion.**2
The intent remains the same as in the 2009 Provisions;
however, the prevention of collapse is redefined in terms of **risk-targeted maximum considered earthquake (MCE_R) ground motions**.
This change is explained fully in the commentary to the Part 1 modification to ASCE/SEI 7-05 Section 11.2.

http://c.ymcdn.com/sites/www.nibs.org/resource/resmgr/bssc/appendixq_0810.pdf
the 2014 NEHRP Provisions will adopt by reference the seismic requirements of ASCE/SEI 7-10 (ASCE, 2010)

As initiated in the 2009 edition, the 2014 NEHRP Provisions are presented in three parts:
Part 1 will include consensus-approved modifications to ASCE/SEI 7-10.
Part 2 will provide commentary, also consistent with ASCE/SEI 7-10 and
Part 3 will provide resource papers coveringmaterial intended to
stimulate discussion from the engineering community on new seismic design concepts

INCORPORATION OF FEMA P695 AND P795
FEMA P695 – Quantification of Building Seismic Performance Factors (ATC, 2009) is a methodology
to quantify the seismic performance factors for code-defined structural systems and to verify the adequacy of proposed new systems.

FEMA P795 – Component Equivalency Method(ATC, 2011) is a component-based methodology for verifying equivalency of components, connections and
sub-assemblies proposed for substitution into an established structural system.
Since their publication, P695 and P795 have been generally accepted as the most appropriate approach to assigning seismic design coefficients to new systems and for qualifying new components

ATC 63-2 - Development of Seismic Performance and Methodology Calibration,
Ronald Hamburger - Project Technical Director

3. EVALUATION AND QUANTIFICATION OF SEISMIC PERFORMANCE OBJECTIVES
This issue team is examining the seismic performance that is inherent in our current provisions and
considering modifications to design procedures to improve our ability to achieve desired performance across all risk categories.
Among the issues being considered are: how does seismic risk in general compare with other natural hazards; how do collapse risk and other performance levels vary among:
structural systems,
risk categories and
seismic design categories;
and how does seismic risk vary with seismic hazard.

Of interest for Risk Category IV (critical) buildings (structures) is the intensity at which building (structure)
function is lost.
Occupancy Category III or IV structures intended to provide enhanced safety and functionality are required to have more strength than Occupancy Category I or II structures in an effort to reduce damage to the structural system
RISK CATEGORRIES and OCCUPANCY CLASSES MUST BE DEVELOPED AND STATED
Nonstructural system performance is enhanced by strengthening the anchorage and bracing requirements, and
important equipment must be shown to be functional after being shaken.

Structures of higher importance due to hazardous contents or critical occupancy are assigned to higher Occupancy Categories

B3-45

he damage level in these buildings is intended to be reduced by
decreasing nonlinear demand using an **importance factor, I**, to reduce the **response modification coefficient, R**
The resulting increased strength will reduce structural damage, or **increase reliability of acceptable performance**, for a given level of shaking.

In strong shaking associated with the design level of two-thirds the
maximum considered earthquake or higher,
the values of I have not been well tested for their effect on either functionality for
critical buildings or increased reliability of life safety protection for high occupancy buildings

B3-45 cont.

The importance factor I also increases the design anchorage and bracing load for nonstructural systems, which should increase the reliability of their staying in place and, thus, remaining undamaged.

B3-46

Establishment of seismic design coefficients for collapse, functional design and economic design MUST BE PROVIDED; and ground motion maps for very rare, rare and frequent events.
GIVEN the presence of 5 major faults, near field and basin depth amplification maps MUST BE CREATED by simulations.

B3-47

PERFORMANCE GOALS MUST BE STATED
General Requirements: How performance goals will be either implicitly demonstrated through predictable stable response under MCER ground motion or explicitly through fulfillment of performance goals related to collapse probability and possibly other performance levels, (such as loss of function or return to service) as a function of Risk Category

B3-48

Ground Motion Selection and Scaling:
Definition of the target spectrum (or spectra) using either the ASCE/SEI 7-10 Chapter 11 mapped or
site specific ground motion values or
through one or more site specific scenario spectra covering MCER ground motion at appropriate (significant) periods of vibration of the building (structure).
Which is why the period of vibration of the propsoed structues must be determined as stated

Consideration is given to specifying earthquake events that capture frequency content at appropriate magnitude and distance,
including requirements to address multiple earthquakes having distinct characteristics.
Source, path (such as the Community Velocity Model) and site effects (including near fault and basin depth) must also be considered and included
simple AR's or GMPEs are insufficeint

Use of a maximum direction spectrum must be considered along with the period range for scaling.
Use of simulated records, (scnerios) (similar to current provisions) where appropriate records are not available.

Orientation (fault-normal and fault-parallel) of ground motions for sites within 5 km of controlling faults MUST BE addressed, as is the lack of specificity of orientation at other sites.
Consideration must be given for input ground motion at subterranean levels and for soil-foundation-structure interaction.

Modeling, Analysis and Acceptance Criteria:
System modeling considerations include the use of two-dimensional and three-dimensional modeling (including where to allow 2-D models), application of vertical ground motions MUST BE REQUIRED how to ad dress non-participating elements and gravity loads, as well as diaphragm modeling, requirements fo r force controlled elements and guidance on soil-structure interaction.

Analysis and acceptance criteria considerations include use of average vs. maximum criteria, treatment of outlier ground motions resulting analytically in collapse or loss of use or unacceptable time to return of service

B3-49

LIQUEFACTION AND OTHER SITE CONSIDERATIONS
LIQUEFACTION MUST BE RE-EVALUATED CONSIDERING MEDIUM and LONG PERIOD -LONG DURATION EVENTS

The Provisions require that buildings (and other structures) be assessed for potential consequences of liquefaction and soil strength loss, including but not limited to, estimation of total and differential settlement, lateral soil movement, lateral loads on foundations, reduction of foundation soil bearing capacity, reduction of axial and lateral soil reaction on piles and floatation of buried structures.

These effects are to be analyzed on the basis of:
peak ground accelerations, earthquake magnitudes and source characteristics associated with MCE_0
peak ground accelerations, where MCE_0 represents the Maximum Considered Earthquake geometric mean ground motion.

Evaluating liquefaction for MCE ground motions is intended to minimize risk of collapse (or loss of use) for the rare MCE ground motion, rather than at the design level, which assumes a certain level of reserve structural capacity.

Consider more closely the geotechnical effects of the expected ground failure and its implications related to damage and performance.

LIQUEFACTION MUST BE RE-EVALUATED CONSIDERING MEDIUM and LONG PERIOD -LONG DURATION events such as shown for the Southern San Andreas Fault and implied for the San Jacinto Fault.
We read that SHMA and the Liquefaction implementation guide and LACODPW standards require both short period strong short events be evaluated AND long duration long period events be evaluated. Address S_S values greater than 3g and vertical values.

T_L (long period) maps must be provided for the project areas

The Provisions utilize site amplification coefficients F_a and F_v that scale the mapped spectral values S_S and S_1 to obtain acceleration response parameters for sites with classification other than Site Class B.
These coefficients were originally developed in the 1990's based primarily on the 1989 Loma Prieta Earthquake and are being re-evaluated based on recorded data from more recent earthquakes and nonlinearity of site response.
This work is based on studies underway at the Pacific Earthquake Engineering Research Center
LATEST PEER work must be utilized

B3-49 cont.

SOIL-STRUCTURE INTERFACE
Foundation design requirements (tunnel design requirements) that address horizontal and vertical load effects (considering inelastic demands based on response modifications factors), nominal strengths, resistance factors and acceptance criteria

Controlling behavior and load-deformation modeling of the system consisting of the structure, its anchorage to the foundation, the foundation itself, and the soil MUST BE ACCOMPLISHED

Significant design-related adjustments MUST BE MADE, including use of risk-targeted ground motions, use of maximum direction ground motions, and use of near-source 84th percentile ground motion

VERTICAL GROUND MOTIONS FOR SEISMIC DESIGN
Chapter C23.1 DESIGN VERTICAL RESPONSE SPECTRUM
General.
ASCE/SEI 7-05 and the earlier editions of the Provisions use the term 0.2 $S_{DS}D$ to reflect the effects of vertical ground motion.
Where a more explicit consideration of vertical ground motion effects is advised—**as for certain tanks, materials storage facilities**, and electric power generation facilities—**BACKUP GENERATORS** the requirements of this chapter may be applied. Professional practices interpret may as must

Historically, the amplitude of vertical ground motion has been inferred to be two-thirds (2/3) the amplitude of the horizontal ground motion.

However, studies of horizontal and vertical ground motions over the past 25 years have shown that such a **simple approach is not valid in many situations** (e.g., Bozorgnia and Campbell, 2004, and references therein) for the following main reasons:
(a) vertical ground motion has a larger proportion of short-period (high-frequency) spectral content than horizontal ground motion and this difference increases with decreasing soil stiffness and

(b) vertical ground motion attenuates at a higher rate than horizontal ground motion and **this difference increases with decreasing distance from the earthquake**

lead to the following observations regarding the vertical/horizontal (V/H) spectral ratio (Bozorgnia and Campbell, 2004):

1.The V/H spectral ratio is relatively sensitive to:
spectral period,
distance from the earthquake,
local site conditions, and
earthquake magnitude (but only for relatively soft sites) and
relatively insensitive to earthquake mechanism and sediment depth;

2.The V/H spectral ratio has a distinct peak at short periods that generally exceeds 2/3 in the near-source region of an earthquake; and

B3-50

B3-50 cont.

3.The V/H spectral ratio is generally less than 2/3 at mid-to-long periods.
Therefore, depending on the period, the distance to the fault,
and the local site conditions of interest,
use of the traditional 2/3V/H spectral ratio can result in either an underestimation or
an overestimation of the expected vertical ground motions.

The procedure for defining the design vertical response spectrum in the
Provisions is based on the studies of horizontal and
vertical ground motions conducted by Campbell and Bozorgnia (2003) and Bozorgnia and Campbell (2004).
These procedures are also generally compatible with the general observations of Abrahamson and Silva (1997) and Silva (1997) and
the proposed design procedures of Elnashai (1997).

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ATC 63-2 - Development of Seismic Performance and Methodology Calibration,
Ronald Hamburger - Project Technical Director

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Evaluation of Hybrid Broadband Ground Motion Simulations for Response History Analysis and Design

http://web.stanford.edu/~bakerjw/Publications/Burks_et_al_%282014%29_HBB_for_RHA._EQS.pdf

Lynne S. Burks,a)M.EERI,Reid B. Zimmerman ,b)M.EERI and Jack W. Baker,a)M.EERI a= STANFORD

"Chapter 16 of ASCE 7" (2010) governs the selection of ground motions for analysis of new buildings and requires recordings that meet specified criteria.

If a sufficient number of recordings cannot be found,
it allows the use of "appropriate simulated ground motions"but does not provide further guidance

Significant updates

B3-51
cont.

to this chapter are currently under consideration,
but the basic process of ground motion
selection will remain similar
(Haselton et al., 2014) contact J.P Stewart UCLA http://www.cee.ucla.edu/faculty/stewart/publications
Ground motion records are selected to match a target spectrum
that is based on the maximum considered earthquake
(MCER) determinedfrom seismic hazard analysis NOTE THE R

p3
The seismic design of structures is based on a target spectrum using
seismic hazard analysis and then select ground motions with elastic response spectra that match the target

. These procedures require ground motion records as input rather than just a target spectrum

Hybrid broadband simulations are typically considered "state of the art" for structural analysis applications
because they use a combination of deterministic and stochastic techniques to simulate ground motiontime
histories across a wide frequency range and in three componentsof motion.
Contact Robert Graves USGS Pasadena

Some key relevant differences between Chapter 16 of ASCE 7-10 and the proposed procedure
are the use of the maximum considered earthquake (MCER) Seismic Design Coefficients (R-factor)
rather than design basis earthquake (DBE) spectrum for analysis,
the use of an $Sa_{RotD100}$(discussed in the next section)
rather than a geometric mean target spectrum, and
an increase to 11 required ground motions for response history analysis (Haselton et al., 2014)

7
After filtering by magnitude, distance,
V
030
, and pulse cha
ra
cteristics,
the remaining
candidate
ground motion re
cordings were
scaled
uniformly
to
best
match
the target spectrum
between
0.2
s and
3.36
s
.
A
maximum scale factor of 4 was imposed
and n
o more than 3
recordings from
any single event were allowed
.
Ground motions were selected by
first
computing t

B3-51 cont.

he sum of square error between the log of the target spectrum and the log of each scaled recorded spectrum over the period range of interest , and then choosing the 11 ground motions with the smallest error , subject to the above restrictions .

Table 1 lists the 11 selected recordings, Figure 4 a shows their $Sa_{RotD100}$ spectra , an d Figure 5 shows some sample velocity time histories .

Table 1 . T he 11 selected ground motion recordings .

NGA #	Earthquake	Station	Magnitude	Distance (km)	V_{s30} (m/s)	Scale Factor	Pulse Period (s)
179	Imperial Valley - 06	El Centro Array #4	6.5	7.1	209	1.9	4.6

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cont.

183
Imperial Valley
-
06
El Centro Array #8
6.5
3.9
206
1.9
5.4
184
Imperial Valley
-
06
El
Centro Differential Array
6.5
5.1
202
1.7
5.9
723
Superstition Hills
-
02
Parachute Test Site
6.5
1.0
349
1.7
2.3
802
Loma Prieta
Saratoga
—
Aloha
Ave.
6.9
8.5
371
2.2
4.5
983
Northridge
-
01
Jensen Filter Plant Generator
6.7
5.4
526
0.9
3.5
1013
Northridge
-
01
LA Dam
6.7
5.9
629
1.9
1.7
1063
Northridge
-
01
Rinaldi Receiving Station
6.7
6.5
282
1.0
1.2
1202
Chi
-
Chi, Taiwan
CHY035
7.6
12.7
474
2.6
1.4
1493

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cont.

Chi
-
Chi Taiwan
TCU053
7.6
6.0
455
3.6
12.9
1528
Chi
-
Chi Taiwan
TCU101
7.6
2.1
273
2.9
10.0

GROUND MOTION SIMULATIONS SOUTHERN CALIFORNIA EARTHQUAKE CENTER (SCEC) BROADBAND PLATFORM

The Southern California Earthquake Center's (SCEC) Broadband Platform is a software system that makes hybrid broadband simulation codes available to outside users (SCEC, 2012). A number of scientific researchers have contributed modules to the Broadband Platform for rupture generation, low frequency seismogram synthesis, high frequency seismogram synthesis, and nonlinear site effects. SEE GRAVES

under-prediction of ground motions by empirical GMPEs AKA Attenuation Relationships

B3-51
cont.

Which Spectral Acceleration Are You Using?

Jack W. Baker,a..M.EERI STANFORD ,andC. Allin Cornell,a..M.EERI
http://web.stanford.edu/~bakerjw/publications.html#In_press
http://web.stanford.edu/~bakerjw/Publications/Baker_Cornell_%282006%29_Which_Sa,_EQ_Spectra.pdf

Intro

Analysis of the seismic risk to a structure requires assessment of both the
rate of occurrence of future earthquake ground motions hazard and
the effect of these ground motions on the structure response.
These two pieces are often linked using an intensity measure such as spectral acceleration.
However, earth scientists typically use the geometric mean of the spectral accelerations of the
two horizontal components of ground motion as the intensity measure for hazard analysis,
while structural engineers often use spectral acceleration of a
single horizontal component as the intensity measure for response analysis.
This inconsistency in definitions is typically not recognized when the two assessments are combined,
resulting in unconservative conclusions about the seismic risk to the structure.

Conclusion

Although intensity measure–based analysis procedures have proven to be useful
methods for linking the analyses of earth scientists and structural engineers,
care is needed to make sure that the link does not introduce errors into the analysis.
Two definitions of "spectral acceleration" are commonly used by analysts,
and the distinction between the definitions is not always made clear.
Because of this, a systematic error has been introduced into the results from many risk analyses,
typically resulting in unconservative conclusions.
For an example site and structure located in Los Angeles, the error resulted in a **12% underestimation** of the spectral acceleration value exceeded with a 2% probability in 50 years,

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We document several blind-thrust faults under the Los Angeles basin that, if active and seismogenic, are capable of generating large earthquakes (M = 6.3 to 7.3). Pliocene to Quaternary growth folds

B3-51 cont.

imaged in seismic reflection profiles record the existence, size, and slip rates of these blind faults. The growth structures have shapes characteristic of fault-bend folds above blind thrusts, as demonstrated by balanced kinematic models, geologic cross sections, and axial-surface maps. We interpret the Compton-Los Alamitos trend as a growth fold above the Compton ramp, which extends along strike from west Los Angeles to at least the Santa Ana River. The Compton thrust is part of a larger fault system, including a decollement and ramps beneath the Elysian Park and Palos Verdes trends. The Cienegas and Coyote Hills growth folds overlie additional blind thrusts in the Elysian Park trend that are not closely linked to the Compton ramp. Analysis of folded Pliocene to Quaternary strata yields slip rates of 1.4 ± 0.4 mm/yr on the Compton thrust and 1.7 ± 0.4 mm/yr on a ramp beneath the Elysian Park trend. Assuming that slip is released in large earthquakes, we estimate magnitudes of 6.3 to 6.8 for earthquakes on individual ramp segments based on geometric segment sizes derived from axial surface maps. Multiple-segment ruptures could yield larger earthquakes (M = 6.9 to 7.3). Relations among magnitude, coseismic displacement, and slip rate yield an average recurrence interval of 380 years for single-segment earthquakes and a range of 400 to 1300 years for multiple-segment events. If these newly documented blind thrust faults are active, they will contribute substantially to the seismic hazards in Los Angeles because of their locations directly beneath the metropolitan area.

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B3-51
cont.

Simulations of Ground Motion in the Los Angeles Basin Based upon the Spectral-Element Method

1. Dimitri Komatitsch,
2. Qinya Liu,
3. Jeroen Tromp,
4. Peter Süss*,
5. Christiane Stidham and
6. John H. Shaw

Bulletin of the Seismological Society of America, Vol. 94, No. 1, pp. 187–206, February 2004
http://authors.library.caltech.edu/47818/1/187.full.pdf
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Simulations are performed using a new sedimentary basin model that is constrained by hundreds of petroleum-industry well logs and more than 20,000 km of seismic reflection profiles. The numerical simulations account for 3D variations of seismic-wave speeds and density, topography and bathymetry, and attenuation.

Accurate prediction of hazardous ground shaking generated by large earthquakes requires the ability to numerically simulate seismic-wave propagation in realistic geological models. In this article we demonstrate that, using adetailed model of the Los Angeles, California, basin (Fig. 1)and an accurate numerical technique, ground motion can be accurately modeled down to a period of 2 sec inside the basin model and 6 sec in the regional model

Peak ground displacement, velocity, and acceleration maps illustrate that significant amplification occurs in the basin
There is evidence that large amplification (factors of 3, 4, or more) can occur between basin sites and hard-rock sites. It has also been shown that site effects caused by topography or local geological features, such as poorly consolidated sediments, can result in very significant amplification of the wave field

very large accelerations (up to 1.8g) at Tarzana Hill during the 1994 Northridge earthquake (e.g., Bouchon and Barker, 1996; Catchings and Lee, 1996; Rial, 1996; Spudich et al., 1996; Komatitsch and Vilotte, 1998).

Localization effects can also cause important damage,
as illustrated in Santa Monica during the 1994 Northridge earthquake
(e.g., Gao et al., 1996; Alex and Olsen, 1998; Davis et al.,2000).

Such effects are intrinsically 3D and therefore further illustrate the need for detailed basin models and accurate and flexible numerical techniques.

Peak ground displacement, velocity,
and acceleration maps clearly illustrate that large amplification occurs within the basin

This (SEM) approach can be used to calculate synthetic peak ground displacement, velocity, and acceleration maps, such as those in Figures 11 and 14, to assess seismic hazards associated with such large events

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Influence
of
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Mechanism
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Peak
Accelerations
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Strong
Motions
of
the
Whittier
Narrows,
California,
Earthquake
and
an
Aftershock

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Volume 7, Issue 1
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Directional Site Resonances Observed from the 1 October 1987 Whittier Narrows, California, Earthquake and the 4 October Aftershock

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Empirical Corrections for Basin Effects in Stochastic Ground-Motion Prediction, Based on the Los Angeles Basin Analysis (Whittier Narrows)

1. Claire E. Hruby and
2. Igor A. Beresnev

BSSA v. 93 no. 4 p. 1679-1690 2003

Ground-motion duration is defined as the time for 95% of the acceleration spectral energy to pass after the *S*-wave arrival. The results are directly applicable to engineering simulation of strong ground motions in a sedimentary-basin environment.

Francesco Gentile, Franco Pettenati, and Livio Sirovich

Validation of the Automatic Nonlinear Source Inversion of the U.S. Geological Survey Intensities of the Whittier Narrows 1987 Earthquake
Bulletin of the Seismological Society of America, October 2004, v. 94, p. 1737-1747, doi:10.1785/012003157 fgentile@ogs.trieste.it Lsirovich@ogs.trieste.it

Griffith and cooke
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WA Griffith *The Department of Geological and Environmental* Sciences, Stanford University, Stanford, California 94305; wagrif@pangea.stanfoed.edu.

heoretical slip
maps such as Figure 4 can be used to choose suitable locations for paleoseismic investigation. Furthermore, the results of this study indicate that strike-slip motion may be significant on
PHT
faults and should be considered in predictive earthquake hazard algorithms. Hazard analysis limited to reverse slip on these faults may underestimate earthquake risk. Moreover, the sensitivity of strike slip on both the
PHT
and
Whittier faults to contraction direction highlights the need for further investigation of the overall contraction direction in the Los Angeles basin.

http://structure.harvard.edu/cfma

Importance of source effects on strong-motion seismograms-- (Whittier Narrows)
Hartzell USGS and Lida
Earthquake Engineering, tenth world converence Balkema, Rotterdam 1992 isbn 90 54 5410 060 5
http://www.iitk.ac.in/nicee/wcee/article/10_vol2_731.pdf
see p 746 for references

Topography effect at the critical SV wave incidence" Possible explanation of damage pattern by the Whittier Narrows, Califonia earthquake of October 1, 1987 Kawase and Aki 1990 BSSA 80: 1-22

Sommerville, P. G., and A. Pitarka (2006), Differences in earthquake source and ground motion characteristics between

B3-51 cont.

surface and buried earthquakes, paper presented at the Eighth National Conference on Earthquake Engineering, Earthquake Eng. Res. Inst., San Francisco, Calif.

Probabilistic seismic hazard assessment in the wake of world disasters:

Honing the debate and testing the models !

Ross S. Stein (U.S. Geological Survey, Menlo Park, CA)
and Mark W. Stirling (GNS Science, Lower Hutt, New Zealand 3 October 2014
http://profile.usgs.gov/myscience/upload_folder/ci2014Oct0619203542966Revised%20EOS%20brief%20report.pdf stein@usgs.gov;

Frankel, A. (2013), Comment on "Why earthquake hazard maps often fail and what to do about it" by S. Stein, R. Geller, and M. Liu, Tectonophysics, 592, 200–206, http://dx.doi.org/10.1016/j.tecto.2012.11.032

Mak, S. and D. Schorlemmer (2015). Comparing the USGS national seismic hazard maps with observed ground motions from 2000 to 2013 (in prep.)

Stein, S., and J. Stein (2014), Playing Against Nature: Integrating Science and Economics to Mitigate Natural Hazards in an Uncertain World, 260 p., AGU/Wiley. Wash., D.C.

Continuity of slip rates over various time scales on the Puente Hills ...
Bergen, **Kristian J**.; Shaw, John H.; Leon, Lorraine A.; Dolan, James F.; Pratt, Thomas L.; Ponti, Daniel J.; Barrera, Wendy; Rhodes, Edward J.; Murari, Madhav K.; ...
adsabs.harvard.edu/abs/2014EGUGA..1613126B kbergen@fas.harvard.edu

B3-52

Malburg, Ken Wilson 5/1/02

Marlberg Generating Site Vernon CA -geologic-hazards-california-energy-commission-

the Landsat-based figure in the Science article and the figure in the Dolan et al. (2001) summary (please see Figure 4-3)

is the best representation for the subsurface location of the three segments of the Puente Hills blind thrust.

Studies (SCEC, 2000) have hypothesized that the Puente Hills blind thrust is an important part of a master fault

system connecting to the San Andreas Fault zone in the deep subsurface.

The Puente Hills blind thrust as shown by Shaw and Shearer (1999) strikes at roughly

north 58 degrees west -where its leading edge projects to the surface just southwest of

the [Marlberg] site at a depth of about 2.5 to 3 kilometers.

In the Santa Fe Springs area, Shaw and Shearer (their Figure 1, a nearly north-south seismic section along the San Gabriel

River) show a "growth triangle" bounded by secondary faults that propagate

upward/south at an approximately 65-degree angle from the leading edge of the thrust

plane.

Shaw and Shearer (1999) show the fault to within about 800 feet of the surface in

this area, although there is no indication that these features pose a fault rupture hazard.

Dolan et al (2001) performed additional detailed high-resolution seismic profiling at two

sites (please see Figure 4-2) east of the proposed generating station site that

demonstrates folding above the PHT, which extends into the shallow sediments (<200

m) as discrete kink bands, consistent with the late Quaternary activity.

The shallow fold scarps were not associated with observable surface deformation during the 1987

Whittier Narrows (M6.0) earthquake. Using these data, the return interval for

earthquakes on the Puente Hills blind thrust are estimated by Dolan et al (2001) as

follows:

so it was

added for this study using the format described in the EQFAULT User's Manual.

Expected Depth of the Los Angeles Basin at the Site

The Southern California Earthquake Center (SCEC) research provides a consistent

method to determine the depth of the sedimentary basin [defined as the depth to the 2.5-

kilometer per second (km/sec) shear-wave velocity isosurface] based on Magistrale, et

al. (2000). Based on the site coordinates the minimum depth, the computed depth, and

the maximum depth are:

B3-53

Hill, Robert L., et al, Earthquake Hazards Associated With Faults in the Greater Los Angeles Metropolitan Area, Los Angeles County, California, Including Faults in the Santa Monica-Raymond, Verdugo-Eagle Rock, and Benedict Canyon Fault Zones, Open File Report 79-16 LA, Geological Survey (CGS), December, 1979.

Chang, S. W., Bray, J. D., and Seed, R. B. (1996). "Engineering Implications of Ground Motions from the Northridge Earthquake." Bull. Seis. Soc. Am, Vol. 86(1), Part B Suppl., pp. 270-288.
The spectral amplification factors presented in this work can be used in general probabilistic seismic hazard assessment.

A GEOTECHNICAL SEISMIC SITE RESPONSE EVALUATION PROCEDURE
Adrian RODRIGUEZ-MAREK1, Jonathan D BRAY 2And Norman A ABRAHAMSON 12WCEE 2000
Dr. Walter Silva of Pacific Engineering and Analysis for his assistance in providing the ground motion database used in this study; Dr. Paul Somerville for providing event-specific attenuation relationships for the Northridge and Loma Prieta Earthquakes; Dr. François E. Heuze, Dr. Mladen Vucetic, Dr. Sandy Figuers, and Dr. David Rogers for providing essential geotechnical data for ground motion sites; D

Characterization of forward-directivity ground motions in the near-fault region
JD Bray, A Rodriguez-Marek - Soil Dynamics and Earthquake Engineering, 2004

Ground motions close to a ruptured fault resulting from forward-directivity are significantly different than other ground motions. These pulse-type motions can place severe demands on structures in the near-fault region. To aid in the characterization of these special type of ground motions, a simplified parameterization is proposed based on a representative amplitude, pulse period, and number of significant pulses in the velocity–time history. Empirical relationships were developed for estimating the peak ground velocity (PGV) and ...

Magnitude scaling of the near fault rupture directivity pulse

PG Somerville - Physics of the earth and planetary interiors, 2003 - Elsevier
Current ground motion models all assume monotonically increasing spectral amplitude at all periods with increasing magnitude. However, near fault recordings from recent earthquakes confirm that the near fault fault-normal forward rupture directivity velocity pulse is a narrow ...
http://manishathesis.googlecode.com/svn-history/r90/trunk/Papers/somerville.pdf
Proceedings of the International Workshop on the Quantitative Prediction of Strong-Motion and the Physics of Earthquake Sources, 23–25 October 2000, Tsukuba, Japan.Tel.: +1-626-449-7650; fax: +1-626-449-3536. *E-mail address:* paul somerville@urscorp.com (P.G. Somerville

The conditions required for forward directivity are also met in dip slip faulting. The alignment of both the rupture direction and the slip direction updip on the fault plane produces rupture directivity effects at sites located around the surface exposure of the fault (or its updip projection if it does not break the surface). dip
slip faulting produces directivity effects on the ground surface that are most concentrated in a limited region updip from the hypocenter.

Norm Abrahamson, Archuleta

Characterization of forward-directivity ground motions in the near-fault region

http://manishathesis.googlecode.com/svn-history/r111/trunk/Papers/MarekBray.pdf

B3-53 cont.

Quantitative classification of near-fault ground motions using wavelet analysis

http://www.stanford.edu/~bakerjw/Publications/Baker%20(2007)%20Pulse%20ID,%20BSSA.pdf

http://www.stanford.edu/~bakerjw/Publications/Shahi_Baker_(2011)_Pulse_PSHA,_BSSA.pdf

The prediction and use of peak ground velocity

http://ssi.civil.ntua.gr/downloads/journals/2009-ASCE_Effects%20of%20Near-Fault%20Ground%20Shaking%20on%20Sliding%20Systems.pdf

Julian J. Bommer, John E. Alarcon*, THE PREDICTION AND USE OF PEAK GROUND VELOCITY, Journal of Earthquake Engineering, 2006, 10, 1, 1* CrossRef

Progress and trend on near-field problems in civil engineering

Design spectra including effect of rupture directivity in near-fault region

A Rodriguez-Marek - Earthquake Engineering and Engineering …, 2006 - Springer

http://link.springer.com/article/10.1007/s11803-006-0636-8

Selection of near-fault pulse motions for use in design

Connor P. Hayden, Jonathan D. Bray, Norman A. Abrahamson, Selection of Near-Fault Pulse Motions, Journal of Geotechnical and Geoenvironmental Engineering, 2014, 140, 7, 04014030
CrossRef

Selection of Near-Fault Pulse Motions Volume 140, Issue 7 (July 2014)

Hayden, Bray and Abrahamson

http://dx.doi.org/10.1061/(ASCE)GT.1943-5606.0001129

The relative contribution of pulse-type motions to the overall seismic hazard should be considered when selecting records in a suite of design ground motions for a site in the near-fault region.

Arias Intensity

Design ground motions near active faults Jonathan D Bray, Adrian Rodriguez-Marek, Joanne L Gillie

B3-53 cont.

Baker J.W. and Cornell C.A. (2008). "Uncertainty Propagation in Probabilistic Seismic Loss Estimation," Structural Safety, 30 (3), 236-252.

- Baker, J. W., Coray, J., DeStefano, P., Duenas-Osorio, L., King, S., and Manuel, L. (2013). "Risk communication for critical civil infrastructure systems." American Society of Civil Engineers Structures Congress, Pittsburgh, PA. 11p.

Baker J.W. and Cornell C.A. (2008). "Uncertainty Propagation in Probabilistic Seismic Loss Estimation," Structural Safety, 30 (3), 236-252.

- Baker, J. W., Coray, J., DeStefano, P., Duenas-Osorio, L., King, S., and Manuel, L. (2013). "Risk communication for critical civil infrastructure systems." American Society of Civil Engineers Structures Congress, Pittsburgh, PA. 11p.

Empirical Corrections for Basin Effects in Stochastic Ground-Motion Prediction, Based on the Los Angeles Basin Analysis

Bulletin of the Seismological Society of America, August 2003, v. 93, p. 1679-1690, doi:10.1785/0120020121

1. Claire E. Hruby chruby@iastate.edu 2003
2. Igor A. Beresnev

Julian C. Lozos, David D. Oglesby, James N. Brune, and Kim B. Olsen
Rupture Propagation and Ground Motion of Strike- Slip Stepovers with Intermediate Fault Segments
Bulletin of the Seismological Society of America, First published on December 16, 2014, doi:10.1785/0120140114

These results have important implications for assessing the probability of a rupture propagating through small- and large- scale discontinuities in faults, as well as for evaluating ground- motion intensities near fault stepovers.

e and deepes fault plane reflections

Now open and go to fig 5
Puente Hills Blind-Thrust System, Los Angeles, California
Shaw, Plesch, dolan, Pratt and Fiore Bulletin of the Seismological Society of America, Vol. 92, No. 8, pp. 2946–2960, December 2002
http://activetectonics.asu.edu/bidart/bibliography/bssa/bssa_92_8/shaw_plesch_dolan_pratt_fiore_2002.pd
figure 5
lables this backthrust as the "Montebello thrust" (I have also seen "Montebello Hills Thrust"

Challange is that the local developers and chamber of commerce and real estate/ interests claim that it does not exist.

Adjoint analysis of the source and path sensitivities of basin-guided waves

Steven M. Day,
1
Daniel Roten
2
and Kim B. Olsen
1

Geophys. J. Int.
(2012)
189,
1103–11
http://www-rohan.sdsu.edu/~steveday/PUBLISHED/Day_et_al_Adjoint_2012.pdf

SUMMARY
Simulations of earthquake rupture on the southern San Andreas Fault (SAF) reveal large amplifications in the San Gabriel and Los Angeles Basins (SGB and LAB) apparently associated with long-range path effect

Path kernels show that LAB excitation is mediated by surface waves deflected by the velocity contrast along the southern margin of the transverse ranges, having most of their energy in basement rock until they impinge on the eastern edge of SGB, through which they are then funnelled into LAB. a waveguide effect

engineering estimates of physical damage to structures (e.g. Krishnanet al.2006a,b; Muto & Krishnan 2011)

large ensembles of such simulations are being explored as asupplement to empirical ground motion estimation, with potential applications in PSHA (Graves et al.2010).

Likewise, simulations have particular relevance when regional geology is strongly heterogeneous, and especially when deep and/or laterally extensive sedimentary basins are present (e.g.Frankel&Vidale1992;Olsenetal.1995;Gravesetal.1998;Pitarkaet al.1998; Olsen 2000; Komatitschet al.2004; Dayet al.2008a).

Moreover, recent studies have in some cases predicted unexpectedly large, localized amplifications when both of the foregoing factors are present, that is, when very large ruptures interact over large spatial scales with extensive, low-velocity sedimentary structures. For example, calculations by Olsen et al. (2006) for a M 7.7 rupture scenario on the southern SAF suggest that surface wave energy can be redirected into the urban Los Angeles Basin by sedimentary structures present along the southern margin of the transverse ranges (e.g. Magistrale et al. 2000; Suss & Shaw 2003)

In the absence of recorded ground motion for large SAF events, numerical ground motion simulations (e.g. Olsen et al. 1995, 2006, 2008, 2009; Graves et al. 1998, 2008; Krishnan et al. 2006a,b; Cui et al.

B3-53
cont.

2010; Ely
et al.
2010)

Olsen et al. (2006,2008) show anomalously high long-period (4–5 s) ground motion in parts of the San Gabriel and Los Angeles Basins (SGB and LAB; Fig. 1) Subsequent simulations for similar SAF scenarios have confirmed those predictions (Graves et al. 2008; Olsen et al .2009; Ely et al. 2010).

Several observations are relevant here. (i) Predicted peak ground velocity (PGV) levels for this high-amplitude zone, more than 50 km from the SAF, are in some cases comparable to those immediately adjacent to the fault and can exceed median empirical predictions by 2, and locally up to 3, standard deviations of the natural logarithm (those figures are for the scenario of Olsen
et al.
2008; other source models lead to even more extreme predictions, e.g. Olsen
et al.
2006; Graves
et al.
2008). (ii) Moreover, those levels of exceedance are calculated after the empirical predictions (Campbell & Bozorgnia 2008) have already been corrected upward for the mean basin amplification effect derived from a large suite of simulations for other fault-rupture scenarios in southern California (Day
et al.
2008a). Thus, the high levels are not easily understood as a purely local amplification effect, but rather appear to require an explanation that considers the entire seismic wave path specific to the southern SAF events.

(iv) The high amplitudes are clearly related to rupture–propagation-induced directivity, because the effect is far larger for NW-directed than for SE-directed SAF rupture. However the relationship is not the conventional one, because, as Fig. 1 makes clear, the region of high amplitudes is well to the west of the expected forward directivity cone for SAF ruptures

The explanation proposed by Olsen
et al.
(2006) is that the high amplitude zone results from a waveguide-like effect, in which the NW-directed forward directivity pulse from a SAF rupture is diverted westward by the sequence of contiguous sedimentary basins lying along the southern edge of the transverse ranges (fig. 2 of Olsen
et al.
2006). In this conceptual picture, the high amplitudes result from the addition of these channelled waves to basin waves derived locally through other wave interactions at the SGB/LAB edges

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cont.

Current and soon to be required regulatory documents and standards of practice

B3-31a

2016 CALIFORNIA CODES

Based on the 2015 International Codes®, the 2016 California Title 24 codes will be available July 1, 2016 and include a free subscription service for all State updates. The 2016 California codes become mandatory January 1, 2017 and include: Administrative, Building, Residential, Electrical, Mechanical, Plumbing, Energy, Fire, Green Building Standards (CALGreen), and Referenced Standards. These codes are supported by 2015 International Codes® references and study tools.

On Jan. 19-20, 2016, the California Building Standards Commission (CBSC) met at its regularly scheduled public meeting and adopted the 2016 California Plumbing, Electrical, Mechanical, CalGreen and Accessibility Codes.

These codes are based on the model 2014 National Electrical Code and the model 2015 Uniform Plumbing and Mechanical Codes. CalGreen and the Accessibility Codes are California-specific codes.

At a previous meeting on Dec. 16, 2015, the CBSC also adopted the 2016 California Building, Fire, Residential and Existing Building Codes.

These codes are based on the model 2015 International Building, Fire, Residential and Existing Building Codes.

These actions by the CBSC are part of the 2015 Triennial Code Adoption Cycle.

With a few minor exceptions, the adoption portion of this Cycle is now completed for all of the codes.

The 2016 editions of these codes, along with the codes already adopted on December 16, 2015, will be published by June 30, 2016, and will be effective on January 1, 2017.

Collectively, all of these codes are known as the 2016 California Building Standards Code, Title 24.

•The 2016 California Energy Code (Title 24, Part 6) is adopted under a separate rulemaking process from the rest of the construction codes. It has also been adopted and has the same effective date as the other codes, i.e., January 1, 2017.

•

•The 2016 California Electrical Code, based on the 2014 NEC, was adopted with minimal amendments by all the State agencies. The CBSC and the State agencies are to be commended for their efforts to keep amendments to all the model codes, including the NEC, to a minimum.

•

•The adoption of the accessibility provisions to the 2016 California Building Code included an entire new set of requirements for accessible Electric Vehicle Charging Spaces. These are the first requirements in the nation to address the accessibility of EVCS installations.

http://ecmweb.com/code-basics/nec-rules-fire-pumps

There will also be updates to LARUCP **LOS ANGELES REGION UNIFORM CODE PROGRAM aka LARUCP recommended Technical Amendments**

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B3-32a cont.

There will be adoption of "Local Amendments" notably the Los Angeles County Local Amendments which are adopted by all who adopt the LOS Angeles County version of the California Building Code but are considered standards of professional practice except in jurisdictions that adopt their own (City of Los Angeles etc)

If there is any chance of Liquefaction start here
http://dpw.lacounty.gov/gmed/permits/docs/LiquefactionHazardAssessment.pdf Feb 24, 2009

then see
LACODPW-GMED Administrative Manual GS 045.0
LIQUEFACTION/ LATERAL SPREAD revised 10/1/14 or later
http://dpw.lacounty.gov/gmed/permits/docs/policies/GS045.0.pdf
which references;
CGS Special Publication SP117A; 2008
Seismic Hazard Mapping Act of 1990
and
Recommended Procedures for Implementation of DMG Special Publication 117, Southern California Earthquake Center (SCEC) 1999
(Consultant must update to current CBC, ASCE-7 etc)

ASCE/SEI 7-10, *Minimum Design Loads for Buildings and Other Structures*

- Supplement 1 (for first and second printings)
- Supplement 2 (for first, second, and third printings)
- Expanded seismic commentary (for first and second printings)
- Errata for First, Second, and Third Printings (Alaska Basic Wind Speed map)
- Errata for First and Second Printings

ASCE 7-16 2016 Development Cycle

The goal is to send the standard out for public comment in late 2015,

and to publish the standard in Fall 2016. Google asce 7-16 draft

http://cenews.com/article/9244/a-look-ahead-to-asce-7-16 (2013)

http://www.structuremag.org/wp-content/uploads/2016/02/C-StrucPerform-Ghosh-Mar161.pdf

"The next edition of ASCE 7 Minimum Design Loads for Buildings and Other Structures, ASCE 7-16 (ASCE, 2016), is expected to be published in September 2016, in time for adoption into the 2018 IBC"

B3-32a cont.

http://earthquake.usgs.gov/hazards/designmaps/

U.S. Seismic Design Maps (Beta)

This Beta version of the *U.S. Seismic Design Maps* application will eventually replace the current version of the application (see above entry) after all of the currently-referenced design code editions are ported over to it.

Currently, the Beta version of the application provides parameter values from the 2015 National Earthquake Hazards Reduction Program (NEHRP) Recommended Seismic Provisions for New Buildings and Other Structures.

This design code reference document provides seismic design parameter values that are proposed for use in future editions of major U.S. building codes (*International Building Code, ASCE 7 Standard*)

Risk Targeted Ground Motion Calculator

This tool is used to calculate risk-targeted ground motion values from probabilistic seismic hazard curves in accordance with the site-specific ground motion procedures defined in "Method 2" of *2010 ASCE 7 Standard* Section 21.2.1.2.

NEHRP Recommended Seismic Provisions for New Buildings and Other Structures. 2015 Edition

http://www.fema.gov/media-library-data/1440422982611-3b5aa529affd883a41fbdc89c5ddb7d3/fema_p-1050-1.pdf

http://www.fema.gov/media-library-data/1436903055388-0eaf09be942e02c790440ec0322c7476/fema_p-1050-2.pdf

Introduction to the 2014 NEHRP Recommended Seismic Provisions David Bonneville Chair 2015 Provisions Update Committee
https://c.ymcdn.com/sites/www.nibs.org/resource/resmgr/BSSC2/150617_BSSC_Webinar_Intro_to.pdf

B3-32a cont.

ADMINISTRATIVE MANUAL COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS GEOTECHNICAL AND MATERIALS ENGINEERING DIVISION http://dpw.lacounty.gov/gmed/permits/index.cfm?p=memos

GS001.0 - UNGRADED SITE LOTS

- GS002.0 - SUBDIVISION - "REMAINDER PARCEL" FOR TENTATIVE AND FINAL MAPS
- GS010.0 - PRIVATE WASTEWATER DISPOSAL SYSTEM REQUIREMENTS
- GS045.0 - LIQUEFACTION/LATERAL SPREAD
- GS047.0 - SURFICIAL SLOPE STABILITY FOR NATURAL SLOPES
- GS051.0 - GUIDELINES FOR FINAL MAP CLEARANCE
- GS063.0 - RESTRICTED USE AREAS
- GS064.0 - RECORDED SINGLE LOT DEVELOPMENT - UNMITIGATED GEOTECHNICAL HAZARDS
- GS073.0 - CORRECTIVE GEOLOGIC BONDS FOR SUBDIVISIONS
- GS085.0 - SUBDIVISIONS - GENERAL GEOLOGIC AND SOILS REVIEW INFORMATION AND CRITERIA
- GS086.0 - SUBDIVISIONS IMPACTED BY EXISTING LANDSLIDES
- GS087.0 - FINAL PARCEL MAP RECORDATION WAIVERS
- GS088.0 - SUBDIVISIONS - GUIDELINES TENTATIVE TO ROUGH GRADING REVIEW STAGES
- GS101.0 - MITIGATING LANDSLIDES BY THE USE OF DEBRIS BASINS
- GS200.1 - LOW IMPACT DEVELOPMENT BEST MANAGEMENT PRACTICE GUIDELINE FOR DESIGN, INVESTIGATION, AND REPORTING
- S001.0 - ALTERNATE SETBACK AND CLEARANCE FROM DESCENDING SLOPE

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County of Los Angeles Department of Public Works Manual for Preparation of Geotechnical Reports July 1, 2013
https://www.tugraz.at/fileadmin/user_upload/Institute/IAG/Files/02_Geotechnical_Reports_Los_Angeles.pdf

Manual for Preparation of Geotechnical Reports July 2013 (Revised) Page 96 4.0 ADDITIONAL RESOURCES
American Concrete Institute, Building Code Requirements for Structural Concrete (ACI 318) and Commentary. www.concrete.org/general/home.asp

American Society of Testing and Materials International (ASTM) Standards www.astm.org/Standard/

Association of Environmental & Engineering Geologists, Professional Practice Handbook, 3rd Edition (particularly Chapters 2 and 6). www.aegweb.org/publications-resources/online-publications

Business and Professions Code, Division 3, Chapter 7 (also known as the Professional Engineers Act).
www.leginfo.ca.gov/.html/bpc_table_of_contents.html

California Board for Professional Engineers, Land Surveyors, and Geologists. www.bpelsg.ca.gov/

California Code of Regulations, Construction Safety Orders (Title 8, Division 1, Chapter 4, Subchapter 4). www.dir.ca.gov/dlse/ccr.htm

California Code of Regulations, Policies and Criteria of the State Mining and Geology Board with Reference to the Alquist-Priolo Earthquake Fault Zoning Act (Title 14, Division 2, Chapter 8, Subchapter 1, Article 3).
www.conservation.ca.gov/cgs/codes/ccr/t14/Pages/3600.aspx

California Department of Conservation, California Geological Survey. www.consrv.ca.gov/cgs/Pages/index.aspx California Department of Conservation, California Geological Survey, Fault-Rupture Hazard Zones in California, Special Publication 42, (interim revision) Dated 2007.
ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf

California Department of Conservation, California Geological Survey, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A, dated 2008 (revised March 2009).

B3-32a cont.

www.conservation.ca.gov/cgs/shzp/webdocs/Documents/sp117.pdf

California Department of Conservation, California Geological Survey, Guidelines for Evaluating the Hazard of Surface Fault Rupture, Note 49, Dated 2002. conservation.ca.gov/cgs/information/publications/cgs_notes/note_49/Documents/note_4 9.pdf

California Department of Conservation, California Geological Survey, Probabilistic Seismic Hazard Assessment for the State of California, Open File Report 96-08, dated 1996. www.conservation.ca.gov/cgs/rghm/psha/ofr9608/Pages/Index.aspx

California Department of Consumer Affairs, Board for Geologists and Geophysicists, Geologic Guidelines for Earthquake and/or Fault Hazard Reports, released 1998. California Department of Consumer Affairs, Board for Geologists and Geophysicists, Guidelines for Engineering Geologic Reports, released 1998.

California Department of Transportation, Division of Engineering Services, Soil and Rock Logging, Classification, and Presentation Manual (latest edition). http://www.dot.ca.gov/hq/esc/geotech/sr_logging_manual/srl_manual.html

California Department of Transportation, Division of Engineering Services, Geotechnical Services, Foundation Report Preparation for Bridges, dated December 2009. www.dot.ca.gov/hq/esc/geotech/requests/fr_preparation_bridge.pdf

California Department of Transportation, Division of Engineering Services, Geotechnical Services, Guidelines for Preparing Geotechnical Design Reports (version 1.3), dated December 2006. www.dot.ca.gov/hq/esc/geotech/requests/gdrguidelines20061220.pdf

California Department of Transportation, Division of Engineering Services, Materials Engineering and Testing Services, Corrosion and Structural Concrete, Field Investigation Branch, Corrosion Guidelines, version 2.0, dated November 2012. www.dot.ca.gov/hq/esc/ttsb/corrosion/

California Department of Transportation, Division of Engineering Services, Materials Engineering and Testing Services, Corrosion and Structural Concrete, Field Investigation Branch, California Test Methods (e.g. CTM

B3-32a cont.

417, 422, and 643). www.dot.ca.gov/hq/esc/ctms/CT_ChooseVersion.html

California Department of Transportation, Division of Engineering Services, Technical Publications, Graphics, and Outreach Services, Seismic Design Criteria. http://www.dot.ca.gov/hq/esc/earthquake_engineering/index.php

California Department of Water Resources, Division of Safety of Dams. www.water.ca.gov/damsafety/index.cfm

California Public Resources Code, Division 2, Chapter 7.5 and Chapter 7.8 (Alquist-Priolo Earthquake Fault Zoning Act and Seismic Hazards Mapping Act). www.leginfo.ca.gov/cgi-bin/calawquery?codesection=prc&codebody=&hits=20

Compton, Robert R., 1962, Manual of Field Geology, John Wiley & Sons, NY, 378 pp., ISBN: 0471166987.

County of Los Angeles, Code of Ordinances (Title 21 - Subdivision Code, Title 22 - Planning and Zoning Code, Title 26 - Building Code). library.municode.com/index.aspx?clientId=16274

County of Los Angeles, Department of Public Works, Building and Safety Division, Building Code Manual 1807.2 Article 1, dated 10-25-2012; and Residential Code Manual R404.4 Article 1, dated 10-25-2012. dpw.lacounty.gov/bsd/publications/index.cfm

County of Los Angeles, Department of Public Works, Geotechnical and Materials Engineering Division. dpw.lacounty.gov/gmed/permits/index.cfm

County of Los Angeles, Department of Public Works, Geotechnical and Materials Engineering Division, Policy Memos. dpw.lacounty.gov/gmed/permits/index.cfm?p=memos

County of Los Angeles, Department of Public Works, Land Development Division, Stormwater Best Management Practice Design and Maintenance Manual, dated 2009. http://dpw.lacounty.gov/ldd/publications/Stormwater BMP Design and Maintenance Manual.pdf

County of Los Angeles, Department of Public Works, Watershed Management Division, Soil Cement Standards, dated 2005 (internal DPW access only at the time of this Manual preparation). intranet/wmd/home/docs/Flood Control District Policies/Soil Cement

B3-32a cont.

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APPENDIX (copies in GMED MANUAL APPENDIX)
Figure 1 Buttress Fill Design GS001.0

Ungraded Site Lots GS002.0

B3-32a cont.

Subdivision - Remainder Parcel GS045.0

Ground Failure/Liquefaction GS047.0

Surficial Slope Stability for Natural Slopes GS051.0

Geotechnical Final Map Clearance Guidelines GS063.0

Restricted Use Areas GS086.0 Subdivisions Impacted by Existing Landslides GS103.0

Seismic Design Parameters for Unrestrained Retaining and Mechanically Stabilized Earth Walls

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see also References rev 7/98
BOARD FOR GEOLOGISTS AND GEOPHYSICISTS

GUIDELINES FOR EVALUATING THE HAZARD OF SURFACE FAULT RUPTURE CALIFORNIA GEOLOGICAL SURVEY NOTE 49
(Similar guidelines were adopted by the State Mining and Geology Board for advisory purposes in 1996.) see also REFERENCES

B3-32a cont.

Los Angeles county Grading guidelines- Appendix J- Grading
http://dpw.lacounty.gov/general/forms/download/1990.pdf
and
Grading Plan notes
https://dpw.lacounty.gov/bsd/lib/fp/Drainage%20and%20Grading/Plan%20Check%20Documents/Grading%20and%20BMP%20General%20Notes%20(10-29-14).pdf

Review sheets for grading, LSWPPP, and SUSMP are available on our Public Works website at http://dpw.lacounty.gov/general/forms/, by typing the word "review" in the Keyword field

Administrative Manual County of Los Angeles Department of Public sorks Geotechnical and Materials Engineering Division (LACODPW-GMED)

Subdivisions-Guidelines Tentative Map through rough grading Review Stages
http://dpw.lacounty.gov/gmed/permits/docs/policies/GS088.0.pdf

Liquefaction/Lateral Spread
http://dpw.lacounty.gov/gmed/permits/docs/policies/GS045.0.pdf

B3-23a

Geotechnical Report page 1

A geotechnical report submitted for review shall have been
prepared by, or under the responsible charge of, **both** an engineering geologist licensed in the State of California
and
a civil engineer, licensed in the State of
California, experienced in the field of soil mechanics, or a geotechnical engineer licensed in the State of California

state law says OR LA County County say BOTH

pg 2
Manual indicates that it may not (and is never) current - Building Code is stricter since the latest revision,

pg 4
2.1 General Guidelines references would be minimum standards of professional practice
pg 5 review of AP and SHMA maps AND Development review files of adjoining properties and published and unpublished maps

2.2.1 EIR the investigation should provide sufficient data to determine the extent of work required to mitigate ANY potential geologic hazards
(Not put it off till later)
2.2.5 Fault investigation reports
references LACOBuilding code section 113

see all but especially 2.2.5.4 pg 13

B3-54

WE CONSIDER ANY PURPORTED LIQUEFACTION STUDY TO BE INADEQATE
Discussed elsewhere

See
Directive GS045.0 Liquefaction
(see Appendix) for application to Single-Family Residential Development

2.3.6 Subsurface Exploration
see 2.3.8 for checklist

section 111 statement required

B3-55

next comes Soils- Geotechnical Reports EIR 3.3.1.2
SHMA etc
3.3.3.2 could be considered SHMA
NOTE ADDITIONAL RESOURCES
Building Code and most of the listings have been updated since GMED was last revised in 2013

ASCE-7 has also been revised
FEMA- NEHRP has a later edition
Since it is not determened when the Mesa project is to be permitted the 2016 IBD/ 2017 CBC and latest NEHRP and ASCE-7 drafts must be consulted to minimize rework at permitting time

B3-56

See LA COUNTY GS047 in appendix A 11 for slopes above projects

GS103 if any retaining or stabilized earth walls

see Note 41
http://www.conservation.ca.gov/cgs/information/publications/cgs_notes/note_41/
for peer review

read
http://www.conservation.ca.gov/cgs/rghm/ap/Pages/main.aspx

ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf

2623. The approval of a project by a city or county shall be in accordance with policies and criteria established by the State Mining and Geology board and the findings of the State Geologist. In the development of such policies and criteria, the State Mining and Geology Board shall seek the comment and advice of affected cities, counties, and state agencies.

B3-57

Cities and counties shall require, prior to the approval of a project, a geologic report defining and delineating any hazard of surface fault rupture.
prior to the approval of a project,

WE CONSIDER THE POSIBILITY OF SURFACE FAULT RUPTURE TO BE LOW

B3-3a

Notes on Whitier Fault Extension, Alhambra Wash fault, East Montebello Fault

The Los Angeles and San Gabriel Valley basins are separated by the (active) Whittier fault and an uplifted block of igneous and metamorphic rocks (Yerkes, 1972).

There is some question on which branch the 1987 "asftershock" was

I may have been wrong I thought the fault sloped NE

"Its focal mechanism defines a northwest trending, steeply southwest dipping fault plane characterized by right lateral strike-slip ruptur [Hauksson and Jones, 1989"]]

The trend of aftershcocks associated with this event is nearly coincident with the northwest trending escarpment

Bullard and Lettis 1993 pg8367 see discussion following

Bullard and Lettis Fig 11 shows the large unexplored 20 m fault (which I live at the top of)

but let's look at Plate 1- (after p8362) slide it over and look at NE corner

Here we can see both the 20 m fault and the AWF and their intersection with East Montebello

where the "20" is where San Gabriel blvd turns Walnut Grove Ave runs North and is about where your B1-B2 N-S line runs through the 87 Epicenter somewhere near where the Q4,5 is

The aftershock was near where the "G" in Garvey ave is

Gath, Gonzalez, Perry Ehlig and Huffman all trenched the smaller fault on the right, The city of Rosemead hired Gonzalez for their General Plan and Fault zoned the AWF to the City limits near the top of the map (10 x Del Mar ave)

The two faults (or three if there is one running along the base of the hills) merge near the 60 freeway

The Montebello Fault of Charles Quarles Cal Tech Thesis runs W-E near the Montobello Anticline and must intersect the EMB and be cut by the PHT

Incidentially Oskin said that Quarles thesis was excellent- I need to find out what he ment

we are trying to locate the fault tips of the Elysian Park thrust- just one more thing

where the 34 02 30 is is about where WNGC of Terrashake maximum effect is (60 x Rosemead blvd)

B3-3a cont.

(one reason we are also concerned about energy from San Andreas coming down the Bullard and Lettis Potrero Grande paleochannel and Potrero Grande basin

There are two major projects planned for the Potrero Grande Basin

one a light rail along the 60 freeway across Whittier Narrows

The second is a major addition to SCE "Mesa" substation. Monterey Park "Marketplace" is also be built in the Paleochannel

Since the Paleo channe starts of broad near Rush street in Rosemead and Narrows to the West does it channel or focus waves from a San Andreas event

Active Faults in the Los Angeles Metropolitan Region

Southern California Earthquake Center Group C* Robert S. Yeats (compiler)

http://www-scec.usc.edu/research/special/SCEC001activefaultsLA.pdf

P25

At the Whittier Narrows of the San Gabriel River, the Whittier fault turns more northerly

to become the East Montebello fault. At Alhambra Wash in Rosemead, Gath et al. (1994) and

Gath and Gonzalez (1995) trenched a strand of the East Montebello fault and found a slip rate of

only 0.2 +/- 0.1 mm/yr;

a second, larger (20m) scarp to the west (The Bullard and Lettis scarp) was not investigated.

So without knowing what the slip rate and history is on the larger scarp we can't rally say what Whittier-Elsinor's activity is in the San Gabriel Valley

Also restraining bends my modify seismic energy and partition into uplift

Part of the difficulty in establishing piercing-point offsets is that the

modern Whittier fault reactivated a Miocene normal fault with the north side down (Yeats and Beall, 1991; Bjorklund and Burke, in review). McCulloh et al. (2000) (Yeats was on Tom Bjorklunds committee)

McCulloh and Larry Beyers Mt Meadows Dacite (cover is close to what I think fault traces are)

20 years and still looking

http://www.dot.ca.gov/dist07/resources/envdocs/docs/710study/draft_eir-

B3-3a cont.

eis/Geologic%20Hazard%20Evaluation/SR%20710%20Geologic%20Hazard%20Evaluation.pdf

2.2.1.3 Alhambra Wash Fault (Elsinore Fault Zone – Whittier Segment) pg 2-9

We disagree with "The Alhambra Wash fault is a short northwest-southeast-trending fault"...

The Alhambra Wash fault is not included in the Caltrans (2013b) fault database.

However, the Alhambra Wash fault is believed to be a northerly extension of the Elsinore fault zone – Whittier segment.

The Whittier segment is a roughly 40-km-long, northeasterly dipping, northwest-southeast-trending, right-lateral strike-slip fault with a minimum slip rate of about 2.5 mm/yr (Gath, et al., 1992; SCEC, 2013a).

Caltrans (2013b) assumes the same slip rate of 2.5 mm/yr and a Mmax of 6.9 for the Whittier segment of the Elsinore fault zone.

"Section 11 Site Conditions for Zone 5" Draft Geotechnical report

http://www.dot.ca.gov/dist07/710study/pdfs/Section%2011%20SR-710%20Tunnel%20Draft%20Geotechnical%20Summary%20Report-14.pdf p11-3

11.4 Faulting

The Alhambra Wash fault is currently zoned as an APEFZ for a short distance of approximately 2 miles (CDMG, 1991). The northernmost limit of the designated APEFZ is located approximately 1.2 miles south of Zone 5. However, the geomorphic evidence in the form of weakly developed elevation changes suggests that the Alhambra Wash fault may continue well beyond the designated APEFZ limits and that it might represent a longer fault

(Tan, 2000b; Bullard and Lettis, 1993; Treiman, 1991b). Surface wave modeling for soundings

Z5-S8 and Z5-S9 located at the eastern and western portions of seismic line Z5-G2, indicate that there is not significant lateral velocity variation in the immediate vicinity of the seismic line within the upper 200 feet.

However, seismic-reflection data (line Z5-G2, Appendix C.2) with a much deeper zone of investigation revealed deformed Quaternary sediments along the projection of this fault. Therefore, it is assumed that the Alhambra Wash fault is projected to intersect Zone 5 and is considered to be active fault.

As discussed in Section 4.2, the approximate magnitude of the maximum earthquake on

B3-3a cont.

the Alhambra Wash fault could be about 6.25. Based on this, potential surface rupture displacement along the Alhambra Wash fault would be expected to be much less than those that would be expected along the Raymond fault (less than 2 to 4 feet, see Section 4.2).

(WE disagree as authors neither consider the additional length engendered by their own investigation or if connected to Whittier-Elsinore)- and the 20 m fault is not mentioned...

we put in comments to CalTrans

Here is a later version from Dec 2012

Appendix T Geotechnical Study technical Memorandum from Alternatives Analysis report

http://www.dot.ca.gov/dist07/resources/envdocs/docs/710study/docs/appendices/Appendix%20T%20Geotechnical%20Study%20Technical%20Memorandum.pdf

The Alhambra Wash fault is a short northwest-southeast-trending fault in the southern part of the San Gabriel Valley that steps the Whittier fault northward. The surficial expression of the fault segment is approximately 1.5 miles long extending from SR 60 on the southeast to San Gabriel Boulevard on the northwest.

(We disagree, why is there a 10 ft + scarp through San Gabriel N of Valley blvd?)

The fault is designated as an APEFZ and, therefore, is considered to be active.

The potential for surface displacement on the Alhambra Wash fault is poorly known but unpublished work has confirmed multiple late Pleistocene to Holocene ruptures. The maximum magnitude of an event on the Alhambra Wash fault could be about 6.25 if it ruptures separately,

but it likely ruptures in larger events with the Whittier fault. (and what would that be?)

The potential for surface rupture displacements along the Alhambra Wash fault would be expected to be lower than for the Raymond fault. (this might be true of a seperate rupture, if a cascade rupture with Elsinore-Whittier -

I do not agree but IDK which branch Whittier-Elsinore might take, or all of them :))

I think shortening of SGV (causes PHT) squeezes and locks Whittier

an example this report says p 11-3

In addition to the active Alhambra Wash fault, three inactive faults cross Zone 5.

The 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; they are

interpreted from sparse subsurface data such as groundwater and oil-well data and are not

B3-3a cont.

exposed at the surface.

Both the Workman Hill fault and Montebello fault have surface expression, both faults run through oil fileds- lots of data IDK about Highland Park but I quoted Gath quoting Lamar last letter- do not appreciate such sloppy work and these high buck reports are full of it

another example Highland Park was not investigated because...

Numerous additional faults are mapped (Lamar, 1970) in the southwestern part of the study area, forming a complicated region of intersecting faults and fault-bounded blocks.

The largest of these faults corresponds to the trace of the northwest-trending Highland Park fault. The Highland Park fault trends for approximately 6.5 miles from Monterey Park through Alhambra and El Sereno to Highland Park.

The Highland Park fault appears to terminate against the western continuation of the Raymond fault in the vicinity of York Boulevard. The Highland Park fault is not considered by the CGS (2002) and California Division of Mines and Geology (1977) as active.

The Highland Park fault also has not been included in the Uniform California Earthquake Rupture Forecast, Version 2 (UCERF2) catalog.

comment- If you extend the Highland Park fault SW it would run into Whittier

was there a Miocene conntection? (before hills uplifted)

Beyers in one of his papers shows a branch of EMB trending toward Highland Park but I have not located it recently- recall that this may have been a reconstruction before hills were uplifted I can't remember

Geophysical is here

http://libraryarchives.metro.net/DPGTL/710_Tunnel/SR-710_Vol_3_Appendix_C2_Seismic_Reflection_Data.pdf

look for

Z4-G2 Huntington Drive (SW/O N. Granada Ave.) Alhambra Alhambra Wash Fault

Z5-G2 East Shorb Street (E/O S. Hildalgo St.) Alhambra Alhambra Wash Fault

GEOVision Geophysical Services

1124 Olympic Drive

B3-3a cont.

Corona, California 92881

(951) 549-1234

Report 9001-02

October 5, 2009

http://www.dot.ca.gov/dist07/710study/pdfs/Section%2016-2%20SR-710%20Tunnel%20Draft%20Geotechnical%20Summary%20Report-19-2%20pg8.pdf

shows trace In South Pasadena approaching Raymond Hill fault

but compare with

http://www.dot.ca.gov/dist07/710study/pdfs/SC%20Mtg4%20Presentation%20Part2.pdf

starting pdf pg 15 marked 35 on Document where Alhambra wash is a water barrier

both show their line of investigation Z4-G2 horizontal in purple parallel to Huntington Drive but this one no dots for fault trace

Can't tell where the cross sections are, obviously not the same place

Oskin writes in his Thesis

The Elysian Park anticline is structurally and physiographically separate from

adjacent structural and geomorphic domains (Fig. 9.2). The axis terminates at

both ends against surficially expressed, strike-slip and oblique-slip faults that cut

Quaternary alluvium (Fig. 9.3).

The Alhambra Wash fault separates the southeasternend of the Repetto Hills

from the Whittier Narrows, a topographic and structural

low point, where drainage from the north is constricted [Davis et al. , 1989].

I'm thinking that if the AWF-Whittier controls the East Edge of the UEP there may be more to it than usually ascribed.

Tanya Gonzalez wrote that the Geology on either side is quite different

http://www.cityofrosemead.org/Modules/ShowDocument.aspx?documentid=1100

Fig 5.4 approx pg pdf 137 Shows Tanya and Yeats contribution to Rosemead's General

B3-3a cont.

Plan (based on an earlier map by Geologist Ken Wilson CEG who was retained by the General Plan consultant after we "complained") note also the allignment of Workman Hill with Rubio wash (purple dots)

Our community group had filed a lawsuit against the City for lack of enforcement of the Seismic Hazards Mapping Act. Settlement entailed resignation of City Engineering and Geologist firms who paid all costs including the "review" by Gath and Gonzalez (ECI) (including a seismologist Dr. Dilek Gurler and a co-ordinated Geotechnical Review of the bogus "liquefaction" studies) (ECI did additional trenching) which resulted in a much better General Plan- findings next resulted in a major revision to the new bridge design on Garvey over the Rio Hondo near where purple dots cross the rio hondo... additional borings coupled with ECI's Seismology found much worse liquefaction hazard-

we missed long duration long period San Andreas effects though Terrashake was reported shortlythereafter- would like to rerun the data with them...

Today what is missing is a more resonable characterization of the San Andreas Hazard which is why we are focusing on the Water distribution and Tanks un the Whittier narrows area, we just missed Terrashake

UP is lowering the roadbed from the curve at the top Eastward over to the Rosemead City limits

I wonder if they found Workman hill?....Their tempory shoring on Rubio Wash just failed in the last minor rainfall we had, they may loose two homes but they should have had time to get temp back in place

McCulloh USGS PP1669 Figure 1 note Whittier W and East Montebello EM

Bjorklund, Tom, Burke, Kevin, Zhou, Hua-Wei, and Yeats, R. S., 2002, Miocene rifting in the Los Angeles basin; evidence from the Puente Hills half-graben, volcanic rocks, and P-wave tomography: Geology, v. 30, p. 451-454

LARSE-1
2. The San Gabriel Valley basin reaches a maximum depth of 5 km (Fig. 2, B and C; see loose insert),;
2 km deeper than the estimate of Wright (1991).
One oil well penetrates granitoid basement (5.3–5.5km/s) at 3.7 km depth in the southern San Gabriel Valley (Fig. 2C; see loose insert).
Note that the steeply north dipping Whittier fault forms the south boundary of this basement block, beneath the Puente Hills; the dip of the fault (708) is consistent with that seen in oil wells (Yerkes, 1972)

also deep hole under WNGC

B3-3a cont.

Larry Beyer writes http://certmapper.cr.usgs.gov/data/noga95/prov14/text/prov14.pdf

The western play boundary is the approximate eastern extent of the structural imprint of the Santa Monica Fault System in the Neogene section.
From west to east, the northern play boundary is drawn just north of the Hollywood-Raymond Hill Fault Zones and

slightly northeast of the East Montebello Fault and its northwest projection (Wright, 1991) that separates Wright's subsurface "Alhambra high" from the Elysian Park Anticline.

http://pubs.usgs.gov/pp/1759/pp1759.pdf 2009 Fig 1 shows Whittier branches approaching Raymond

McCulloh, T. H., Beyer, L. A., and Enrico, R. J., 2000, Paleocene strata of the eastern Los Angeles basin, California;
paleogeography and constraints on Neogene structural evolution:
Geological Society of America Bulletin, v. 112, p. 1155-1178

McCulloh and Beyer
PP 1690 aligns Whittier with Verdugo on each side of Raymond Figure 1 Mid -Tertiary Isopach and Lithofacies Map

Fig 5 MP is most likely now UEP of OSKIN 2000 but McCulloh and Beyer reference Oskin but shed no light on the two faults one with ???
Fig 5 does show termination of the two faults against W

Huntington Park fault Mc Murdie 1973
Our preliminary reconstruction is similar to one proposed for 16 Ma by Hornafius and others (1986, fig. 9),
even though respective underlying assumptions about fault offsets differ substantially.

It is also similar to palinspastic reconstructions to 14 to 13 Ma of Luyendyk (1990, fig. 5a; 1991, fig. 5)
and, in some ways, to a more complex and
comprehensive reconstruction to 19 Ma by Sorlien and others (1999, fig. 13B).

Critical differences from our reconstruction are evident in the restoration described by Crouch and Suppe (1993, fig. 4 and p. 1421), not the least of which
are "110°" of clockwise rotation of the northwest block
and "30 km" of left slip on the Malibu Coast-Raymond Fault Zone.
However, the "110°" of rotation of Crouch and Suppe (1993), while not based on pertinent observations and greater than our allowed 80°, would lessen spatial discrepancies between the facies and thickness trends of our restored templates of the Sespe-Vaqueros Formations.

Crouch, J. K., and Suppe, J., 1993, Late Cenozoic tectonic evolution of the Los Angeles

B3-3a cont.

basin and inner California borderland; a model for core-complex-like crustal extension: Geological Society of America Bulletin, v. 105, p. 1415-1434

McCulloh, T. H., Beyer, L. A., and Enrico, R. J., 2000, Paleogene strata of the eastern Los Angeles basin, California;
paleogeography and constraints on Neogene structural evolution: Geological Society of America Bulletin, v. 112, p. 1155-1178

McCulloh, T. H., 1960, Gravity variations and the geology of the
Los Angeles basin, California: U. S. Geological Survey
Professional Paper 400-B, p. B320-B325

USGS 420a 1965
Calls what he calls MP the Elysian Park (anticline) Fig 3
and second anticline N
La Habra Sycline (22k deep) terminates N on Whittier-Elsinore A49-50

The Elysian Park anticline with its steep southwest flank is analogous, in many respects, to the faulted anticlinal ridge adjacentto the Whittier fault zone in the Puente Hills.
Figs 2 & 3 shows W crossing Rio Hondo

PP1690

PP 1649 Mt Meadows Dacite 2002 also aligns EM (B) and Verdugo and terminates the two Monterey Park faults E against the AWF also called
EP-AH is the Elysian Park- Monterey Park- Alhambra structural High discussed in text
EM Wright (1991 p 49-52, 89)
W Yerkes 1972, Wright 1991 pp47-52

Monterey Park fault (Davis and others, 1989; Wright, 1991 fig 8D, 9 & 10) Oskin 2000.

EM Seperates Plutonic granitoid rocks East from Phyllitic metasedeiments west

shows end of MP at Riskis Rosemead 1 34.0513 x 118.0704
and other south of Humble SSG Unit 1 34.0703 x 118.0944 and
point toward Humble Rosemead 1 34.0677 x 118.0699

PP 1759 2008 shows EM lineing up with ER then V Eagle Rock

Response to Comment Set B3: Margot Eiser – Citizens for Open and Pubic Participation

B3-1 The hyperlinked information referenced by the commenter will be included in the record for consideration by the decision makers and is addressed in further detail below.

The Seismic Hazards and Mapping Act, as contained in California Public Resources Code section 2697, requires that cities and counties require a geotechnical report defining seismic hazards prior to project approval. The California Public Utilities Commission (CPUC) is a state agency, and the requirement therefore does not apply to the CPUC. Furthermore, the Seismic Hazards and Mapping Act also does not speak to the requirements for content in an Environmental Impact Report (EIR). An additional report is not required.

Mitigation Measure (MM) GEO-1 (see Draft EIR page 4.5-34) requires preparation of a geotechnical report with specific recommendations of engineering and design measures to mitigate impacts of the proposed project associated with unstable soils, seismic ground shaking, landslides and lateral spreading, and expansive soils. The measure includes a list of specific measures that may be used to mitigate impacts and requires Southern California Edison (SCE) to demonstrate that the measures have been incorporated into project design.

The County of Los Angeles Department of Public Works Manual for Preparation of Geotechnical Reports sets forth requirements for preparation of geotechnical reports for EIRs prepared for projects within the County's jurisdiction and for which the County is serving as Lead Agency under the California Environmental Quality Act (CEQA). The CPUC is the Lead Agency for the proposed project and is not required to adhere to the County's CEQA guidance.

Refer to Master Response 1 (Geologic and Seismic Investigations) for a detailed discussion of the analysis undertaken in the Draft EIR to examine the proposed project's impacts on geology and soils.

A Lead Agency is required to recirculate an EIR when "significant new information" is added to the EIR after notice is given of the availability of the Draft EIR for public review but prior to certification. Recirculation is not required when the new information added to the EIR merely clarifies, amplifies, or makes insignificant modifications to an adequate EIR. This response does not constitute significant new information under CEQA; therefore, recirculation is not required.

B3-2 The commenter's statement referencing structural performance and a future building code update is noted and included in the record for decision-makers. See response to comment B3-32 and Master Response 1. The commenter does not provide specific assertions or evidence related to the adequacy of the environmental analysis in the EIR. Additionally, lead agencies are not required to respond to general reference materials or comments that are not directly relevant to the project (*Environmental Protection Information Center v. Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 483, 487). Therefore, no further response can be provided.

B3-3 The Whittier Fault Extension notes (Comment B3-3a) referred to by the commenter contain various observations from the commenter and excerpts of text from different publications describing the Whittier Fault. Information provided by the commenter indicates that the precise extent and location of the Whittier Fault is unknown. The commenter asserts that the length of the Whittier Fault should be extended. However, information referenced by the commenter is conflicting; some publications do not include an extended length for the Whittier Fault while others do. Statements made in this comment assert that information provided in studies cited by the commenter is not conclusive or that the commenter disagrees with the study's findings. Because of the contradictory statements made by the commenter, it is unclear what the commenter would like the CPUC to do with this information. Names of other faults are mentioned briefly, but the commenter does not state that they need to be included in the EIR or whether they are relevant to the proposed project. The commenter explains that their community group has filed a lawsuit against the City for lack of enforcement of the Seismic Hazards Mapping Act. Overall, the commenter does not assert that the EIR analysis is deficient or state whether the figure showing the Whittier Fault provided in the EIR should be changed; therefore, no further response is required. See the response to B3-26 regarding the mapping and naming convention for faults.

B3-3a Refer to the response to comment B3-3.

B3-4 As described in the notes to Table 6-1 in the EIR, the Metro Eastside Transit Corridor Phase 2 project has a proposed route in the vicinity of the substation. That project would involve construction of a light rail transit project from an existing light rail line. Two alternatives are being considered—one would follow State Route (SR) 60 and would be located in an east/west orientation between the south side of the Mesa Substation site and the north side of SR 60. The other alternative would not be located adjacent to the substation site. Construction is anticipated to occur from 2027 through 2035, with operation beginning in 2035. No evidence has been found to show that the substation-adjacent alignment has been selected. The project web page is still consistent with two alternatives being considered (MTA 2016). It therefore remains uncertain which alternative will be selected and studied in the Final EIR/Environmental Impact Statement (EIS); therefore, the project was determined to be speculative and was not included in the discussion of cumulative impacts. The commenter's other suggestions regarding placing the station near the substation are noted; however, they are not relevant to the proposed project and therefore no additional response is required.

B3-5 As Figure 4.2-1 does not exist in the EIR, it is presumed that the commenter is referring to Figure 4.3-1, "Vegetation Types." The commenter provides various examples of non-native vegetation in the proposed project area. Non-native vegetation is discussed in Table 4.3-1 of the Draft EIR, and multiple vegetation communities identified in the table and in Figure 4.3-1 contain non-native vegetation (e.g., non-native vegetation, non-native woodland, and drainages). Table 4.3-1 includes several non-native species that the commenter used as examples, such as Russian thistle and castor bean.

The first example the commenter provides states that Russian thistle and castor bean are present in the transmission corridor extending northeast from Staging Yard 1. Vegetation in this area is categorized as disturbed/developed and non-native. The

commenter provides three additional examples of non-native species in the project area and requests that Figure 4.3-1 provide locations of non-native species.

The commenter asserts that non-native vegetation currently in the project area must be removed and replaced with area specific California natives; the commenter includes non-native species that were absent before SCE's Tehachapi Renewable Transmission Project (TRTP) in certain locations but are now present among the vegetation that must be removed. CEQA Guidelines section 15125(a) states that "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published . . . . This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." The Notice of Preparation for the proposed project was issued on June 5, 2015; therefore, any non-native vegetation in the project area that was established before June 5, 2015, such as a species or vegetation type that may have been associated with the TRTP, is considered part of existing conditions rather than an impact of the proposed project. Therefore, existing non-native vegetation in the project area at baseline is not an impact of the proposed project requiring mitigation through replacement with native vegetation. Please note, however, that some ruderal areas may be used as mitigation areas to mitigate impacts to coastal California gnatcatcher. Please see responses to comments A1-3, A1-4, and D2-86 for additional discussion.

The Mesa Substation Draft EIR identifies impacts on sensitive resources, such as special-status species' habitat and sensitive vegetation communities, which could result from the establishment of non-native species during the proposed project. The Draft EIR contains mitigation measures that would be required to reduce these impacts to less than significant, including MM BR-3 and MM BR-4. MM BR-3 requires the applicant to develop a plan to restore all temporarily impacted areas to either the pre-disturbance sensitive natural community, if present prior to construction, or to coastal sage scrub (a native plant community) if feasible. MM BR-4 requires the implementation of a Noxious and Invasive Weed Program (MM BR-4) that would avoid the introduction and spread of noxious weeds and invasive plant species. This program would include pre-construction surveys to identify non-native species in the project area at baseline and again after construction ends. These mitigation measures would ensure that noxious and invasive weeds are managed to prevent their introduction into new areas and would restore habitat to pre-existing conditions, and in some areas to better quality native habitat. See response to comment A1-3 for additional discussion of habitat restoration mitigation.

The commenter also stated that some of the non-native vegetation in the project area is a fire hazard. Impacts due to fire are discussed in the Draft EIR under Impact HZ-6. As described in that section, the transmission and substransmission line components of the proposed project would be consistent with Public Resources Code Sections 4291 through 4299, which regulate vegetation management. Additionally, construction would occur consistent with General Order (G.O) 95 and G.O 165, which outline clearance specifications. Impacts related to fire hazards would be less than significant.

B3-6 A copy of Medak pers. comm. 2015, as cited in the biological resources section of the EIR, is provided below:

Black, Kristi

From:	Black, Kristi
Sent:	Monday, January 25, 2016 2:30 PM
To:	Rachowicz, Lara
Cc:	Estrada, Andres; Vick, Jenny
Subject:	FW: CEQA review of SCE's proposed Mesa Substation
Attachments:	08B0500-08F0552 [LA] BO - Montebello Hills Development s04-02-09-JBartel.pdf

From: Medak, Christine [mailto:christine_medak@fws.gov]
Sent: Thursday, October 08, 2015 2:07 PM
To: Black, Kristi
Cc: Jonathan Snyder
Subject: Re: CEQA review of SCE's proposed Mesa Substation

Kristi,

I have reviewed sections of the SCE application, including portions of PEA Volumes 1, 2, and 4 (part 1 of 2). The following comments are focused on primary concerns gleaned during a fairly quick review so I apologize if some of the identified concerns have already been addressed.

1) In the biological resources section of the PEA (page 4.4-63) it states: "In accordance with APM-BIO-04, SCE would coordinate with USFWS to obtain necessary permits under the FESA." However, measure APM-BIO-04 is written in a way that indicates consultation with USFWS would only be needed if active nests cannot be avoided. Section 9 of the Endangered Species Act of 1973 (Endangered Species Act), as amended (16 U.S.C. 1531 et seq.) prohibits the take of endangered and threatened species without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Harm is further defined by the USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Because avoidance of active nests, in and of itself, may not be adequate to avoid take of a gnatcatcher or vireo, we recommend this measure is reworded to reflect the statement in the biological resources section (e.g., SCE will coordinate with USFWS to obtain necessary permits under the FESA).

2) There is very little habitat left for the gnatcatcher between the Montebello Hills and areas supporting the northernmost populations in the San Gabriel and Santa Susana Mountains. The remaining habitat patches, such as the area within the substation footprint, provide for connectivity between populations of gnatcatchers and are important for maintaining a viable population within the northern range of the species. Maintaining connectivity between populations, particularly in the northern portion of the species' range, is critical for achieving resiliency in response to changes in vegetation and local climatic conditions associated with global climate change. Therefore, we recommend the substation is designed to avoid and minimize impacts to habitat for the gnatcatcher to the extent possible. We recommend remaining open space surrounding the substation and within temporary impact areas is restored with native scrub habitat and managed in an manner that will support gnatcatchers on the property over the long-term. Permanent impacts should be offset by acquiring additional property for preservation and restoration (as needed) in the northern part of the species range in support of maintaining the range, numbers and distribution of the species.

1

3) The Montebello Hills support the largest population of gnatcatchers within the northern range of the species and is designated critical habitat. Existing and proposed transmission line routes through and adjacent to this property provide perches for raptors that may prey on the gnatcatcher. Any permanent impacts associated with the project will reduce the extent of critical habitat available for the species on the property. Regular maintenance of the area under the transmission poles contributes to the spread of invasive plant species and could affect implementation of the biological opinion for the Montebello Hills Development Project (see attached). To the extent possible, transmission lines through and adjacent to Montebello Hills should be replaced with underground facilities, located under existing roadways, to minimize impacts to sensitive habitat and associated wildlife resources in this area.

4) Above-ground transmission poles should include design features to minimize use by raptors for perching in all areas supporting gnatcatcher and/or vireo.

5) Helicoptors should not be used in the vicinity of habitat for vireo or gnatcatcher during the breeding seasons for these species because of the potential for the noise and disruption to cause abandonment of active nests. I did not see this discussed in the biological resources section, but it was mentioned in the project description.

6) Clarify if any of the areas mapped as disturbed or ruderal were disturbed as part of a previous project (i.e., TRTP) and were anticipated to be restored to native habitat as part of that project. While using existing disturbed areas minimizes the extent of the temporary impact footprint it also extends the temporal loss of vegetation. This additional impact should be identified and mitigated as part of the project. To mitigate any temporal losses of habitat and reduce the potential for spread of non-native plants to adjacent undisturbed areas, we recommend all temporarily disturbed areas in and adjacent to native vegetation, are restored to native habitat and maintained free of non-native plant species for a minimum of 5 years. We can available to assist in identifying appropriate revegetation areas.

7) APM-BIO-01 - This measure should be reworded to clarify that the project will be designed to ensure Nevin's barberry will be avoided. Currently is states: "Where disturbance to these areas cannot be avoided, SCE would develop and implement a Revegetation Plan." Nevin's barberry is an extremely rare listed plant species that grows in specific and limited conditions. Transplantation of rare plant species is rarely successful due to our general lack of understanding about the suite of conditions that allows a rare plant species to grow in a particular location. We recommend the transmission poles and associated access roads are sited a minimum of 200 feet from the species to minimize the potential for impacts during future repairs/maintenance of the facilities.

8) The biological resources section identifies various operations and maintenance activities that will be required for the existing and proposed facilities. Potential effects to listed species associated with operating the existing and proposed facilities should be considered as part of the project. We recommend an operation and maintenance plan is prepared that identifies specific measures that will be implemented to minimize and avoid impacts to listed species in the project area. The operations and maintenance plan should include regular removal of non-native plant species from areas of disturbance within the maintenance footprint to limit the spread of invasive plant species to adjacent native habitat areas.

Please feel free to give me a call if you would like to discuss the comments provided in this message.

Christine L. Medak
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

2

B3-7 It is not clear what the “Mesa Y” is meant to indicate as described by the commenter; however, it is assumed the commenter is referring to the substation area. The commenter is concerned about connectivity of habitat to provide corridors for wildlife and suggests that SCE work with Chevron to connect habitat on SCE land to habitat in the Whittier Narrows. CEQA Guidelines section 15126.4(a)(1) requires mitigation for significant adverse impacts of the proposed project. As discussed in the Draft EIR

under Impact BR-4, project-related impacts to coastal California gnatcatcher habitat would substantially interfere with the movement of the gnatcatcher and viability of the northern population and would be considered a significant impact. MM BR-3 requires the preparation of a Habitat Restoration Plan, which would include restoration of non-native vegetation temporarily and permanently impacted during construction to coastal sage scrub (habitat for gnatcatcher). With the implementation of MM BR-3, impacts associated with the interference of coastal California gnatcatcher movement would be less than significant. Please see response to comment A1-3 for additional discussion of habitat restoration mitigation. A specific plan to provide a wildlife mitigation corridor is not required by the Draft EIR to mitigate impacts. However, the commenter's suggestion for SCE to work with Chevron to determine potential mitigation land is noted and included in the record for decision makers.

B3-8 The following typographical error was changed in Table 4.3-3 of the Draft EIR in response to the comment:

Page 4.3-14:

Western spadefoot (*Spea hammondii*)	--/SSC	This toad prefers areas of open vegetation and short grasses with sandy or gravelly soils. The western spadefoot frequents washes, floodplains of rivers, and alkali flats, but can range into foothills and mountains. Throughout most of the year, this species resides in underground burrows. It breeds in shallow, temporary pools formed by heavy winter rains.	*Moderate:* Suitable habitat for this species occurs along Telecommunications Route 3 where it parallels East Lincoln, San Gabriel Boulevard~~Avenue~~, and Durfee Avenue. One CNDDB occurrence was documented in 1998, approximately 4 miles southeast of Telecommunications Route 3 in the Puente Hills.

Additional changes of the same type were made throughout Section 4.3, "Biological Resources" for consistency.

B3-9 The comment indicates that disturbance to "FT/FE Species/ Critical Habitat" must be mitigated, and mentions cactus wren. Impacts to species that are listed under the Federal Endangered Species Act (FESA), as well as federally designated critical habitat, are discussed under Impact BR-1 in the Draft EIR if they are known to or have potential to occur in the project area. FESA-protected species identified in the Draft EIR are Nevin's barberry, coastal California gnatcatcher, and least Bell's vireo. Impacts to these species were found to be significant but reduced to less than significant with mitigation measures MM BR-1, MM BR-2, MM BR-3, MM BR-4, MM BR-5, MM BR-8, MM BR-9, MM BR-11, MM BR-12, and MM BR-13. The cactus wren is not listed under FESA, nor is a subspecies, *Campylorhynchus brunneicapillus sandiegensis.* A cactus wren was observed during a protocol survey for coastal California gnatcatcher; however, the cactus wren is not a special status species as defined in the Draft EIR.

B3-10 The location referred to by the commenter could not be clearly ascertained by the description in the comment; however, as discussed under Impact BR-1 in the Draft EIR, all temporarily impacted areas would be restored and permanently impacted areas

would be mitigated. Areas where non-native vegetation existed prior to construction and those classified as "developed/disturbed" would be restored with coastal sage scrub if feasible. The EIR for the proposed project does not include plans for a park and ride for the Eastside Gold Line project.

B3-11 The commenter makes a general statement that it is not clear if mitigation for "Tehachapi," which is presumably the TRTP, can be used for the proposed Mesa Substation Project. The CPUC approved the TRTP in 2009, and construction of that project is almost complete. The Mesa Substation Project was proposed in 2015 and is a separate project, with independent utility from the TRTP. The Mesa EIR analyzes impacts of the Mesa Substation Project. Mitigation is outlined for impacts found to be significant that are specific to the proposed project. The commenter does not raise any issues with the analysis in the Draft EIR; therefore, no further response is required.

B3-12 The commenter makes a general statement that all of the Air Quality Management District and California Air Resources Board (CARB) mitigation measures should be adopted but does not suggest or provide information showing that the mitigation measures discussed in the Draft EIR are inadequate or which specific CARB and South Coast Air Quality Management District (SCAQMD) measures should be adopted. The commenter also suggests that the CPUC use certain guidance documents to formulate mitigation measures, but the CPUC considered the recent applicable regulations, laws, and guidance documents to formulate the analysis in the Draft EIR Section 4.2, "Air Quality."

The CPUC also did not receive suggested mitigation measures directly from CARB; therefore, no further response can be provided. However, SCAQMD submitted a scoping letter that identified resources available to assist the CPUC in identifying possible mitigation measures, including Chapter 11 of the SCAQMD CEQA Air Quality Handbook, SCAQMD's Rule 403 (regarding fugitive dust), and SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. The CPUC reviewed SCAQMD documentation in formulating mitigation measures, and SCAQMD was given the opportunity to review and comment on the Draft EIR. SCAQMD submitted a comment on the Draft EIR, but it contained no suggested mitigation measures. The commenter has not brought up a specific issue with the mitigation in the EIR; therefore, no further response is required.

The commenter lists several sources that describe potential mitigation for greenhouse gas (GHG) emissions. CEQA Guidelines section 15126.4(a)(1) requires that an EIR contain mitigation measures to reduce significant impacts. No significant impacts have been identified related to GHGs; therefore, no mitigation is required.

B3-13 The commenter states that GHG mitigation for the proposed project should be similar to Exhibit A. It is unclear what "Exhibit A" is; the CPUC assumes the commenter is referring to Appendix A, which contains a scoping comment from the SCAQMD. SCAQMD recommends consulting the California Air Pollution Control Officers Association's *Quantifying Greenhouse Gas Mitigation Measures* document to identify possible GHG mitigation measures. Impacts from GHG emissions are discussed in Section 4.6, "Greenhouse Gases." The commenter states that the heavy duty truck and on-road heavy duty diesel vehicle mitigation measures are inadequate. The regulations

cited by the commenter are applicable to the proposed project, as recognized in Section 4.6, but they are not considered "mitigation measures." Neither of the GHG thresholds of significance were found to be significant in the Draft EIR, and CEQA only requires mitigation for significant impacts. As such, no mitigation measures were required for GHGs. Therefore, no mitigation is required.

Additionally, Table 4.6-4 outlines how the proposed project would comply with numerous plan, policies, or regulations related to GHGs, including the Heavy Duty Truck GHG Regulations and On-Road Heavy Duty Diesel Vehicle Regulations. The Draft EIR concludes that the proposed project would not conflict with these regulations. No revisions are required.

B3-14 The commenter states that Applicant Proposed Measure (APM)-AIR-02: Tier 3 Engines is inadequate and that Tier 4 equipment should be used. Air quality impacts are discussed under Impact AQ-2. Impacts anticipated to result from construction were found to be significant because despite the implementation of APM-AIR-02; in the event that higher-tier engines are unavailable, the use of lower-tier engines would be allowed. MM AQ-1 was incorporated to require all construction equipment greater than 100 horsepower (hp) be compliant with Tier 4 standards and all construction equipment greater than 50 hp be compliant with Tier 3 standards. However, MM AQ-1 enables lower-tier engines to be used if equipment that meets the higher-tier standard is unavailable, and greater use of Tier 4 engines infeasible. In the event that sufficient numbers of Tier 3 and Tier 4 engines are not available and use of additional Tier 3 and Tier 4 equipment is infeasible, MM AQ-2 would be implemented. MM AQ-2 requires the applicant to purchase mitigation credits for volatile organic compounds and reactive organic gases in excess of the SCAQMD daily significance threshold. MM AQ-3 requires additional measures to reduce daily oxides of nitrogen (NO_X) emissions. MM AQ-4 would require purchase of NO_X emissions credits for emissions in excess of the SCAQMD daily significance threshold. NO_X and reactive organic gas (ROG) emissions would be less than significant after implementation of these mitigation measures. Mitigation for NO_X and ROG are therefore adequate and no additional mitigation, such as use of electric vehicles and minimization of idling, are needed.

Carbon monoxide (CO) emissions would be significant and would remain significant after implementation of APM-AIR-02. A decrease in NO_X emissions (as caused by the mitigation described above), would increase CO emissions. The commenter's suggested electric vehicle mitigation is not feasible. Construction would require extensive use of heavy equipment and trucks for grading, equipment delivery, and soil import/export. Electric charging stations would likely need to be installed somewhere on site to utilize a substantial number of electric equipment, with an area provided for multiple vehicles to idle during charging. Furthermore, the availability of specialized construction equipment in large quantities in the project region during construction is uncertain. Therefore, a requirement to use electric construction equipment and vehicles has not been incorporated to reduce CO emissions. The following addition has been made to the MM AQ-1 to incorporate restrictions on unnecessary idling:

Pages ES-6, 4.2-21, and 8-4:

5. Idling construction equipment will be turned off when not in use for periods

longer than 15 minutes.

While a reduction in idling would help to reduce impacts to air quality, the incremental decrease is anticipated to be small and unpredictable (i.e., reduction in emissions would depend on the amount of idling avoided) and would not reduce impacts to less than significant. Therefore, CO cannot feasibly be reduced and the significance conclusion remains significant and unavoidable.

The commenter states that the latest methodology and court rulings should be used to determine GHG impacts but does not specify what methodology would be superior to that used in the Draft EIR. The methodology used to analyze GHG impacts is described in Draft EIR Section 4.6, "Greenhouse Gases." The analysis takes all relevant court rulings into account. CAlEEMod was used to model direct GHG emissions from equipment and vehicle usage during construction and operation of the proposed project. Direct GHG emissions of sulfur hexafluoride (SF_6) from gas-insulated substation equipment were estimated based on the proposed SF_6 storage capacities at the substation and the manufacturer's leakage rates. Emissions were calculated consistent with SCAQMD guidelines. Impacts were found to be less than significant. No revisions are required.

B3-15 CEQA Guidelines section 15131 states that "[e]conomic or social information may be included in an EIR or may be presented in whatever form the agency desires." Further, sections 15131(a) and (b) explain that economic and social effects of a project are not to be treated as significant effects of a project but *may* be used to determine significance of a physical change caused by the project. The EIR therefore does not need to discuss impacts related to environmental justice.

Additionally, health impacts from the proposed project are already discussed in the Draft EIR in Sections 4.2, "Air Quality" and 4.7, "Hazards and Hazardous Materials." Please see responses to comments C7-2 and C8-1 for a more detailed discussion of health impacts.

B3-16 The commenter has provided part of a summary of *Center for Biological Diversity v. California Department of Fish and Wildlife*, which involved the Newhall Ranch development. The commenter does not raise any issues with the environmental analysis conducted for the Draft EIR; therefore, this comment is included in the record for consideration by decision makers, but no additional response is required.

B3-17 As described in the notes to Table 6-1 in the Draft EIR, the Metro Eastside Transit Corridor Phase 2 project has a proposed route in the vicinity of the substation. That project would involve construction of a light rail transit project from an existing light rail line. Two alternatives are being considered—one would follow SR 60 and would be located in an east/west orientation between the south side of the Mesa Substation site and the north side of SR 60. The other alternative would not be located adjacent to the substation site. Construction is anticipated to occur from 2027 through 2035, with operations beginning in 2035. No evidence has been found that supports the commenter's assertion that the substation-adjacent alignment has been selected. The project web page is still consistent with two alternatives being considered (MTA 2016). It therefore remains uncertain which alternative will be selected and studied in

the Final EIR/EIS; therefore, the project was determined to be speculative and was not included in the discussion of cumulative impacts. The commenter's other suggestions regarding support of specific alternatives of the Metro Eastside Transit Corridor Phase 2 project are noted, but are not relevant to the proposed project.

B3-18 The commenter's statements regarding the adequacy of traffic studies completed for other projects are noted, including the cumulative impacts of these projects. However, the commenter does not raise any issues with the adequacy of the analysis in the EIR for the proposed project. Lead Agencies are not required to respond to comments that are not directly relevant to the project (*Environmental Protection Information Center v. Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 483, 487). Therefore, no further response is required.

The commenter's opinion that the proposed project will not have an effect on traffic volumes is noted and included in the record. However, the Draft EIR recognized that traffic volumes would increase during construction but that impacts would be less than significant with mitigation, as described under Impact TT-1 and Impact TT-2. Because the commenter offers an opinion on traffic volumes rather than raising any issues with the analysis in the EIR, no additional response is required.

B3-19 The commenter quotes the portion of the Transportation Impact Analysis in Appendix K of the Draft EIR, which describes existing traffic volumes and states that the Monterey Hills Specific Plan (MHSP) does not accurately represent traffic volume. The quantification of existing traffic volumes for the proposed project utilized data from several sources, including newly collected data, data from the MHSP's Traffic Study, and the Monterey Park Market Place's traffic studies. Data from previous studies were adjusted to current (2015) conditions based on various ambient growth rates from the MHSP. Future traffic volumes and impacts from various projects, including the proposed project, were analyzed independently of the MHSP traffic analysis. The commenter's opinion that the MHSP is not correct is noted; however, the commenter provides no evidence other than observation that the analysis in the Draft EIR is insufficient. Therefore, no further response is required.

B3-20 The comment is unclear, but it is presumed that the commenter would like to see bioswales and recycling of stormwater runoff as mitigation for impacts to hydrology and water quality. Impacts related to runoff are discussed under Impact HY-4 and Impact HY-5. As described under Impact HY-4 and Impact HY-5, the applicant intends to build a detention basin and implement a drainage plan to manage stormwater runoff. MM HY-4 requires that detention basin design be adequate to ensure that overflow and downstream flooding do not occur. The commenter does not state which impacts bioswales and recycling of stormwater runoff would mitigate or why the existing mitigation is inadequate. The conclusions about the impact and that MM HY-4 would reduce the impacts to less than significant are supported by substantial evidence. Therefore, no changes have been made to mitigation.

B3-21 The commenter states that using the 100-year flood zone is inadequate and suggests using a report from the United States Geological Survey's (USGS's) ARkstorm instead. The winter storm scenario called ARkstorm is described as a storm "estimated to produce precipitation in many places [that] exceeds levels only experienced on

average once every 500 to 1,000 years." Utilizing a 100-year flood zone provides a more conservative estimate of impacts than using a 500- to 1,000-year storm to determine impacts because it considers a more frequent scenario. Furthermore, the Federal Emergency Management Agency's 100-year flood data are compiled from a nationwide program that works in collaboration with states, tribes, and local communities using the best available science to produce information useful for risk assessment. These data are widely accepted as accurate and used for planning purposes and are adequate for environmental analysis under CEQA. Therefore, no changes to the EIR were made based on this comment.

B3-22 While the CPUC agrees with the commenter that there is no such appendix in the EIR, the commenter does not substantiate or provide any evidence as to why the lack of such appendix makes the environmental analysis of Section 4.5, "Geology, Soils, and Mineral Resources," inadequate; therefore, no further response can be provided. Additionally, Mitigation Measure (MM) GEO-1 requires that a geotechnical investigation be conducted and a report be prepared for the proposed project. The investigation must assess the potential for liquefaction, landslides, lateral spreading, seismic ground shaking, and expansive soil.

References used for Section 4.5, "Geology, Soils, and Mineral Resources," are listed in Section 9.0 "References," from page 9-14 through page 9-17. Recirculation is required when significant new information is added to the EIR, per CEQA Guidelines section 15088.5. Other than stating an opinion that the information in Section 4.5, "Geology, Soils, and Mineral Resources," is of "scoping level," the commenter does not state why or provide evidence to support that recirculation is required. No additional response is necessary, and recirculation of the Draft EIR is not required.

B3-23 The commenter states there is no Seismic Hazard Mapping Act report or independent peer review for the project. The EIR analysis is the result of independent evaluation of the proposed project's impacts to 14 resource areas, including geology, soils, and minerals. The commenter does not assert that the lack of a Seismic Hazard Mapping Act report would make the existing analysis inadequate. It is unclear from the comment what the commenter claims Monterey Park must require; the Draft EIR was prepared by the CPUC and lists local permitting requirements in Table 2-11. Seismic Hazard Zone Reports generated by the California Geological Survey (CGS) per the Seismic Hazard Mapping Act were utilized to identify impacts in section 4.5, "Geology, Soils, and Mineral Resources."

CEQA Guidelines section 15088 requires that the Lead Agency respond to comments on environmental issues. The codes referred to by the commenter are presumed to be those in comment B3-23a. The codes attached by the commenter are noted; however, as the commenter did not raise an issue with the environmental analysis in the Draft EIR in relation to the codes, the codes are not evidence that the analysis in the Draft EIR is insufficient, and no further response is required.

B3-23a Refer to the response to comment B3-23.

B3-24 The commenter claims there is no fault rupture site at the proposed project site but that there is fault rupture hazard at transmission lines associated with another project.

CEQA Guidelines section 15088 requires that the Lead Agency respond to comments on environmental issues of the proposed project. The commenter does not raise any issues with the environmental analysis in the EIR for the proposed project; therefore, no further response is required.

B3-25 The commenter asserts that movement of leachate from an adjacent superfund site must be investigated. However, the Draft EIR already discusses potential leachate from the nearby Operating Industries, Inc. Superfund site south of Mesa Substation in Section 4.7.1.1, "Hazardous Materials Sites" and considered under Impact HZ-2. A groundwater contamination plume from adjacent landfill is known to underlie the Mesa Substation. The depth to groundwater ranges from 40 to 80 feet below ground surface (bgs). During construction, most excavation would be shallow; however, drilling for tower footings would be up to 60 feet bgs. This activity could encounter contaminated groundwater. If not properly disposed of, this would be a significant impact. MM HY-2 outlines requirements for the proper disposal of contaminated groundwater. With the implementation of MM HY-2, impacts would be less than significant.

B3-26 The commenter asserts that various information must be included or that additional investigations must be conducted regarding faults, fault characteristics, and seismic effects. The commenter asserts that Table 4.5-3 must be revised, that the Draft EIR has no indication of the source of the data in the table, and provides information about faults in the area.

The sources for Table 4.5-3 are listed below the table. Information regarding faults listed in Table 4.5-3 came from the CGS's Probabilistic Seismic Hazard Analysis—a state and national standard model for calculating fault characteristics. The CPUC disagrees with the commenter's suggestion that this information is not correct.

The commenter suggests that the Elsinore, East Montebello, and Whittier Faults are the same fault but does not provide a reference to support the contention. While there are different naming conventions for the various faults, the Draft EIR used the mapping extent and naming conventions used by the USGS. While faults and the extent of faults are frequently named differently, the mapping and naming conventions used in the Draft EIR are those considered to be the most authoritative and therefore are adequate for use in the Draft EIR.

The commenter suggests that the Draft EIR must consider the effect of Love and Raleigh waves traversing basins along the San Gabriel Mountains, then along the San Gabriel River channel toward the project. This type of seismic modeling and site-specific calculations are not required as part of a Draft EIR, per CEQA. Refer to Master Response 1. The commenter suggests that mapping of faults be revised to include information cited by the commenter but does not provide adequate citations for its sources to enable the CPUC to locate and review. Information regarding the Puente Hills and Upper Elysian Park blind thrust faults was obtained through review of Shaw et al. 2002, and those faults were added to Table 4.5-3. The identification of these faults does not result in a different determination of impacts regarding geological or seismological hazards. Impacts GEO-1 and GEO-2 remain less than significant with

mitigation. Minor changes to Impact GEO-1 were made to reflect the presence of the Puente Fills Blind Thrust Fault.

Page 4.5-9:

Puente Hills Blind Thrust Fault	Projection of fault plane 6-8 miles below Mesa Substation and Telecom Segments 1-3; 9 miles below Goodrich Substation; 2.5 miles below the lattice steel tower replacement on Goodrich-Laguna Bell 220 kV line; and 2 miles below the streetlight source line conversion to underground along Loveland Street.	7.1
San Andreas Fault (Mojave Section)	4 miles northeast of Vincent Substation.	7.4
San Cayetano Fault	4,000 feet southwest of Pardee Substation.	7.2
San Gabriel Fault	2,000 feet northeast of Pardee Substation.	7.2
San Jose Fault	4.8 miles northeast of Walnut Substation.	6.4
Sierra Madre Fault Zone	1.5 miles north northeast of Goodrich Substation in the north area.	7.2
Upper Elysian Park Blind Thrust Fault	2,000 feet north of Mesa Substation and approximately ¾ mile or less below ground	6.4
Whittier Fault	2.7 miles south southwest of Walnut Substation.	6.8

Sources: Cao et al. 2003; USGS 2006; CGS 2003a, 2003b; Shaw et al. 2002

Page 4.5-29:

Therefore, although this Staging Yard would be located within an A-P fault zone on the East Montebello Fault, there would be a less than significant impact associated with the risk of loss, injury or death from the potential rupture of the East Montebello Fault. Additionally, construction of the portion of Telecommunications Route 3 near the Montebello Fault (a potentially active, but not an Alquist-Priolo Fault) would not include grading or trenching activities or new structures. Stringing would occur on existing poles and would result in a less than significant impact under this criterion. The Puente Hills Blind Thrust Fault plane (a fault without surface rupture characteristics) is presumed to be active in one study and located underneath all of the proposed project area and extend for 40 km across the northern LA Basin (Shaw et al 2002). Because this fault is a blind thrust fault, it does not have surficial characteristics and would not be expected to result in surface ruptures. Furthermore, activities at Staging Yard 6 or Telecommunications Route 3 would not exacerbate existing fault rupture conditions.

Page 4.5-9:

Staging Yard 6 would be located within the East Montebello A-P fault zone and the northwestern end of the fault. No other project components would intersect a known active or potentially active fault. The southeast end of Telecommunications Route 1 is located approximately 950 feet southwest of the southeast end of the East Montebello fault zone.

B3-27 The commenter claims that an analysis of critical infrastructure and site-specific investigation or calculations by a seismologist is required and that USGS calculations

are inadequate. CEQA Guidelines section 15064(f) requires that "[t]he decision as to whether a project may have one or more significant effects shall be based on substantial evidence in the record of the lead agency." CEQA Guidelines section 15151 states that the "evaluation of the environmental effects of a proposed project need not be exhaustive. . .". CEQA does not require site-specific investigations regarding critical infrastructure or the consideration of "pulse, directivity, basin depth or Community Velocity Model data" as stated by the commenter. It is assumed that the calculations the commenter refers to as taken from USGS and inadequate are the Maximum Moment Magnitude Earthquake numbers listed in Table 4.5-3. The source for this information is, "The Revised 2002 California Probabilistic Seismic Hazard Maps," by Cao et al., a publication of the CGS. This table was also revised to include information from a paper published in the Bulletin of Seismological Society of America by Shaw et al. in 2002. The Draft EIR utilized the most recent information available from credible state and national resources, including information from the USGS and CGS, and relevant scientific publications to evaluate impacts. Furthermore, the conclusions in the Draft EIR related to seismic shaking impacts are supported by substantial evidence. Refer to Master Response 1 for additional information.

B3-28 The commenter asserts that Figure 4.5-3 omits the Whittier-Elsinore Fault where it crosses in the Whittier Narrows. However, the commenter does not provide enough information about the sources they reference that show alternative fault arrangements. The commenter refers to "Tan 2000" but does not provide additional information about this source. It is assumed that the commenter was referring to Tan, S.S., 2000, Geologic Map of the El Monte 7.5' Quadrangle, Los Angeles County, California, Open File Report 98-29. Review of the Geologic Map of the El Monte 7.5' Quadrangle shows that it does not contain a "Whittier-Elsinore" fault crossing the Whittier Narrows. The map does indicate that some concealed and inferred or approximately located faults may cross the Whittier Narrows. The available version of the CGS Fault Evaluation Report FER-222 does not show a "Whittier-Elsinore" crossing the Whittier Narrows. The City of Rosemead General Plan Figure 5-2 shows the Whittier Fault south of the project area and out of the view of EIR Figure 4.5-3. Review on August 17, 2016, of the most recent version of the USGS Quaternary Fault and Fold Database confirmed that the USGS does not map the Whittier Fault as crossing the Whittier Narrows and maps the East Montebello Fault as shown in the Draft EIR. The Whittier Fault is included in Table 4.5-3 of the Draft EIR and is therefore considered in the Draft EIR; however, no evidence was located to indicate that the Whittier Fault should be included in Figure 4.5-3. Table 4.5-3 includes faults within a broad area surrounding the proposed project and is meant to identify the seismic setting in the area. Figure 4.5-3 presents a more local depiction of faults and shows how far project components are from the nearest known active or potentially active faults. The Draft EIR recognizes that the proposed project is located in a seismically active area and considers all faults listed in Table 4.5-3 in the impact analysis.

Recycled water, storm drains, and sewers are not applicable to the analysis of impacts related to geology, soils, and minerals, nor are they necessary on a map of "Active Faults, Earthquakes, and Alquist-Priolo Fault Zones in the Main and North Project Areas." Please see the Public Services and Utilities and Hydrology and Water Quality chapters for more information on these subjects. No revisions were made to Figure 4.5-3 to show these facilities.

B3-29 The commenter states that the CGS has not mapped all liquefaction areas and that the EIR and Seismic Hazards Mapping Act report must do this and that site-specific subsidence and V_{S30} investigation must be conducted. Figure 4.5-4 shows areas where there is liquefaction potential, as determined by the CGS. This information is widely accepted for characterizing geologic conditions and covers all of the proposed project area, and the CPUC has no evidence that the information is inaccurate to characterize liquefaction risk. Information regarding subsidence was obtained from county and city general plans. The city and county general plans covering areas of proposed ground disturbance indicate that subsidence is not a significant hazard to the proposed project. Conclusions are supported by substantial evidence outlined under each impact discussion, and no further investigation is required. Refer to Master Response 1 regarding additional investigation. The following corrections regarding the source of information concerning liquefaction potential was made:

Page 4.5-13:

The only project components involving ground disturbance that would be located in an area of significant liquefaction potential are the fiber optic cable that would be installed in new underground conduit at the southeastern terminus of Telecommunications Route 3 within the Whittier Narrows Natural Area, and underground conduit proposed at the existing Walnut and Pardee Substations (City of Industry; City of Santa Clarita 2011; CGS 1998~~USGS 2001~~). All other project components are located outside areas of significant liquefaction potential (~~USGS 2001~~CGS 1998). The following reference was added to Chapter 9.0, "References."

Page 9-14:

CGS (California Geological Survey). 1998. Seismic Hazard Zone Report for the El Monte 7.5 Minute Quadrangle, Los Angeles County, California. http://gmw.consrv.ca.gov/shmp/download/quad/EL_MONTE/reports/elmo_eval.pdf. Accessed September 8, 2016.

____. 1999. Peak Ground Acceleration, 10% Probability of Being Exceeded in 50 Years, Map Sheet 48. http://www.consrv.ca.gov/cgs/rghm/psha/Pages/pga.aspx. Accessed July 23, 2015.

B3-30 The commenter states that core samples from wells and down hole logging should be analyzed. The commenter does not state what the core samples should be analyzed for and for what impact analysis this information should be utilized. The CPUC asserts that the Draft EIR's analysis of oil fields and oil and gas wells in the proposed project area is adequate. Therefore, no changes are made to the Draft EIR and no further response can be provided.

B3-31 The 1997 Uniform Building Code is no longer updated and has been superseded by the International Building Code as a national model. The California Building Code is described on page 4.5-23. The California Building Code incorporates recommendations from three sets of standards, including the national model code (i.e., International Building Code). Therefore, the 1997 Uniform Building Code has been removed from the

regulatory setting. The California Building Standards Commission adopted the latest Code on January 19 and 20, 2016, but it will not become effective until January 1, 2017. The EIR has been revised to reflect this pending update.

Page 4.5-19:

~~**1997 Uniform Building Code**~~

~~The 1997 Uniform Building Code (UBC) specifies acceptable design criteria for structures with respect to seismic design and load-bearing capacity. Seismic Risk Zones have been developed based on the known distribution of historic earthquake events and frequency of earthquakes in a given area. These zones are generally classified on a scale from I (lowest hazard) to IV (highest hazard). These values are used to determine the strengths of various components of a building required to resist earthquake damage. Based on the UBC Seismic Zone Maps of the United States, and because of the number of active faults in southern California, the proposed project would be located in the highest seismic risk zone defined by the UBC standard: UBC Zone IV. The state has adopted these provisions in the California Building Code (CBC).~~

Page 4.5-23:

California Building Code

The 2013 CBC was adopted by the California Building Standards Commission and became effective January 1, 2014. The California Building Standards Commission adopted a newer version of the CBC in January 2016, which will become effective January 1, 2017. The CBC is contained in Title 24 of the California Code of Regulations, California Building Standards Code and is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes.
- Building standards that have been adopted and adapted from the national model code standards to meet California conditions.
- Building standards authorized by the California legislature that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.

B3-31a Refer to the response to comment B3-31.

B3-32 The comments regarding the Earthquake Hazards Reduction Act, Seismic Hazards Mapping Act, and Los Angeles County amendments to the California Building Code are noted. The commenter states they have attached links to certain guidelines; these are presumed to be contained in comment B3-33a. Draft EIR Section 4.5.2, "Regulatory Setting" describes the regulatory setting for geology, soils, and mineral resources. As stated in the Draft EIR, the California Building Code would be applicable to the proposed project and SCE would comply with the applicable provisions of the code. Refer also to response to comment B3-34 regarding Los Angeles County building

standards. CEQA Guidelines section 15088 requires that the Lead Agency respond to comments on environmental issues. The commenter does not raise any issues with the adequacy of the environmental analysis in the Draft EIR. Therefore, no further response is required.

B3-32a Refer to the response to comment B3-32 regarding codes and standards. The commenter also provides numerous links and citations to regulations, guidance for seismic analysis, and various other geotechnical references. These citations and references are included in the administrative record for consideration by the decision makers. Please note that Lead Agencies are not required to respond to general reference materials or comments that are not directly relevant to the project (*Environmental Protection Information Center v. Dept. of Forestry & Fire Protection* (2008) 44 Ca.4th 459, 483, 487).

B3-33 The commenter refers to Los Angeles County Municipal Code and other documents. The CPUC again reviewed the Los Angeles County Code of Ordinances (incorrectly referred to as the LA County Municipal Code in the Draft EIR). The Code of Ordinances contains ordinances regarding building standards related to geology in the County (LA County Building Ordinance), geotechnical and engineering geology reports required for grading permits, and standards in special use zones such as Hillside Management Areas. These standards would not apply to the proposed project because (1) no buildings or structures are being constructed within Los Angeles County and (2) the undergrounding of telecommunications features that is planned on the eastern portions of Telecommunications Routes 1 and 3 would not require a grading permit from the County (work would largely utilize existing manholes and conduit and, where necessary, grading would be isolated, in a self-contained area, and would not adversely affect adjoining properties of public rights of way [therefore not requiring a grading permit]). As stated on page 4.5-24 of the Draft EIR: "[a] review of the Los Angeles County Municipal Code did not identify any municipal code sections relevant to minerals, geology, and soils and the proposed project." CEQA Guidelines section 15088 requires that the Lead Agency respond to comments on environmental issues. The commenter does not identify an issue with the adequacy of the environmental analysis in the Draft EIR; therefore, no further response is required.

B3-34 The proposed project does not have a "segment 11." As it is unclear what the commenter is referring to, no further response can be provided.

The CPUC reviewed the City of Rosemead General Plan. The General Plan is consistent with the information provided in Section 4.5.3.3, "Environmental Impacts" of the draft EIR, which states that the only proposed project component within an A-P zone is Staging Yard 6. Neither the transmission line nor telecommunications lines would be in an A-P zone. No revisions to the Draft EIR are required.

B3-35 The commenter states that the analysis of significance criteria a)ii and a)iii must be redone and recirculated. Discussions of significance criteria a)ii and a)iii are provided under Impact GEO-2 and Impact GEO-3, respectively. The conclusions are supported by substantial evidence, as required under CEQA. The commenter provides no specific details or evidence to support the claim that the analysis is inadequate; therefore, no additional response can be provided.

The commenter states that significance criterion b) must be addressed. This significance criterion is addressed under Impact GEO-5. The commenter has not raised any issues with the analysis contained in Impact GEO-5; therefore, no additional response can be provided. The commenter states that topsoil must be banked and reused. CEQA Guidelines section 15126.4(a)(1) requires that an EIR contain mitigation measures to minimize significant impacts. Impact GEO-5 concludes that soil erosion during construction would be significant. MM HY-1 outlines measures to implement during construction to reduce impacts to less than significant. The CPUC does not have evidence to show that topsoil banking and reuse is necessary to reduce the impact to less than significant; therefore, no further response is required.

The commenter states that for significance criterion c) the basin under the project area must be analyzed for strong seismic ground shaking. The Draft EIR analyzed this in Impact GEO-6 and found that impacts would be less than significant with implementation of MM GEO-1, which "would reduce significant impacts associated with the potential for the proposed project to be located on a geologic unit or soil that is unstable, or would become unstable as a result of the proposed project."

Refer to Master Response 1 for additional information.

B3-36 The commenter claims that analyses in Impacts GEO-1, GEO-2, GEO-3, and GEO-6 are "premature" and not supported by the investigation and report. However, the commenter does not explain why they believe the analyses are premature. The conclusions in the Draft EIR are supported by substantial evidence. Refer to Master Response 1 for additional information.

B3-37 CEQA Guidelines section 15126.4(a)(1) requires that an EIR contain mitigation measures to minimize significant impacts. Impact GEO-5 concludes that soil erosion during construction would be significant. With implementation of MM HY-1, which outlines measures to implement during construction, impacts would be less than significant. Because MM HY-1 would reduce impacts to less than significant, and it is not clear how soil banking and reuse are necessary to reduce impacts to less than significant, no further response is required.

B3-38 The commenter claims that the geotechnical report required under MM GEO-1 should be included as part of the Draft EIR and that the Draft EIR should be recirculated. There is no requirement under CEQA to include a geotechnical report in an EIR. Recirculation is required when significant new information is added to the EIR, per CEQA Guidelines section 15088.5. No new information has been added to the EIR as a result of this comment; therefore, recirculation is not required.

The commenter claims that the Draft EIR is of "scoping level" and does not provide enough information for decision makers. The CPUC disagrees and asserts that the commenter does not specify what information is missing.

Additionally, the Court of Appeal specifically upheld this approach in *Oakland Heritage Alliance v. City of Oakland* (2011) 195 Cal.App.4th 884. The City of Oakland provided detailed mitigation measures calling for a geotechnical investigation to be conducted

after completion of the Draft EIR, but before issuance of any building permits for the proposed project. The Court found that the mitigation measures were adequate and that they did not improperly defer mitigation.

No revisions were made to the Draft EIR, and no additional response can be provided.

B3-39 The commenter states that permitting agencies and the public must be provided with project documentation.

CEQA section 15087 outlines notification requirements to the public for publication of a Draft EIR. As described in section 15087(a), the Lead Agency must provide public notice of availability of a draft EIR at the same time a notice of completion is sent to the Office of Planning and Research (OPR). Notice must be mailed to persons requesting such notice in writing and shall also be provided in at least one of the following ways:

- Publication at least one time in a newspaper of general circulation in the area affected by the proposed project. If more than one area is affected, the notice shall be published in the newspaper of largest circulation from among the newspapers of general circulation in those areas.
- Posting of notice by the public agency on and off the site in an area where the project is to be located.
- Direct mailing to the owners and occupants of property contiguous to the parcel or parcels on which the project is located.

The CPUC submitted the Notice of Completion to the OPR, which the OPR received on April 28, 2016. The CPUC also posted a notice in the Los Angeles Times on April 29, 2016, as the newspaper of largest circulation from among newspapers of general circulation in the affected areas. The Notice of Availability (NOA) was distributed to 63 state, regional, and local agencies and to more 4,770 members of the public, including property owners within 500 feet (not 200 feet) of the existing and proposed right-of-way and substations and within 1,500 feet of the proposed disturbance areas associated with work at the Mesa Substation. Eight tribal representatives were also sent a copy of the NOA. Recipients on the project email list were emailed a copy of the NOA. The noticing conducted for the Draft EIR complied with and went beyond the noticing requirements outlined in CEQA.

B3-40 The commenter provides various assertions about faults and seismic analysis, as well as suggestions for seismic or geologic investigation. Refer to Master Response 1 for a detailed response. Please also note, however, that "CEQA does not require a lead agency to conduct every test or perform all research, study and experimentation recommended or demanded by commenters" (CEQA Guidelines section 15204).

The commenter is requesting that the "critical periods" of structures and substation components be shown, but it is unclear what information the commenter seeks. All components and construction phases of the proposed project are identified in Draft EIR Chapter 2, "Project Description." Section 4.5, "Geology, Soils, and Mineral Resources" discusses the impacts associated with the construction and operation of all components of the proposed project. The commenter makes several claims stating that

specific ground motions must be calculated and compared with structural characteristics. However, there is no requirement under CEQA to include the characteristics described by the commenter. Refer to Master Response 1 for additional details.

B3-41 The commenter asserts that the water system used for firefighting must be analyzed as part of the Draft EIR. However, impacts to fire protection services were analyzed in Section 4.12, "Public Services and Utilities" and were found to be less than significant. No further analysis is necessary.

B3-42 The commenter suggests that additional study is necessary regarding seismic impacts on towers. CEQA Guidelines section 15064(f) requires that "[t]he decision as to whether a project may have one or more significant effects shall be based on substantial evidence in the record of the lead agency." The CEQA Guidelines state that the "evaluation of the environmental effects of a proposed project need not be exhaustive" and "does not require a lead agency to conduct every test or perform all research, study and experimentation recommended or demanded by commenters" (CEQA Guidelines sections 15151, 15204). Seismic impacts related to towers are discussed under Impact GEO-2. Impact GEO-2 determined that despite the proposed project area being located within a seismically active area, impacts would be less than significant because structures would be designed according to California Building Code, CPUC G.O. 95 and G.O. 128 standards, and recommendations from a site-specific geotechnical study required by MM GEO-1. CPUC G.O. 95 requires that overhead line construction be capable of withstanding wind, temperature, and wire tension loads. The conclusions in the EIR are supported by substantial evidence in the record, and no changes were made to the EIR in response to this comment.

The proposed project does not have a segment 7 or segment 8; therefore, it is unclear what the commenter is referring to and no further response can be provided.

B3-43 The commenter suggests that additional study is necessary regarding seismic impacts. Refer to Master Response 1. Please also note, however, that "CEQA does not require a lead agency to conduct every test or perform all research, study and experimentation recommended or demanded by commenters" (CEQA Guidelines section 15204).

The commenter asserts that Dr. Syndor does not "like" the term critical infrastructure and that the Draft EIR needs to be updated. However, Section 4.5, "Geology, Soils, and Mineral Resources" does not use the term "critical infrastructure," so it is unclear what the commenter would like revised. Additionally, the CPUC describes the current regulatory setting in the Draft EIR. With the exception of the 1997 Uniform Building Code, which will be updated in the Final EIR, all of the regulations are current. CEQA Guidelines section 15088 requires that the Lead Agency respond to comments on environmental issues. The commenter does not raise an issue with the environmental analysis; therefore, no further response is required.

The commenter asserts that various structural characteristics of project components that may be affected by seismic shaking need to be analyzed in the EIR, including tunnels, generators, or tanks. Note that the proposed project does not include tunnels, generators, or tanks. Refer to Master Response 1 regarding analysis of seismic impacts

in the EIR.

B3-44 The commenter states the 2014 National Earthquake Hazards Reduction Program (NEHRP) Recommended Seismic Provisions for New Buildings and Other Structures in draft form are considered current standards of professional practice, describes the intent of the provisions, and states that important equipment must be shown to be functional after being shaken. These statements about NEHRP provisions are noted and are part of the administrative record for consideration by the decision makers. Please also note, however, that Lead Agencies are not required to respond to general reference materials or comments that are not directly relevant to the project (*Environmental Protection Information Center v. Dept. of Forestry & Fire Protection* (2008) 44 Ca.4th 459, 483, 487).

Impacts from strong seismic ground shaking are evaluated under Impact GEO-2. It was determined that the proposed project could experience moderate to high levels of earthquake-induced ground shaking, but that the proposed project would not exacerbate existing conditions. CEQA does not require an analysis of the potentially significant impacts of locating development in an area susceptible to hazards unless the project somehow exacerbates those existing hazards (*California Building Industry Assoc. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369, 388). In fact, the Supreme Court has invalidated the provisions of the CEQA Guidelines directing agencies to evaluate how existing conditions, including existing seismic hazards, could affect a project's future users (*Id.* at 389–390). Draft EIR Section 4.5, "Geology, Soils, and Mineral Resources" sufficiently discusses the environmental hazards related to geology and soils and whether the project exacerbates existing seismic and geological conditions on the project site. Thus, no further discussion needs to be added.

Additionally, the proposed project would be built in accordance with CPUC G.O. 95 and 128 and California Building Codes, all of which establish standards to ensure that structures can withstand ground shaking. Impacts were determined to remain significant; however, they would be reduced to less than significant with the implementation of MM GEO-1. MM GEO-1 requires that a location-specific seismic analysis be conducted and recommendations from the geotechnical study incorporated into the final project design.

B3-45 The commenter states that structures with hazardous contents or critical occupancy are assigned higher Occupancy Categories and describes parameters of a particular model. However, it is difficult to determine whether the commenter is quoting language from these sources or making suggestions about how the project should be analyzed in Draft EIR Section 4.5, "Geology, Soils, and Mineral Resources." The commenter's statements are noted and are included in the administrative record for consideration by the decision makers. The commenter does not identify any issues with the environmental analysis in the EIR; therefore, no further response is required. Please also note that Lead Agencies are not required to respond to general reference materials or comments that are not directly relevant to the project (*Environmental Protection Information Center v. Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 483, 487). CEQA also "does not require a lead agency to conduct every test or perform all research, study and experimentation recommended or demanded by commenters" (CEQA Guidelines section 15204).

B3-46 The commenter asserts that various structural characteristics and maps related to seismic design and geological effects must be provided or created. Refer to Master Response 1 for additional details and response to comment B3-56 regarding the clarity of the commenter's statements and an agency's duty to respond.

B3-47 The commenter asserts that performance goals related to geological events and collapse need to be stated in the EIR and considered as a function of Risk Category. Refer to Master Response 1 for additional details and response to comment B3-56 regarding the clarity of the commenter's statements and an agency's duty to respond.

B3-48 The commenter explains how target spectrum is determined and states that the period of vibration of structures must be stated in the EIR. The commenter also claims that modeling of seismological events needs to occur and describes specific aspects of models. Refer to Master Response 1 for additional details and response to comment B3-56 regarding the clarity of the commenter's statements and an agency's duty to respond.

B3-49 The commenter states that liquefaction and other site considerations need to be re-evaluated considering different seismological events. Refer to Master Response 1 for additional details and response to comment B3-56 regarding clarity of the commenter's statements and an agency's duty to respond.

B3-50 The commenter states that models that analyze structure foundations and the soil interface need to be used to assess impacts. The commenter also describes vertical and horizontal ground motions. The commenter refers to seismic design standards. Refer to Master Response 1 for additional details and response to comment B3-56 regarding the clarity of the commenter's statements and an agency's duty to respond.

B3-51 These comments contained fragments, incomplete sentences, and citations to sources of information, making it difficult to ascertain their meaning. However, the commenter appears to provide various information on:

- Ground motion simulations;
- Three-dimensional modeling of ground motion in the Los Angeles area;
- Blind-thrust faults in the central Los Angeles basin and other faults in Southern California; and
- Ground motion in the Whittier Narrows and probabilistic seismic hazard assessment.

The commenter's statements are noted and are part of the administrative record for consideration by the decision makers. The commenter does not identify an issue with the existing analysis or describe how the information is to be used or considered.

Additionally, please note that Lead Agencies are not required to respond to general reference materials or comments that are not directly relevant to a project. (*Environmental Protection Information Center v. Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 483, 487). CEQA also "does not require a lead agency to conduct

every test or perform all research, study and experimentation recommended or demanded by commenters" (CEQA Guidelines section 15204). Therefore, no further response is necessary.

B3-52 The commenter includes information regarding the Puente Hills blind thrust fault. The Puente Hills blind thrust fault was added to the list of potentially active faults in Table 4.5-3, as described in response to comment B3-26. This comment is noted and included in the administrative record. The commenter does not identify an issue with the existing analysis; therefore, no further response is necessary.

B3-53 The commenter provides citations and some excerpts from scientific research that discuss simulating ground motion. These comments are noted and included in the administrative record for consideration by the decision makers. The commenter does not identify an issue with the existing analysis or suggest how this information should be used or considered; therefore, no further response is required.

Additionally, please note that Lead Agencies are not required to respond to general reference materials or comments that are not directly relevant to a project (*Environmental Protection Information Center v. Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 483, 487). CEQA also "does not require a lead agency to conduct every test or perform all research, study and experimentation recommended or demanded by commenters" (CEQA Guidelines section 15204).

The commenter refers to a report figure that shows the Montebello thrust fault. This fault is not mapped by the USGS or on the 2010 fault activity map of California; however, similarly to the Puente Hills Thrust and Upper Elysian Park Blind Thrust, this fault is presumed to be located below the ground and has no surface characteristics because it is a blind thrust fault. The following addition to Table 4.5-3 was made to the Draft EIR:

Page 4.5-9:

Elsinore Fault Zone (Whittier Section)	4 miles southeast of the proposed Mesa Substation site area and 2 miles south of Telecommunications Route 3.	6.8
East Montebello Fault	950 feet north northeast of the east end of Telecommunications Route 1 and crossing Staging Yard 6.	Not available
<u>Montebello Fault</u>	<u>Approximately 2.5 miles below the surface next to a portion of Telecommunications Route 3.</u>	<u>Not available</u>
Newport-Inglewood-Rose Canyon Fault Zone (North Los Angeles Basin Section)	7.9 miles southwest of the distribution street light source line conversion on Loveland Street project component in the South Area.	7.1
Raymond Fault	1.3 miles south southeast of the Goodrich Substation in the North Area.	6.5

While this fault was added to the table of active or potentially active faults, the existing analysis of impacts from fault rupture (Impact GEO-1) and seismic ground shaking (Impact GEO-2) were not changed. The Montebello Fault is not known or expected to cause surface ruptures and is not a designated Alquist-Priolo Fault; therefore, it is not discussed under Impact GEO-1. Impact GEO-2 takes into account the general seismicity of the area and concludes that significant ground shaking could occur and that impacts would be significant. While the Montebello Fault may be a source of such ground shaking, it would not change the significance finding or need for mitigation under this criterion.

B3-54 The commenter states an opinion that "any purported liquefaction study is inadequate." The commenter does not specifically claim the analysis in the Draft EIR is inadequate. Potential hazards from liquefaction were analyzed under Impact GEO-6. Information from the CGS was used to identify areas of liquefaction potential. This information is widely accepted for characterizing geologic conditions and covers all of the proposed project area. Impacts from liquefaction were determined to be a significant impact but reduced to less than significant with the implementation MM GEO-1, which requires that a site-specific geotechnical investigation be conducted and recommendations to reduce geologic impacts, including from liquefaction, be incorporated into final project design. The conclusions of the Draft EIR are adequately supported under CEQA. Refer to Master Response 1 for additional information regarding the adequacy of the analysis.

The commenter references Directive GS045.0, which is contained within the County of Los Angeles Department of Public Works Manual for Preparation of Geotechnical Reports. The cited directive is for single-family residential development; therefore, even if the Manual was applicable to the proposed project (see response to comment B3-1), the Directive would not apply because the proposed project does not involve single-family residential development. The commenter asserts that a section 111 statement is required. It is presumed the commenter is referring to County of Los Angeles Building Code Section 111, which is part of the Los Angeles County Code of Ordinances. Refer to response to comment B3-34 regarding applicability of the Los Angeles County Code of Ordinances to the proposed project.

B3-55 Refer to the response to comment B3-1 regarding geotechnical reports. Refer to the response to comment B3-2 regarding ASCE 7. Refer to response to comment B3-32 regarding the updates to the California Building Code.

B3-56 The commenter references GS047.0, which is an appendix to the County of Los Angeles Department of Public Works Manual for Preparation of Geotechnical Reports. See response to comment B3-1 regarding applicability of the County of Los Angeles Department of Public Works Manual for Preparation of Geotechnical Reports to the proposed project.

The commenter also refers to CGS guidelines for reviewing geologic reports, a CGS website about the Alquist-Priolo Act, and a publication about fault rupture hazard zones, but does not state what the CPUC should do with this information. The commenter also provides an excerpt of California Public Resources Code section 2623(a), which applies to approval of projects by a city or a county. Note that lead

agencies are not required to respond to general reference materials or comments that are not directly relevant to the project (*Environmental Protection Information Center v. Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 483, 487). Therefore, no further response is required.

B3-57 The commenter's statement of the opinion that the possibility of surface fault rupture is low is noted and added to the administrative record for consideration by the decision makers. Fault rupture impacts are discussed under Impact GEO-1. The analysis for Impact GEO-1 determined that, although Staging Yard 6 lies within an Alquist-Priolo Fault Zone, the absence of trenching, grading at depth, and permanent structures would result in a less than significant impact associated with the risk of loss, injury, or death from a fault rupture. Construction of the portion of Telecommunications Route 3 near the Montebello Fault would not include grading or trenching activities or new structures. Stringing would occur on existing poles and would result in a less than significant impact under this criterion. The commenter does not raise a specific issue with the environmental analysis; therefore, no additional response can be provided.