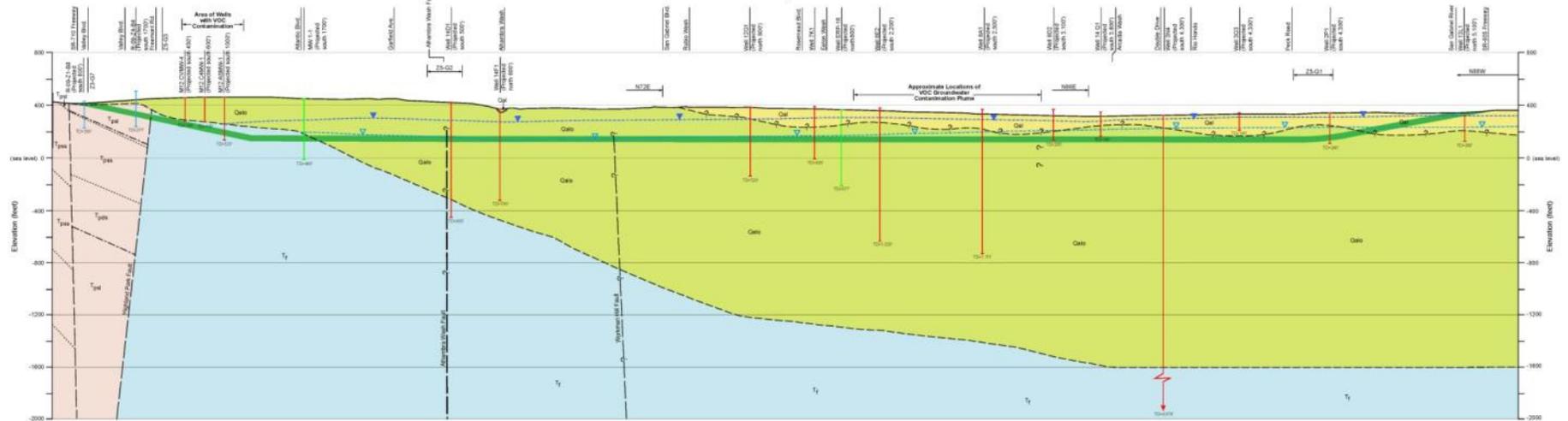


Representative Geologic Cross Section for Zone 5

Representative Geologic Cross Section for Zone 5



- Data Sources:**
- CCMG (1996a)
 - CCMG (1996b)
 - CCMG (1996c)
 - CDWR (1998)
 - CHM HILL (2002)
 - CHM HILL (2008)
 - CHM HILL (2009a)
 - Clawson (1986)
 - Dobson (1983a)
 - Lamar (1970)
 - MSGW (2008)
 - Morton and Miller (2002)
 - Yeats (2004)
 - Tan (2000a)
 - Tan (2000b)
 - Yeates and Campbell (2005)

- UNITS (from Lamar, 1970)**
- Quaternary Deposits**
- Qal** Alluvium: silt, sand and gravel
 - Qalo** Old Alluvium: sil, sand and gravel forming dissected alluvial plain and alluvial terrace deposits
- Fernando Formation (Pliocene; Undifferentiated)**
- Tf** Siltstone, sandstone, and conglomerate

- Puente Formation (Late Miocene)**
- Tpsl** Siltstone: well bedded, light brown and light gray
 - Tpsb** Shale: well bedded, light gray, siliceous
 - Tpsd** Diatomaceous Shale: chunky, dull white
 - Tpsa** Sandstone: well bedded, medium to coarse-grained, light brown to gray

- EXPLANATION**
- SYMBOLS (All locations are approximate)**
- Anticipated Tunnel Alignment
 - Historically Highest Groundwater Level (CCMG, 1996a, 1996b, 1996c)
 - 2008 Groundwater Level (MSGW 2008)
 - Inactive Fault
 - Active Fault
 - Geologic Contact, queried where uncertain
 - R-49-24-84 Continuous Core Boring (CHM HILL, this study)
 - CRP-16 CHM HILL (2001, 2006, 2008b) and USEPA (2008)
 - 1401 Water Production Well (CDWR, 1998)
 - TS-02 Seismic Reflector Line (CHM HILL, this study)

DRAFT
EXHIBIT E
Representative Geologic
Cross Section for Zone 5
SFR 710 Tunnel Technical Study
Los Angeles County California
CH2MHILL



Zone 5 (to I-605)

- Mostly alluvium with some Fernando and Puente Formation rock near south end
 - Alluvium may contain cobbles and boulders
 - Fernando Formation: mudstone
 - Puente Formation: sandstone, siltstone, and mudstone
- Alhambra Wash Fault is considered active and projects to zone
- Potential for high groundwater inflows in alluvium
- Potential for weak cohesionless soils
- Groundwater levels not uniform across the zone
- Aquitards exist throughout zone
- Groundwater contamination plume at western and south central portion
- Perennial Rio Hondo and San Gabriel Rivers and recharge lakes at eastern portion



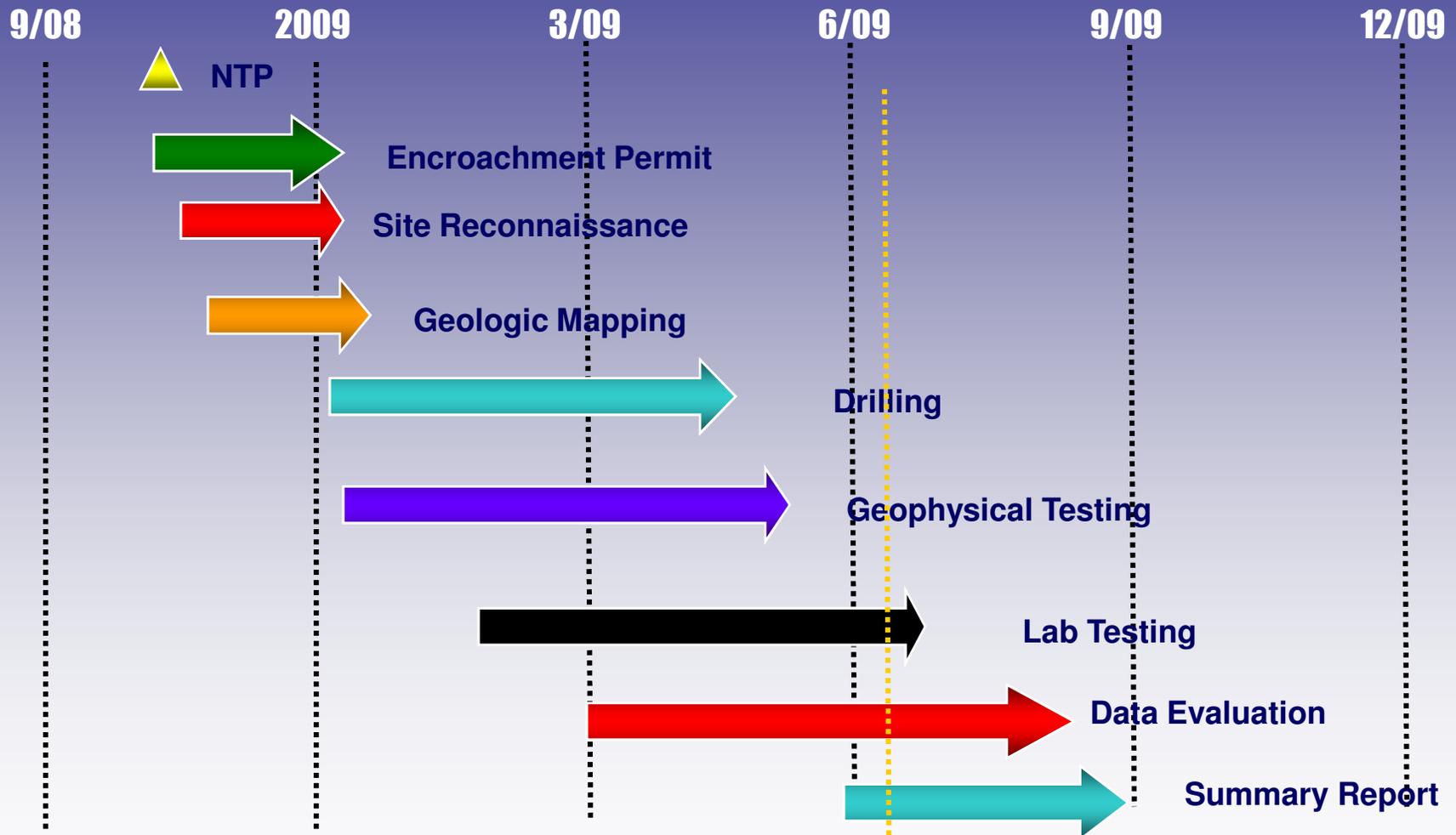
Metro

40

Summary of Findings

Zone	Predominant Geologic Formation(s)	No. of Geologic Formations	% of Geological Formation	No. of Reported / Mapped Faults	No. of Active Faults	Potential for Gas ¹	% Superfund Sites
1	Puente Alluvium	2	90 10	5	0	H	5 to 10
2	Puente Topanga Alluvium	3	80 15 5	7	1 (NW Portal)	M	0
3	Topanga Alluvium Puente Fernando Diorite	5	45 20 15 15 5	7	1	L	0
4	Alluvium Fernando Puente	3	75 15 10	5	2	L	5 to 20
5	Alluvium Fernando Puente	3	80 15 5	3	1	L	5 to 50

Project Schedule



Future Study Activities

- Continue to evaluate data
- Begin comparison of the sub-surface conditions between zones
- Begin preparation of summary report
- Submit report to Caltrans and Metro



Question and Answer



Outreach Overview

- **Field Outreach – over 2,000 contacts**
- **Website Hits- 3,700 visits**
- **Emails- database of 450 emails**
- **Office Visits – over 40 visitors**
- **Calls – over 50 calls**
- **Briefings – 22 Federal, State and local Elected officials**
- **Presentations – 14 Stakeholder Groups**
- **Community Meetings- 8**



Community Meetings

Attendee Total: 640+

- February 25th South Pasadena
- March 26th El Sereno
- April 28th Pasadena
- May 26th La Cañada Flintridge
- May 27th Glendale
- May 28th Monterey Park
- June 2nd San Marino
- June 4th Alhambra
- June 16th Northeast Los Angeles



Community Meetings

El Sereno Community Meeting



Community Meetings

Pasadena Community Meeting



South Pasadena

- **Cost benefit of the Study**
- **Why a tunnel?**
- **Traffic Studies that support tunnel option**
- **Increased traffic through neighborhoods**
- **Impacts to neighborhoods near tunnel portals**



El Sereno

- Impact to homes along tunnel route
- When will EIR start?
- Cost of the current Study
- Purpose of testing in all 5 Zones
- Traffic studies that support tunnel option
- Health concerns with existing traffic congestion



Pasadena

- Selection of testing sites
- Noise and vibration during tunnel construction
- Tunnel design and ventilation stacks
- EIR process
- Fate of Caltrans owned properties



La Canada Flintridge

- Increased truck traffic on I-210, SR-2, and SR-134
- Potential impacts to air quality
- Emphasis of using rail for goods movement
- Concerned with narrow focus of Study



Glendale

- **Cost of EIR document**
- **Will summary report make route recommendations**
- **Estimated time for tunnel construction**
- **Increase in traffic on I-210 and SR-2**



Monterey Park

- Location of Southern tunnel portal
- Input from other cities
- Why are we studying extending SR-710 to SR-2, I-5 and I-605?
- Cost of tunnel if privately funded



San Marino

- **Location of portals**
- **Will cost benefit be used as a screening criteria**
- **Reconfiguring current freeway interchanges**
- **What are the best soil conditions for tunneling?**



Alhambra

- **Soil conditions at end of SR-710**
- **Why was testing only conducted north of I-10**
- **Impact of portal location on community**
- **Vibrations during tunnel construction and operation**
- **Why are we studying in Zones 4 and 5**



Northeast Los Angeles

- Funding for construction
- Why connect SR-710?
- Will public vote on this project?
- Tunnel design options
- Traffic studies that support tunnel option



Emerging Themes

- **Geotechnical**
 - How will geology within zones influence tunnel design
- **Environmental**
 - Potential impacts that can only be addressed during an EIR
- **Tunneling and Technology**
 - How safety will be ensured
 - Potential issues that can be only addressed during an EIR



Emerging Themes

- **Cost and Funding**
 - **Cost of current Study**
 - **Cost of potential tunnel project**
 - **Availability of future funding**
- **Study Outcome**
 - **Study should tell us which of the zones present the optimal geotechnical conditions for tunneling**
 - **Strong interest in more information**



Technical Advisory Committee Input 6-9-09

- Real time application of geologic conditions for tunneling in each zone
- Data presented in terms we can understand
- Unbiased facts so we can come to our own conclusions
- What does it all mean? Geotechnical implications for tunneling
- Glossary of Terms



BREAK



Next Steps

- **Additional Analyses**
 - **Traffic Evaluation**
 - **Tunnel Configuration**
 - **Tunnel System Evaluation (Fire-Life-Safety)**
 - **Air Quality Study**
 - **Noise Study**
 - **Portal Impacts**
 - **Miscellaneous Impacts**
 - **Cost Considerations**



Wrap-Up

- Continued feedback on Study scope and progress
- Topics for Next Meeting
 - Draft Geotechnical Study Report
 - Preliminary Findings of Additional Analysis
- Future Meeting Schedule
- September/October 2009



See You Next Meeting!

