REPORT

DATE: June 18, 2015

TO: SGVCOG Governing Board Delegates and Alternates

FROM: Francis M. Delach, Executive Director

RE: 710 NORTH DRAFT EIR-EIS

RECOMMENDED ACTION

Provide direction to staff regarding submittal of comments to Metro/Caltrans regarding the SR-710 North Draft EIR-EIS.

BACKGROUND

On March 6, 2015, the California Department of Transportation (Caltrans) and the Los Angeles County Metropolitan Transportation Authority (Metro) released a Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) on proposals regarding the 4.5 mile gap between the I-210 Freeway in Pasadena and the end of the I-710 freeway in East Los Angeles. The five alternatives proposed in the Draft EIR/EIS are:

- No Build option that would leave conditions as they are
- A traffic management system to upgrade and synchronize signal and improvements to local street intersections to more quickly move traffic that exits the dead end freeway
- A rapid bus line featuring high frequency service with minimal stops and potentially a dedicated bus lane
- Light rail to carry passengers between East Los Angeles and Pasadena, and
- A freeway tunnel that would extend the SR-710

Attachment A provides a summary of the major findings from the EIR. All of the documents related to the EIR, including the technical appendices, can be accessed here: http://www.dot.ca.gov/dist07/resources/envdocs/docs/710study/draft_eir-eis/. Public comments are due to Caltrans by July 6, 2015.

BEYOND THE 710 ALTNERATIVE

Beyond the 710 is a coalition of cities and community groups that support an alternative to closing the 710 gap via a freeway tunnel. Member agencies include the cities of Glendale, La Cañada Flintridge, Pasadena, Sierra Madre, South Pasadena, the Natural Resources Defense Council, the National Trust for Historic Preservation and No 710 Action Committee. In May 2015, the group released a report outlining an alternative strategy for addressing the traffic congestion in the region. This proposal includes a combination of transit improvements, active transportation investments, and demand management strategies. **This proposal was not an alternative that was evaluated as a part of the 710 Draft EIR/EIS and is being included for information only.** Attachment B provides a copy of this report.

SGVCOG POSITION

Closure of the 710 gap has been one of the SGVCOG's transportation priorities since its formation in 1994. Attachment C provides a copy of the SGVCOG's most recently adopted priority project list, which was adopted in January 2013. Prior iterations of the priority list had specifically identified the project as a freeway and/or tunnel. However, modifications were made during the most recent approval to use mode-neutral terminology.

ATTACHMENTS

Attachment A – 710 EIR/EIS Project Summary
Attachment B – Beyond the 710 "New Initiative for Mobility and Sustainability"
Attachment C – SGVCOG Transportation Priority Projects (Adopted January 2013)

Project Purpose and Need

Purpose

The purpose of the proposed action is to effectively and efficiently accommodate regional and local north-south travel demands in the study area of the western San Gabriel Valley and east/northeast Los Angeles, including the following considerations:

- Improve the efficiency of the existing regional freeway and transit networks;
- Reduce congestion on local arterials adversely affected due to accommodating regional traffic volumes;
- Minimize environmental impacts related to mobile sources

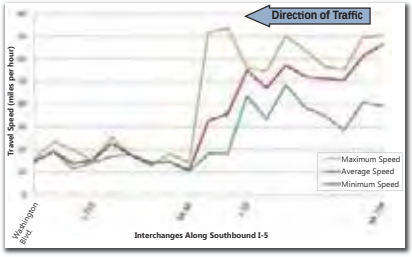
Need

The need for the SR 710 North Study is based on consideration of the following factors:

- Capacity, Transportation Demand, and Safety
  - Lack of north-south transportation facilities and overall congestion within the region
- Modal Interrelationships and System Linkages
  - SR 110 and I-710 terminate within the study area without connecting to other freeways
- Social Demands or Economic Development
  - SR 710 is included in the SCAG 2012 RTP/SCS, FTIP and Metro's LRTP
- Environmental Factors
  - Effects related to mobile sources associated with congestion

SR 710 North Study Area

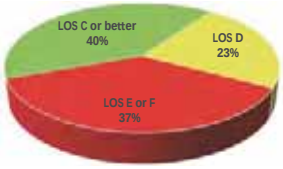
Freeway System Efficiency



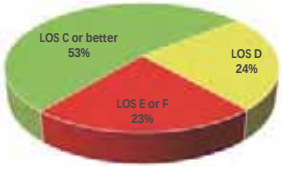
- Freeway speeds are low and highly variable in LA County
- The graph shows variability in speed along I-5

Regional Transportation System

North-South Freeways Level of Service (Existing)

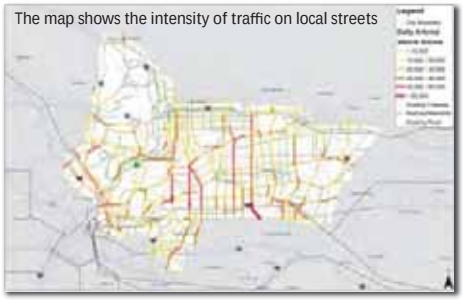


East-West Freeways Level of Service (Existing)



- Over half of the freeway system has LOS D or worse performance
- The operations of the north-south freeways are worse than the east-west freeways
- There will be even more LOS E/F (red) segments in 2035

The map shows the intensity of traffic on local streets

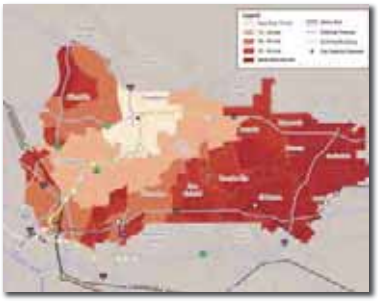


- The heaviest traffic (thick red lines) is almost all on north-south streets
- The volume of traffic will further increase by 2035

Congestion on Local Streets

- "Cut-Through Traffic" uses local streets for longer trips
- Trips that both started and ended outside the study area were counted as "cut-through"
- The analysis looked at traffic on 13 locations (see map) from LA to Duarte
- About 1 in 8 trips is cut-through
- Cut-through traffic will increase 15% by 2035

Transit System Efficiency



- Transit travel times are high - even for relatively short trips
- The map shows travel times on transit to Pasadena
- The red areas are reasonably close to Pasadena but still can take 30 to 60 minutes or more on transit

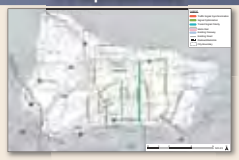
Alternatives Overview

1. No Build

The No Build Alternative includes transportation improvement projects inside and outside the Study Area, including all projects in the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) programmed to be completed by 2035. Including these projects is required by state and federal laws to demonstrate that the SR 710 North Study need still exists even if these projects are completed. For detailed information on proposed projects under the SCAG RTP, go to http://rtpscs.scag.ca.gov.

2. Transportation System Management/ Transportation Demand Management (TSM/TDM)

ITS Improvements



- Signal synchronization
- Signal optimization
- Transit signal priority
- Arterial changeable message signs
- Speed data collection system

Local Street and Intersection Improvements

- 17 intersection improvements
- 7 local street segments
- Modify Fair Oaks/SR 110 Interchange
- Extend St. John from Del Mar to California
- Valley to Mission Connector

Transit Refinement

- Expanded peak period existing bus service
- 10 minutes headway during peak hours

Active Transportation

- Pedestrian and bike facility enhancements to support access to transit
- Consistent with local agency plans

- Preliminary Cost Estimate: $105 M (in 2014 dollars)

3. Bus Rapid Transit (BRT)

- High-speed, high-frequency service between East Los Angeles and Pasadena
- 12-mile corridor; 17 stops
- Mixed-flow and exclusive lanes (single and both directions)
- 10 minutes during peak hours and 20 minutes during off-peak
- Replaces existing Route 762
- Amenities included to attract riders
- Two bus feeder services
  - Connects to El Monte Bus Station
  - Connects to Commerce and Montebello Metrolink Stations
- Preliminary Cost Estimate: $241 M (2014 dollars)
  - Includes $102 M for TSM/TDM improvements

4. Light Rail Transit (LRT)

- Between East Los Angeles and Pasadena
- 7.5-mile passenger rail line on dedicated guideway
  - Includes 3 miles of aerial segment and 4.5 miles of tunnels
  - 3 aerial and 4 underground stations
- The tunnels are expected to be constructed using pressurized-face Tunnel Boring Machines (TBMs)
  - Two approximately 20-foot diameter tunnels
  - Tunnels would be advanced from south end
- Design including safety elements follows Metro guidelines
- Two bus feeder services
  - Connects to El Monte Bus Station
  - Connects to Commerce and Montebello Metrolink Stations
- Preliminary Cost Estimate: $2,420 M (2014 dollars)
  - Includes $52 M for TSM/TDM improvements

5. Freeway Tunnel

- 6.3-mile route connecting I-10 and I-210
  - 4.2 miles of bored tunnel
  - 0.7 mile of cut-and-cover tunnel
  - 1.4 miles of at-grade segments
  - Approximately 60-foot tunnel diameter(s)
- The tunnels are expected to be constructed using pressurized-face TBMs
- Design and safety elements based on Caltrans and National Fire Protection Association guidelines
- Ventilation structures provided near north and south portals
  - No intermediate ventilation structures
- Operations and Maintenance Control (OMC) Building provided at both portals
  - Will house first responders 24/7
- Preliminary Cost Estimate:
  - Single Bore: $3,150 M (2014 dollars)
  - Dual Bore: $5,650 M (2014 dollars)
  - Includes $50 M for TSM/TDM elements

See display maps for more details

Tunnel Design Considerations

Global Large Diameter Tunnels

Many large-diameter tunnels have been excavated successfully around the world. Many of these shown have used similar tunneling and excavation technologies as those proposed on the tunnels being considered in this study.

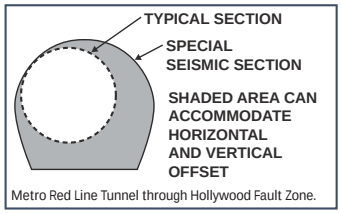
Tunnel Name	Country	Approximate Diameter (feet)
Brisbane Legacy Way	Australia, Brisbane	40
Brisbane Clem Jones Tunnel	Australia, Brisbane	40
Brisbane Airport Link East-West Tunnel	Australia, Brisbane	41
New Lower Inn Valley Railway	Austria, Münster	43
Perschling	Austria, Vienna	43
Niagara Tunnel	Canada, Ontario	47
Qianjiang Under River Tunnel	China, Hangzhou	51
Guangzhou-Shenzhen-Hong Kong Express Rail Link	China, Hong Kong	43
Jinping-II Hydropower Station Tunnels	China, Jinping	41
Nanjing Yangtze River Crossing	China, Nanjing	49
Weisan Road Tunnel	China, Nanjing	49
Bund Tunnel	China, Shanghai	47
Yingbinsan Road Tunnel	China, Shanghai	47
Shangzhong Road Subaqueous Tunnel	China, Shanghai	49
Jungong Road Subaqueous Tunnel	China, Shanghai	49
Hongmei Road Tunnel	China, Shanghai	49
Shanghai Changjiang/Chongming Yangtze River Tunnel	China, Shanghai	51
4th Elbe River Tunnel	Germany, Hamburg	47
Galleria Sparvo	Italy, Sparvo	51
Valsugana Trento Nord	Italy, Trento	40
Trans Tokyo Bay Highway Tunnel	Japan, Tokyo	46
Tokyo Metro	Japan, Tokyo	47
Stormwater Management and Road Tunnel (SMART)	Malaysia, Kuala Lumpur	43
Groene Hart Tunnel	Netherlands	49
Waterview Connection Auckland	New Zealand, Auckland	47
Slowacki Tunnel Gdansk	Poland, Gdansk	41
Silver Forest Tunnel (Silberwald)	Russia, Moscow	47

Tunnel Name	Country	Approximate Diameter (feet)
Sochi Road Tunnel No. 3	Russia, Sochi	43
Barcelona Metro Line 9	Spain, Barcelona	40
Tuneles Urbanos de Girona	Spain, Girona	40
M-30 By-Pass Sur Túnel Norte	Spain, Madrid	50
Seville SE-40 Highway Tunnels	Spain, Seville	46
Adler Tunnel	Switzerland, Basel	41
Biel East Branch	Switzerland, Biel	41
Tunnel de Bure	Switzerland, Bure	41
Zurich-Thalwil Zimmerberg Base Tunnel	Switzerland, Zurich	40
Eskisehir Kösekÿy / Tunnel 26	Turkey, Baskÿy	45
Istanbul Strait Road Tube Crossing	Turkey, Istanbul	45
Port of Miami Tunnel	USA, Miami	42

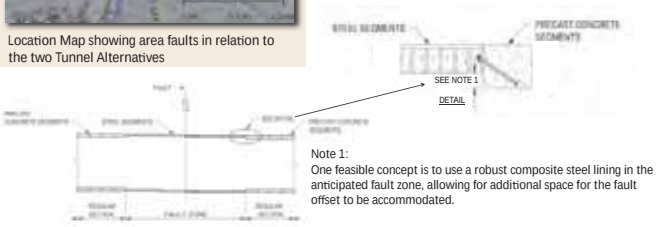
Fault Crossing Concepts

The LRT and Freeway tunnel alternatives cross potentially active faults. Depending on the magnitude of fault offset, there are various approaches to address fault crossing design such as utilizing an oversize vault or a flexible lining to accommodate expected fault offset/movement. A similar approach was used on Metro's Red Line tunnels traversing the Hollywood Fault in the Hollywood Hills.

Location Map showing area faults in relation to the two Tunnel Alternatives



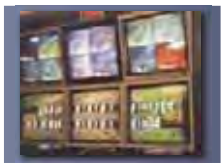
Metro Red Line Tunnel through Hollywood Fault Zone.

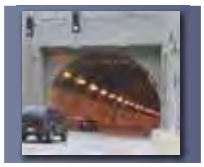


Note 1:
One feasible concept is to use a robust composite steel lining in the anticipated fault zone, allowing for additional space for the fault offset to be accommodated.

Tunnel Systems & Fire Life Safety Considerations

The Tunnel Systems Fire Life Safety (FLS) components in both the Freeway and LRT Alternatives will comply with all federal, state and local requirements including but not limited to the National Fire Protection Association Codes 101, 130 and 502 as well as Caltrans and Metro standards. These systems are installed to provide convenient and safe operation of the tunnel environment, especially for fire protection in case of emergencies. Some examples of the tunnel systems as well as the FLS considerations are shown below.





Operations and Maintenance Control (OMC) Buildings and Communication Systems
- Co-location of first responders
- Voice communication: phone, radio, public address system
- Traffic detection (Freeway Alt)
- Train location (LRT Alt)
- Lighting

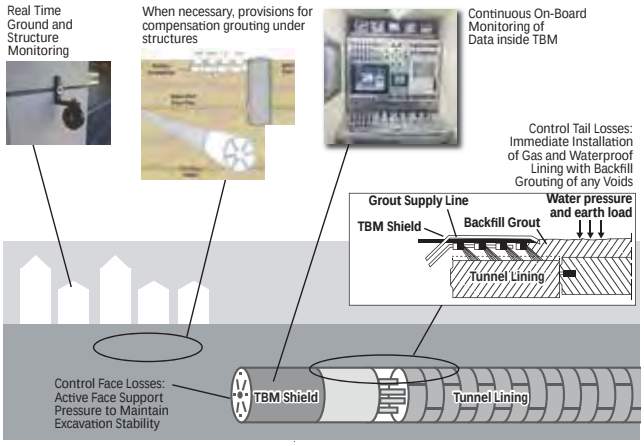
Ventilation System
- Jet fans
- Exhaust fans
- Air filtering
- Air monitoring
- Fire detection and suppression system

Fire Life Safety Systems
- Fixed fire fighting system
- Standpipes and hoses
- Fire extinguishers

Emergency Exits/Evacuation
- Emergency egress walkways
- Motorist/passenger aid station
- Cross passages (LRT and Dual Bore only)

Settlement Control

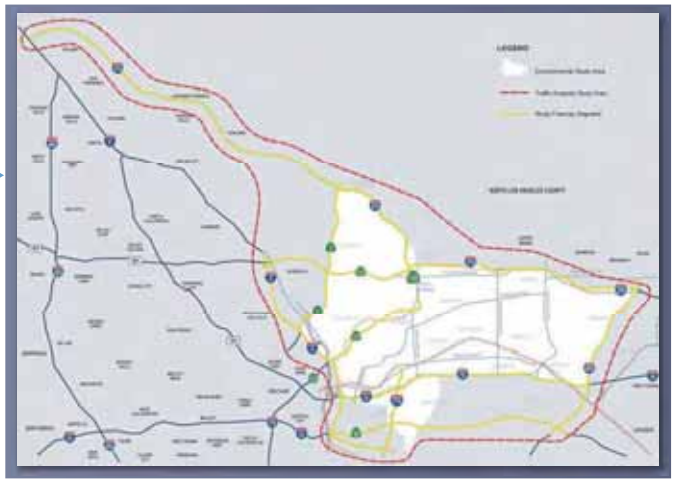
Pressurized-face Tunnel Boring Machines (TBMs) are routinely used to reduce the risk of ground loss during excavation. These TBMs provide active ground control at the face of the excavation, which controls face losses. To control shield losses, pressure can be maintained over the length of the shield by injecting bentonite grout. Backfill grout injected into the annular space between the excavated ground and the lining will control tail losses. Active real-time monitoring consisting of an onboard monitoring system as well as geotechnical instrumentation is typically used to monitor ground movements during excavation. If necessary, additional mitigation measures may be required such as compensation grouting to control settlement.



Traffic Analysis Overview

Multiple Traffic Analysis Study Areas

- Regional (6 counties - Riverside, Imperial, Los Angeles, San Bernardino, Orange, Ventura)
- EIR/EIS Study Area
- Northeast LA County Freeway Network
  - over 600 segments
  - beyond the EIR/EIS Study Area
- Intersections
  - 156 high-volume locations
  - focused on alternative footprints and affected areas



Two Types of Traffic Analysis

Regional and Study Area Patterns (Travel Forecasting)

System
- VMT
- Travel time
- Throughput
- Throughput (arterial and freeway)
- Employment accessibility

Highway
- Volume served
- Traffic diversion to local arterials
- Use of arterials for long trips
- Travel time improvement

Transit
- New transit trips
- Transit mode share
- North-south transit throughput
- Transit accessibility

Freeway and Intersection Impact Analysis (Traffic Operations Analysis)

- Level of Service (LOS), delay (intersections) and volume (freeway segments)
- Defined criteria (2 to 5 seconds more delay, 2% more volume)

Comparison of Alternatives: Travel Forecasting

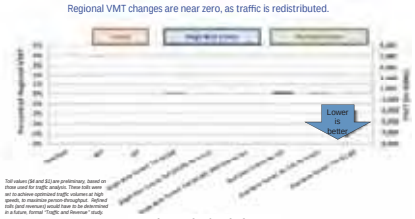
VMT/VHT

Change in VMT (Study Area) vs. 2035 No Build

Additional roadway capacity attracts traffic from local streets (served by freeways).

Change in VMT (Region) 2035 No Build

Regional VMT changes are near zero, as traffic is redistributed.



Vehicle Miles Traveled (VMT) is the total of all vehicle trips on all roads in the area of interest. It captures the total amount of travel by cars, trucks, and other vehicles on the road. It is important for assessing traffic, air quality, noise, and energy impacts.

Change in VHT (Study Area) vs. 2035 No Build

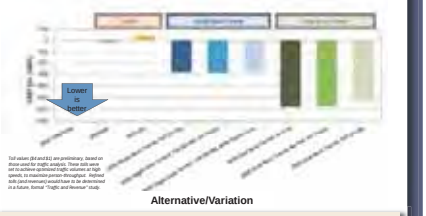
Study area travel time (VHT) drops as more roadway capacity is added, even though VMT increases.

Vehicle Hours Traveled (VHT) is the total time spent on the road by vehicles on all roads in the area of interest. It captures the time spent by the drivers (not passengers) of cars and trucks. It is important for assessing traffic, air quality, noise, and energy impacts.

Arterials

Change in Arterial VMT (Study Area) vs. 2035 No Build

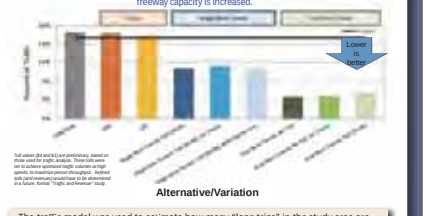
Arterial VMT is reduced when freeway capacity is increased.



Vehicle Miles Traveled (VMT) is the total of all vehicle trips on all roads in the area of interest. It captures the total amount of travel by cars, trucks, and other vehicles on the road. It is important for assessing traffic, air quality, noise, and energy impacts.

Use of Study Area Arterials for Long Trips

The percent of long (cut-through) trips on local streets is reduced up to half when freeway capacity is increased.

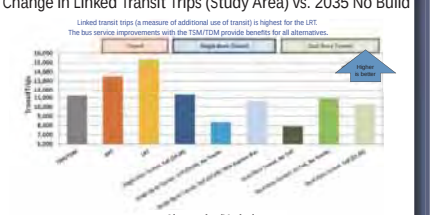


The traffic model was used to estimate how many "long trips" in the study area are cutting through on arterials (local streets in Alhambra, South Pasadena, and Pasadena). "Long trips" both start and end outside of the study area.

Transit

Change in Linked Transit Trips (Study Area) vs. 2035 No Build

Linked transit trips (a measure of additional use of transit) is highest for the LRT. The bus service improvements with the TSM/TDM provide benefits for all alternatives.



"Linked transit trips" is the way to determine the additional number of new transit riders – people who elect to use transit services instead of another way to travel.

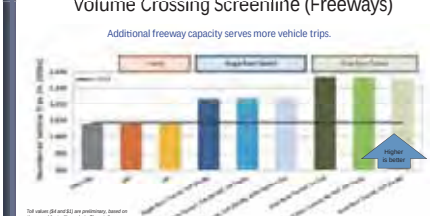
North-South Travel

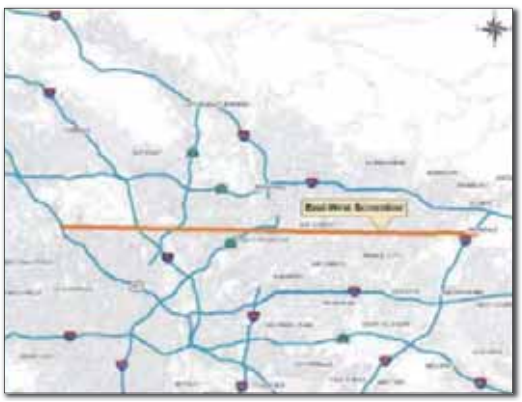
Person Trips Passing East-West Screenline

All alternatives serve more north-south travel.

Volume Crossing Screenline (Freeways)

Additional freeway capacity serves more vehicle trips.

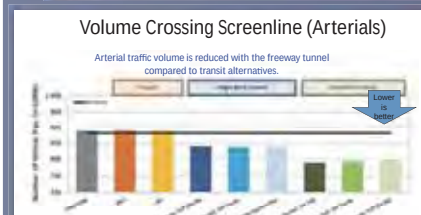




The project Purpose and Need focuses on north-south travel in the SR 710 corridor. To assess north-south travel, the model used a defined east-west screenline, illustrated in the map below. The graphs around the map provide data on the number of person trips (in cars and transit vehicles), traffic volumes, and transit passengers crossing the screenline.

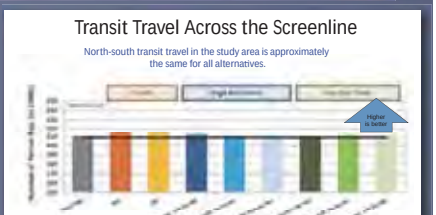
Volume Crossing Screenline (Arterials)

Arterial traffic volume is reduced with the freeway tunnel compared to transit alternatives.



Transit Travel Across the Screenline

North-south transit travel in the study area is approximately the same for all alternatives.



Key Findings - Community Impact Assessment

Land Use

All Build Alternatives:

- Inconsistent with policies, objectives, or program goals of various General Plans; amendments required

De minimis Section 4(f) impacts at Cascades Park (BRT Alternative only):

- Permanent acquisition of ~0.011 acres

Cascades Park - Monterey Park

Community Character and Cohesion

LRT Alternative

- Adverse impacts to community character and cohesion from the displacement of 15 neighborhood-oriented businesses along Mednik Avenue

TSM/TDM, BRT, and Freeway Tunnel (Single and Dual-Bore) Alternatives

- No adverse impacts to community character and cohesion

Environmental Justice

- No disproportionate impacts on environmental justice populations

Growth

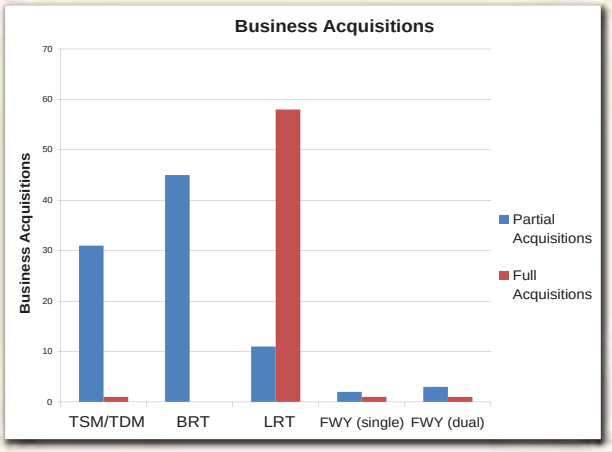
The Build Alternatives are not expected to result in unplanned growth:

- The study area is largely built out
- No new access to undeveloped or underdeveloped areas

Property Acquisition

All Build Alternatives:

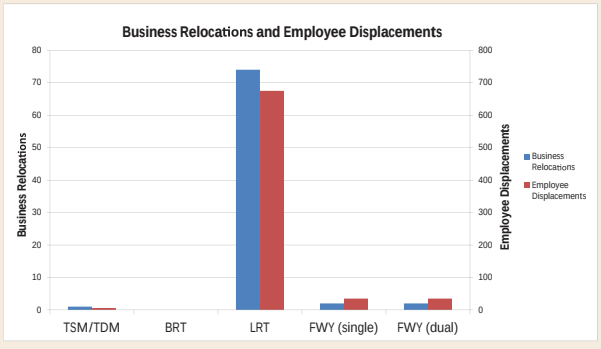
- No residential acquisitions would be required



Relocations and Displacements

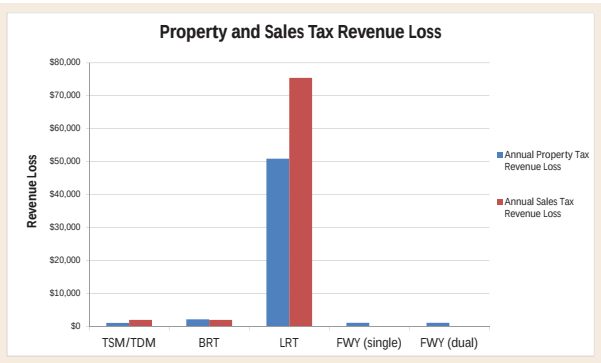
All Build Alternatives:

- No residential relocations or displacements would be required



Property and Sales Tax

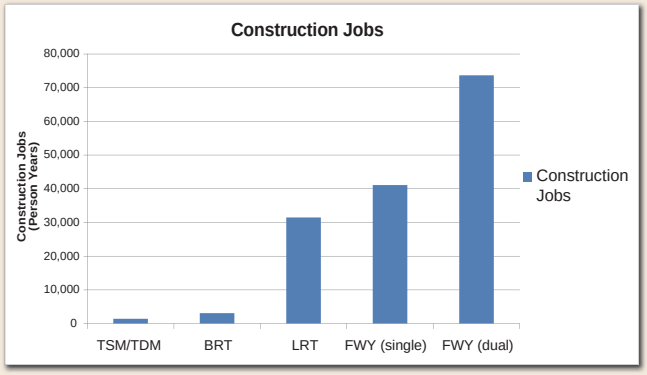
Property or sales tax losses would occur as a result of property acquisitions or relocations. The approximate property and sales tax losses of the Build Alternatives are displayed below:

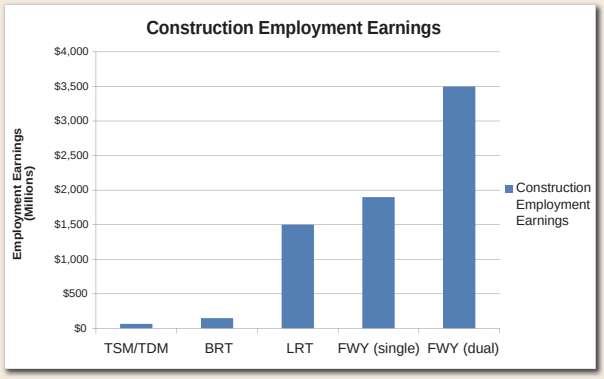


Key Findings - Community Impact Assessment

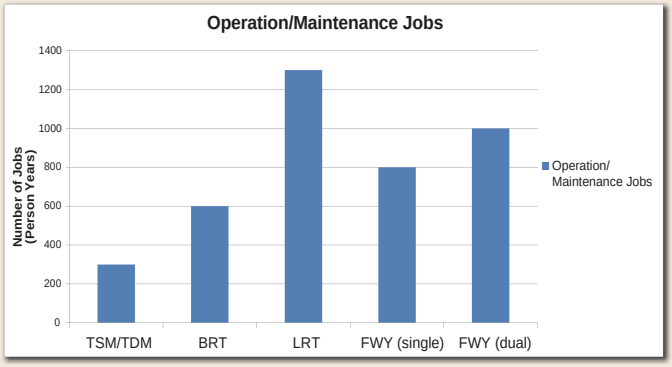
Employment / Fiscal Impacts

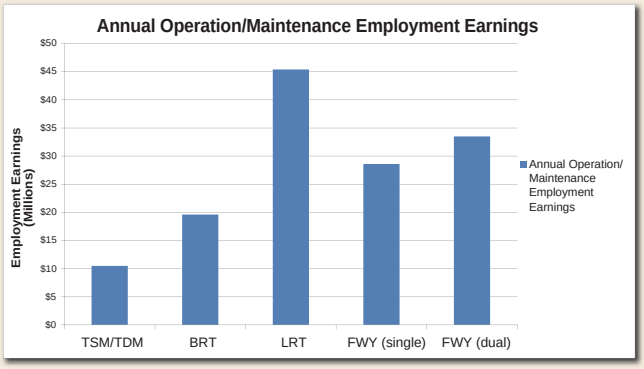
Construction of the Build Alternatives would result in the creation of construction jobs and the generation of employment earnings:





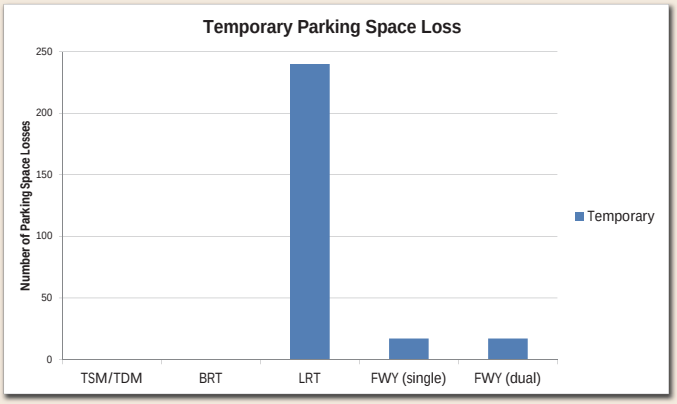
The operation and maintenance of the Build Alternatives would result in the creation of jobs and the generation of annual employment earnings:

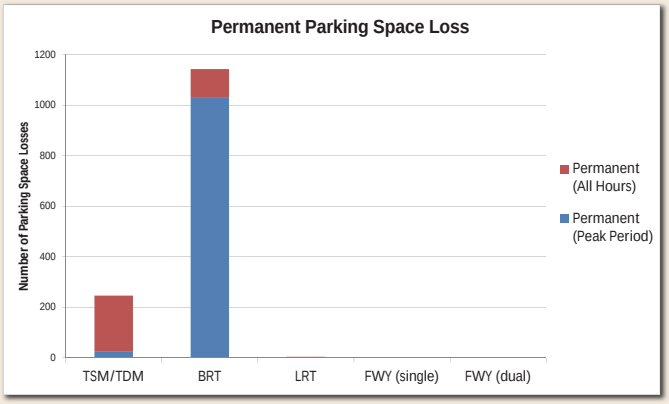




Parking Impacts

The potential temporary and permanent parking losses for each of the Build Alternatives are displayed below:





Key Findings - Visual, Noise and Vibration

Visual

TSM/TDM Alternative:
- Minor physical changes or visible impacts to the environment
- A minimal increase in lighting in existing business and residential areas
- Limited changes in glare from changes in traffic control cycles and additional travel lanes
- No shade or shadow effects
- Approximately seven recommended noise barriers that may result in a low to high visual impact

LRT Alternative:
- Noise barriers may result in a low to moderate visual impact
- Moderately low permanent visual impacts on key views
- Low permanent impacts related to light, glare, and shade and shadows

BRT Alternative:
- Minimal increase in lighting and glare
- Minor new shade and shadow effects at new bus stops and signage
- Low permanent visual impacts on key views
- Approximately three recommended noise barriers may result in a moderate to moderately high visual impact

Freeway Tunnel Alternative:
- Moderately low to moderate visual impacts on key views
- Minimal vehicle headlight glare from new non-tunnel segments built below the existing grade level
- Minimal shade and shadow impacts
- Approximately five recommended noise barriers for the dual-bore design variation may result in moderate to high visual impacts
- Approximately three recommended noise barriers for the single-bore design variation may result in moderate to high visual impacts

Visual Simulations

Proposed Bus Rapid Transit (BRT) Lane at 245 Fair Oaks Avenue in South Pasadena

Light Rail Transit crossing the I-10 Freeway

LRT maintenance yard at Valley Blvd.

Freeway Tunnel proposed northern portal

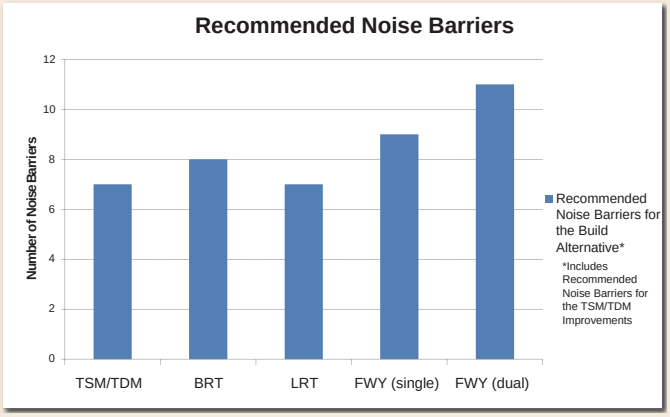
Freeway Tunnel proposed southern portal

See display maps for exhibits of visual simulations.

Noise

- FHWA Noise Abatement Criteria (NAC) and FTA Criteria used to determine when a noise effect would occur

Receptors approaching and exceeding NAC or FTA criteria prior to abatement:
- 27 receptors (TSM/TDM Alternative)
- 9 receptors (BRT Alternative)
- 12 moderate impact receptors (LRT Alternative)
- 5 severe impact receptors (LRT Alternative)
- 66 receptors (Freeway Tunnel Alternative [Single-Bore])
- 75 receptors (Freeway Tunnel Alternative [Dual-Bore])



Ground-borne Noise and Vibration

LRT Alternative:
- Potential operational ground-borne noise and vibration impacts to 450 residential buildings and 1 commercial office building
- No ground-borne noise and vibration impacts with implementation of standard vibration control measures

Other Alternatives:
- No impacts associated with ground-borne noise and vibration from the operation of the other Build Alternatives

See display maps for locations of recommended noise barriers.

Key Findings - Cultural Resources and Paleontology

Cultural Resources

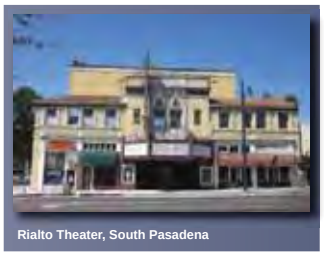
2,220 properties in project Area of Potential Effects (APE); 73 are listed on or eligible for the National Register:

TSM/TDM Alternative: 11 historic properties evaluated
- No adverse effect

BRT Alternative: 17 historic properties evaluated
- No adverse effect

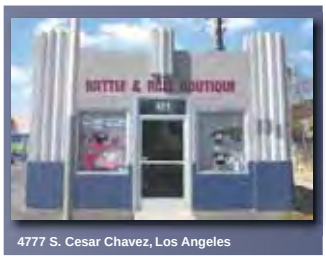
LRT Alternative: 17 historic properties evaluated
- No adverse effect

Freeway Tunnel Alternatives (Single and Dual-Bore): 51 historic properties evaluated
- No adverse effect


Rialto Theater, South Pasadena


330 S. Fair Oaks, Pasadena


Sequoyah School, Pasadena


4777 S. Cesar Chavez, Los Angeles


Visual Simulation: LRT Alternative Alignment near 4777 Cesar E. Chavez Avenue


Visual Simulation: BRT Alternative Improvements near the Oaklawn Bridge and Waiting Station on Fair Oaks Avenue

Paleontology

All earth-moving operations could result in the loss of fossil remains and rock formations within the construction disturbance limits. The loss of paleontological resources depending on the type of TBM used would be considered a permanent, significant, unavoidable impact for tunnel boring operations associated with the LRT and Freeway Tunnel Alternatives based on the scientific significance of the formations in the study area.

TSM/TDM and BRT Alternatives
- Minor ground disturbance
- Previously disturbed; likely underlain by artificial fill

LRT and Freeway Tunnel Alternatives (Single and Dual-Bore):
- Fossil recovery during excavation and grading, cut/cover tunnel stations
- Fossil recovery during tunnel boring would be limited

Key Findings - Natural Environment Study

Natural Communities

TSM/TDM, BRT, and LRT Alternatives:
- No permanent impacts on sensitive natural communities

Freeway Tunnel Alternative:
- Permanent direct impacts to ~1.09 acres of riparian habitat

Animal Species

All Build Alternatives:
- Disturbed/developed community
  - Potential suitable habitat for the San Bernardino ring-necked snake

TSM/TDM, BRT, and Freeway Tunnel (Single and Dual-Bore) Alternatives:
- Nonnative grasslands
  - Potential habitat for milkweed plants required for monarch butterfly breeding
  - Potential suitable habitat for western spadefoot toad and San Bernardino ring-necked snake

LRT and Freeway Tunnel (Single and Dual-Bore) Alternatives:
- Nonnative woodlands (LRT and Freeway Tunnel)
  - Potential to contain eucalyptus trees with winter roosting aggregations of adult monarch butterflies

Plant Species

	TSM/ TDM	BRT	LRT	Freeway Tunnel (Single and Dual-Bore)
Trees protected by local tree ordinances	No impact	136 removed	21 removed	84 removed
Southern California black walnut	No impact	No impact	No impact	Permanent impact to 1 tree located ~4 feet from the permanent impact area
Impacts to one Coulter's goldfields population	No impact	No impact	Indirect permanent edge effects	Permanent direct impacts

Townsend's big-eared bats

Wetlands

TSM/TDM, BRT, and LRT Alternatives:
- No impacts to wetlands or other waters

Freeway Tunnel Alternative impacts to non-wetland waters:
- ~0.06 acres of permanent impacts (single-bore)
- ~0.5 acres of permanent impacts (dual-bore)

Threatened and Endangered Species

All Build Alternatives:
- Townsend's big-eared bats
  - Temporary indirect impacts through habitat loss at bridge widenings
  - Temporary indirect impacts to foraging bats during nighttime construction

LRT and Freeway Tunnel (Single and Dual-Bore) Alternatives:
- Riparian obligate bird species
  - Limited indirect temporary impacts due to proximity of potential nonbreeding riparian habitat to construction activities

Riparian system under overpass

San Bernardino ring-necked snake

Del Mar Pump Station

Key Findings - Floodplains, Water Quality, Energy, Hazardous Waste, Geology and Soils

Floodplains

TSM/TDM, BRT, and LRT Alternatives:
- No floodplain encroachments

Freeway Tunnel Alternative:
- Encroachment in the Laguna Regulating Basin floodplain (Single and Dual-Bore)
  - Nominal reduction of the floodplain boundary
  - No increase in water surface elevation
- Encroachment in the Dorchester Channel floodplain (Dual-Bore)
  - Nominal reduction of the floodplain boundary
  - Minor increase in water surface elevation

Water Quality

	TSM/ TDM	BRT	LRT	Freeway Tunnel	
				Single-bore	Dual-bore
Increase in impervious surface	3.8 ac	1.12 ac	16.5 ac	1.7 ac	13.5 ac
Area treated by BMPs	12.0 ac	37.0 ac	16.5 ac	90.0 ac	95.0 ac

ac=acres

Energy

Compared to 2035 No Build Condition in study area:

TSM/TDM Alternative
- Operation: No change
- Maintenance: 0.3% increase

BRT Alternative
- Operation: No change
- Maintenance: 0.3% increase

LRT Alternative
- Operation: 0.7% decrease
- Maintenance: 0.2% increase

Freeway Tunnel Alternative
- Operation: 0.7-1.0% decrease (Single-Bore)
- Operation: No Change (Dual-Bore)
- Maintenance: 0.6-1.6% increase (Single and Dual-Bore)

Hazardous Waste

All of the Build Alternatives would potentially:
- Encounter hazardous materials during disturbance of soils and demolition of existing structures
- Result in impacts from hazardous materials associated with a number of properties that require Phase II Site Investigations

Subject Property No.	Facility	Alternative(s) Affected
1	Former Circle K Stores	BRT
2	Fashion Master Cleaners	BRT, LRT, TSM/TDM (I-10)
3	Railroad ROW	TSM/TDM (Other Road Improvement T-1)
4	Elite Cleaners	BRT, LRT
5	Blanchard Landfill	LRT
6	Mercury Die/ Mission Corrugated	LRT, Freeway Tunnel (Single and Dual-Bore), TSM/TDM (Other Road Improvement T-1)

Geology and Soils

	TSM/ TDM	BRT	LRT	Freeway Tunnel
Potential for naturally occurring oil or gas encountered during construction	Low Potential	Low Potential	Low to Moderate Potential	Low to Moderate Potential
Potential to experience fault rupture, seismically-induced ground motion, liquefaction, and/or landslides	Yes	Yes	Yes	Yes
Potential for ground settlement and differential settlement above and adjacent to tunnel	N/A	N/A	Low Potential	Low Potential

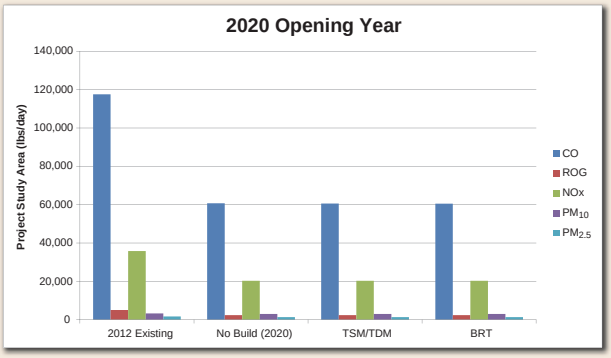
Key Findings - Air Quality

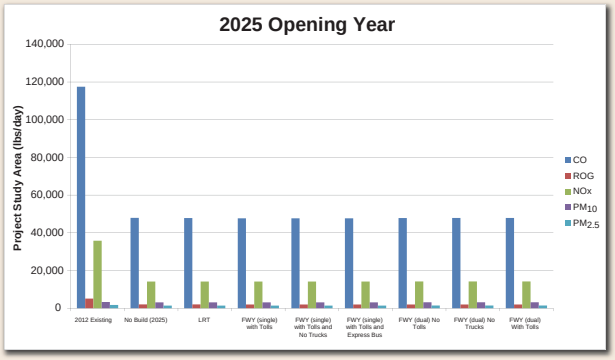
Air Quality

2020/2025 Opening Year

- The regional criteria pollutant emissions for the No Build and all of the Build Alternatives are lower than the Existing (2012) condition emissions. The reduction ranges from 4 percent for PM_{10} to 59 percent for carbon monoxide (CO).
- When compared to the 2020/2025 No Build conditions, the change in regional criteria pollutant emission is very small. The change in emission ranges from decrease of 1.9 percent for reactive organic gases (ROG) to an increase of 1.4 percent for PM_{10}.

2020/2025 Opening Year

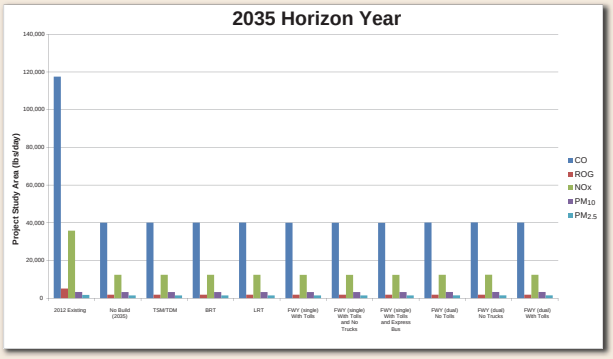




2035 Horizon Year

- With the exception of PM_{10} for the dual-bore tunnel alternative variations, the regional criteria pollutant emissions for the No Build and all of the Build Alternatives are lower than the Existing (2012) condition emissions. The reduction ranges from 0.6 percent for PM_{10} to 66 percent for CO. The largest increase in PM_{10} is 0.3 percent.
- When compared to the 2035 No Build conditions the change in regional criteria pollutant emission is very small. The change in emissions ranges from a decrease of 1.7 percent for ROG to an increase of 1.7 percent for PM_{10}.

2035 Horizon Year



Transportation Conformity

- The Build Alternatives would not result in any exceedance of the 1-hour or 8-hour CO standards
- The maximum $PM_{2.5}$ and PM_{10} concentrations within the project area are associated with the No Build Alternatives
- Through interagency consultation, the TSM/TDM, LRT, and BRT Alternatives were determined not to be Projects of Air Quality Concern (POAQC)
- Additional PM analyses will be conducted for the Freeway Tunnel Alternative if it is identified as the preferred alternative

Key Findings - Health Risk Assessment and Climate Change

Health Risk Assessment

Build and No Build Alternatives vs. Existing Condition

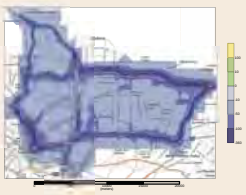
Existing conditions:
- Cancer risk estimated about 100 in a million near most highways/principal arterials
- Cancer risk estimated over 250 in a million near I-210 (east of SR 710) and I-5.

Decrease of cancer risk in the study area for all alternatives compared to existing conditions
- Reduction in cancer risks within the study area on local arterials
- Higher reduction adjacent to freeways compared to existing conditions
- Decrease attributed to stringent emission standards, cleaner fleets, improved fuel efficiency, shifting of traffic for each of the build alternatives, etc.

Locations with greater existing vehicle volumes will have greater expected cancer risk reduction in future years

The overall regional reduction of cancer risks considers emissions from the ventilation structures
- Particulate matter emissions are substantially reduced by scrubbing and dispersion

Cancer Risk Reduction Contour: No Build vs. Existing Conditions



No Build vs. Existing Conditions

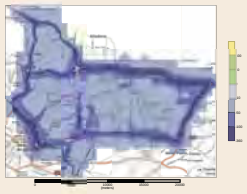
Build Alternatives vs. No Build Alternatives

Build vs No Build Cancer Risk Impact Overview
- Overall regional benefits of cancer risk reduction
- Localized cancer risk increases in small areas

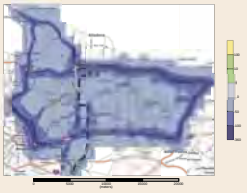
TSM/TDM, BRT, and LRT:
- Overall cancer risk reduction in majority of the project area
- Localized cancer risk increases at scattered locations depending on shifting of vehicle travel routes

Freeway Tunnel Alternative and Design Options
- Overall cancer risk reduction in majority of the project area
- Higher levels of cancer risk reduction in the region, especially along major highways, when compared to TSM/TDM, BRT, and LRT
- Localized impacts are mostly near SR 710/I 210 and SR 710/I-10 interchanges and the portals

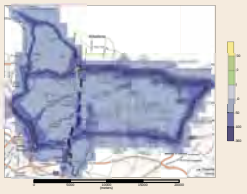
Cancer Risk Reduction Contours: TSM/TDM, BRT, LRT



TSM/TDM Alternative vs. Existing Conditions

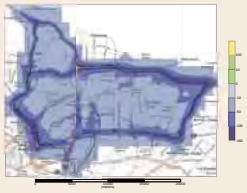


BRT Alternative vs. Existing Conditions

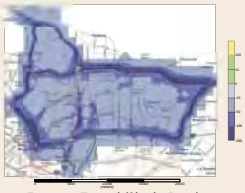


LRT Alternative vs. Existing Conditions

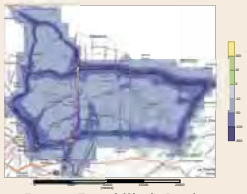
Cancer Risk Reduction Contours: Freeway Tunnel (Single and Dual-Bore)



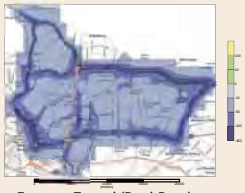
Freeway Tunnel (Single-Bore) with Express Bus vs. Existing Conditions



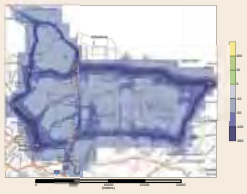
Freeway Tunnel (Single-Bore) with Toll vs. Existing Conditions



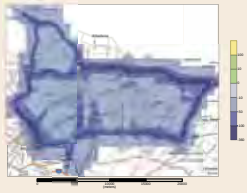
Freeway Tunnel (Single-Bore) with Toll without trucks vs. Existing Conditions



Freeway Tunnel (Dual-Bore) with tolls vs. Existing Conditions



Freeway Tunnel (Dual-Bore) without tolls vs. Existing Conditions

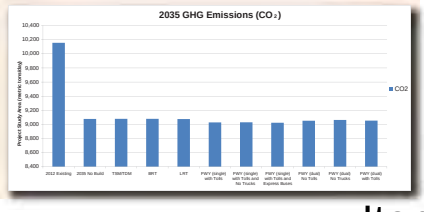


Freeway Tunnel (Dual-Bore) without tolls without trucks vs. Existing Conditions

Climate Change

Small decrease in regional carbon dioxide (CO_2) emissions during operation of the Build Alternatives except:

- TSM/TDM Alternative
- BRT Alternative



Key Findings - Construction Impacts

Land Use

All Build Alternatives:

- Construction-related effects on existing land uses
  - Business and neighborhood disruptions
  - Disruption of local traffic patterns
  - Disruption of access to homes and businesses
  - Increased traffic congestion, noise, vibration
- Use of privately owned properties for temporary construction easements (TCEs)

Community Impacts

- Temporary impacts to community character and cohesion from air quality, noise, traffic/access, and/or parking effects to community facilities within 500 feet of the Build Alternatives
- Construction traffic impacts would include minor temporary lane restrictions to overnight closures and detours
- Hauling excavated materials from tunnel boring using freeways and/or rail
  - LRT station excavation would use local streets
- Increase in person-year jobs and employment earnings

Temporary Construction Easements (TCEs):

	TSM/TDM	BRT	LRT	Freeway Tunnel	
				Single-Bore	Dual-Bore
TCEs	16 parcels	36 parcels	13 parcels	52 parcels	47 parcels

Haul Routes

Potential haul routes for the LRT tunnel and station excavations

Potential haul route for the Freeway Tunnel Alternative North Portal (Single and Dual-Bore)

Cultural Resources

Potential for previously undocumented cultural resources or human remains to be unearthed during site preparation, grading, or excavation

Hydrology and Floodplain

Freeway Tunnel Alternative (Single and Dual-Bore):

- Construction activities would encroach in the Laguna Regulating Basin floodplain
- Land and vegetation would be cleared, exposing soil to the potential for erosion and downstream transport of sediments to occur

Freeway Tunnel Alternative (Dual-Bore):

- Construction activities would encroach in the Dorchester Channel floodplain

Geology and Soils/Hydrology

- Low potential for soil settlement
- Potential for naturally occurring gas to be encountered
- Dewatering required for the LRT and Freeway Tunnel (Single and Dual-Bore) Alternatives

Hazardous Waste/Materials

- Potential release of hazardous materials such as lead and asbestos-containing materials (ACMs) during soil disturbance and demolition
- Phase II Site Investigations required for 6 properties

Air Quality

Short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) from construction activities such as excavation, grading, and hauling

Noise and Vibration

All Build Alternatives:

- Temporary noise and ground-borne vibration impacts associated with construction

LRT and Freeway Tunnel (Single and Dual-Bore) Alternatives:

- Short-term ground-borne noise and vibration from:
  - Tunnel excavation
  - Supply and muck train movements
  - Excavation and construction of tunnel portal and underground stations

Energy

Temporary indirect energy impacts result from the manufacture of vehicles that operate on the project and project construction.

Construction energy in British Thermal Units (BTUs) in billions:

	TSM/TDM	BRT	LRT	Freeway Tunnel	
				Single-Bore	Dual-Bore
BTUs	33,600	55,300	422,000	523,000	926,000

Invasive Species

Construction activities have a potential to spread invasive species

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SUMMARY

The San Gabriel Valley is an area of diverse cities and neighborhoods that trace the history of Southern California. New homes mingle with historic downtowns and educational institutions to create a lively sub-region. All of that activity, however, creates demand for ever-increasing mobility and access. The economic might of our region means we will continue to have opportunities to invest in transportation. Doing so in ways that serve our economy and environment, while supporting our health and quality of life, will require sound decisions. This initiative is a starting point that changes the conversation to focus on the transportation needs of the area and the opportunities that may be explored by the local community as they develop their vision for community mobility.

Transit – Building out the area's rapid transit network (particularly some missing north-south options) will make car ownership an option rather than a necessity – potentially improving life quality and household finance.

Active Transportation – Every trip starts by walking, and the people of this community deserve to be able to walk safely and comfortably. What better use of dollars is there than those spent to reduce injuries and deaths while taking cars off our congested roads?

Managing Demand – Sometimes it costs less to convince people not to drive than it does to accommodate driving with more road construction. Five-Hundred Million well spent dollars can take more cars off the roads than could be carried on a comparably priced new facility.

Congestion – While spending to create more choice, we can't lose sight of the fact that sometimes you just need to drive. Dollars spent smartly can help make those drives less miserable without encouraging the development sprawl that can result from less focused projects.

DIVERSE COMMUNITY, DIVERSE SOLUTIONS

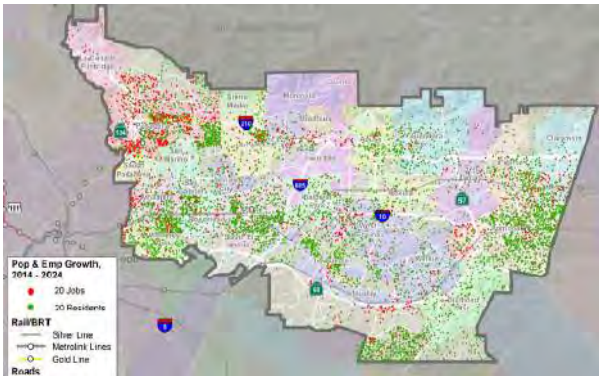
For many years, the idea of a 710 freeway connection has been misleadingly touted as a solution to the transportation woes of the San Gabriel Valley. The publication of the 710 Environmental Impact Report has made clear, however, that this 50-year old project is no solution. It does not help a community craving transit access. It does not address east-west mobility problems. It prohibits trucks, bikes, pedestrians and charges tolls for cars. Perhaps most importantly, it will consume all of the available financial resources for this area. Problems with the tunnel proposal include:

- The tunnel does not "pay for itself" through tolls as some have asserted.
- According to the EIR, the tunnel does not address congestion issues in Alhambra.
- The tunnel bypasses the very destinations people want to go to.

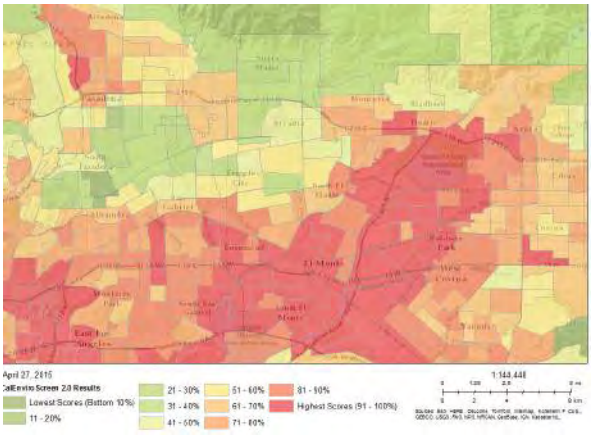
The San Gabriel Valley is a community of diverse people, with widely varying commute patterns. Employees need to make short commutes to Pasadena and long commutes to Burbank (Metro has found that 70 percent of study area vehicle trips start and end within the San Gabriel Valley). Students attending Cal State LA and East LA College need ways to make short commutes to school. Communities need to be able to walk safely to transit and want to be able to invest in ways that can improve air quality.

The set of ideas outlined in the pages that follow are intended as a starting point for the development of a real, community-based transportation vision. This is a compilation of many good ideas that have emerged from community and agency processes over the years. This diverse set of solutions should be refined based on community input and community needs in order to accommodate community aspirations. A community-based solution represents the best investment of our transportation dollars to connect and create community in the San Gabriel Valley.

It strains credibility that, despite holding scores of public open houses filled with community comment, no changes of substance have been made to any of the alternatives under evaluation. The 710 tunnel is not a community solution.



The addition of a 710 freeway linkage could bring the same level of environmental risk to local residents as that faced by residents in corridors such as I-605.



Analysis by Metro indicates the greatest population growth in the San Gabriel Valley will be in Pasadena - a community that has passed a resolution against 710 tunnel.

THE NORTH STUB

For fifty years this community has been held hostage to the wrong-headed idea of a freeway extension – an idea which has precluded all sensible solutions. Allowing these "complete street" connections to happen would improve access and reconnect neighborhoods as the land relinquished by Caltrans is put back into productive use.

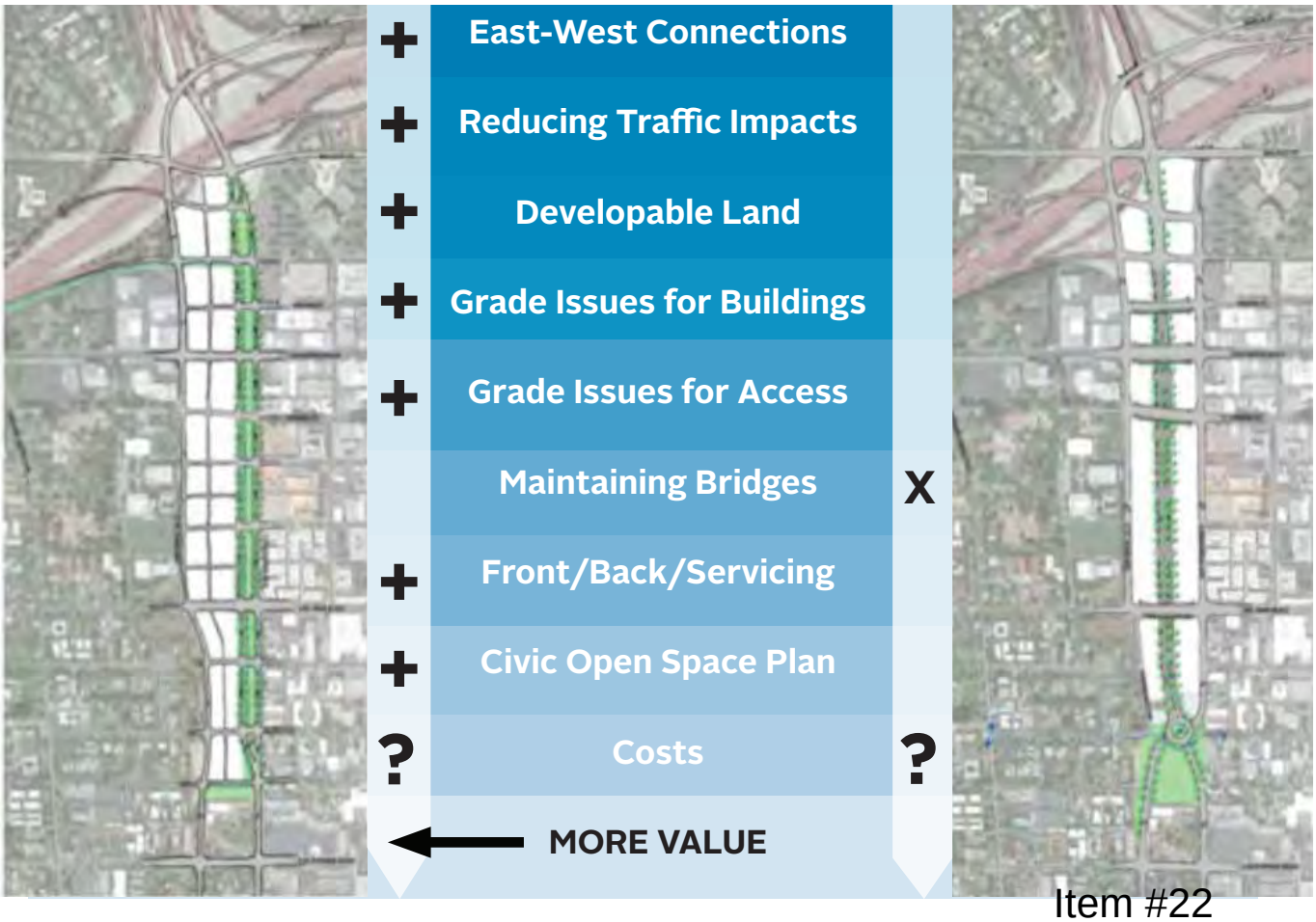
As an example of the kind of solution that can be developed from the grass roots community, this vision of Pasadena's future stands in stark contrast to the 710 tunnel envisioned by planners (not influenced by community input).

This vision of reconnected streets supporting redevelopment would bridge the gap between downtown and West Pasadena.

QUICK COMPARISON

OPTION A:
FILL THE DITCH

OPTION B:
RETAIN CURRENT GRADES



THE SOUTH STUB

The 710 freeway stub north of the 10 is over-scaled, and dumps all its traffic onto Valley Blvd, creating a congestion bottleneck. Converting the freeway into a boulevard allows us to solve its traffic problems by providing direct access to Cal State LA, and a 2-lane complete street connection to Alhambra Ave/Mission Rd, allowing traffic to be distributed into the arterial grid while protecting residential neighborhoods. A complete street connection through the emerging "Biotech Triangle" can reduce traffic at Fremont/Mission and cut-though along Concord Ave.

These changes also allow the restoration of Arroyo Rosa de Castilla, the year-round creek that runs alongside and under the 710, and the creation of over 30 acres of new parklands, three regular soccer fields, and a 2.5 mile bike path connecting Alhambra, El Sereno, and South Pasadena.

The boulevard also allows the creation of a new front door for Cal State LA, including 6.7 acres of flat, developable campus land.

Changing the disconnected south 710 Freeway stub into a connected boulevard would free up space for Cal State LA campus expansion, more efficiently disperse area traffic, provide space for premium transit including the opportunity to expand Dash service to El Sereno and Cal State LA. Perhaps more importantly it would connect communities, provide needed greenspace.

LEGEND

- New Rapid Bus
- Restored Aroyo Rosa de Castilla
- Golden Eagle Boulevard Complete Street
- Bike Path

SCALE OF GOLDEN EAGLE BLVD 45,000 VEHICLES PER DAY

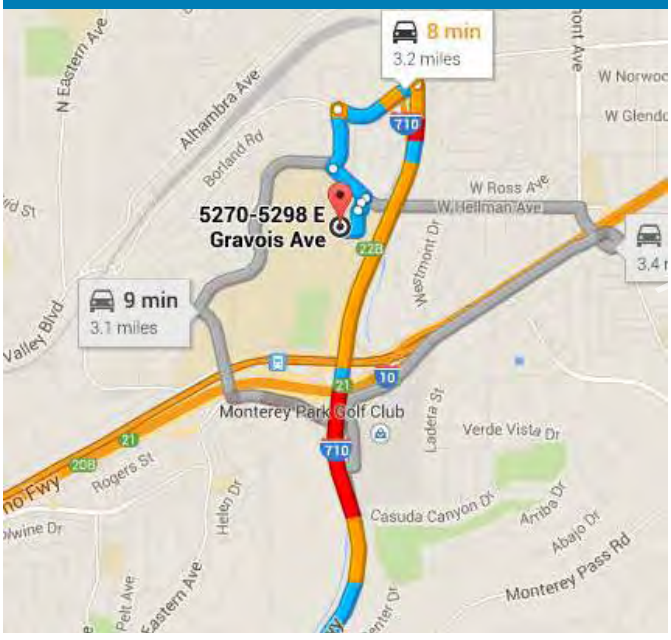
SCALE OF GOLDEN EAGLE BLVD/ MISSION RD

CONGESTION RELIEF

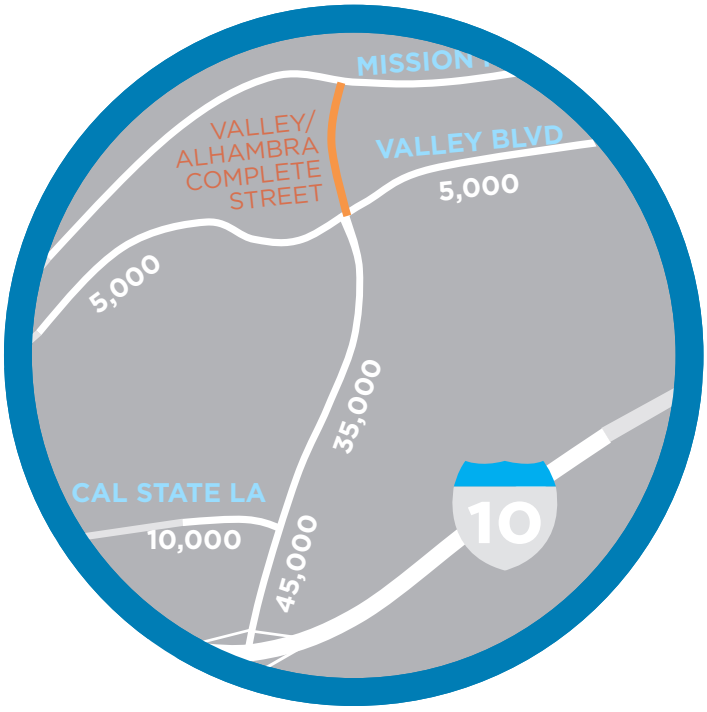
DISAPPEARING TRAFFIC

By replacing the freeway stub with a connected local street, "Golden Eagle Boulevard" would allow drivers to reach their destinations sooner – reducing traffic on the northern connector so much that a two-lane complete street (potentially ending in a traffic calming roundabout) could handle the reduced traffic. Measure R tax money was set aside for improvements to this corridor, but has gone unused so that the idea of a tunnel wouldn't be harmed. The citizens have already paid the taxes – it's time to get the benefit.

CAL STATE LA TRAFFIC



Currently, a query to Google would send a driver on a round about trip to Cal State LA, adding miles to the roads and congestion to local streets.

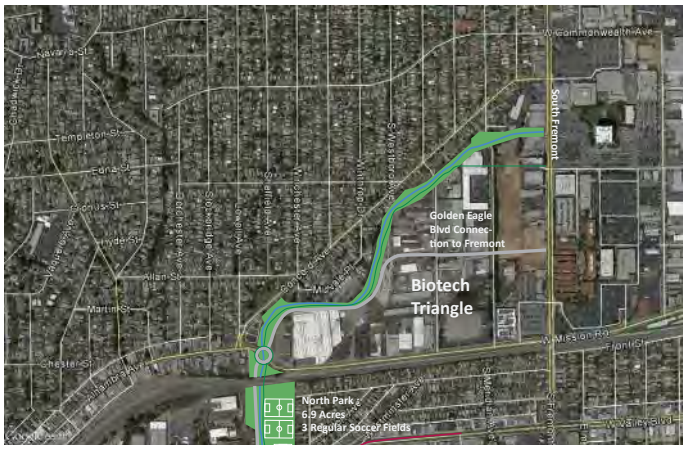


Changing the Freeway stub to a connected street and adding a complete street link to Mission Road is the real solution to area congestion.

RESTORATION

Restoration of the Arroyo Rosa de Castilla will provide local residents with increased open space, beautiful vistas, opportunities for active mobility, areas for community gatherings and overall improved quality of life.

BIOTECH TRIANGLE



Rebuilding the stub as a complete street would allow the restoration of the Arroyo Rosa de Castilla – a natural waterway that was piped and channelized to make room for the freeway stub.

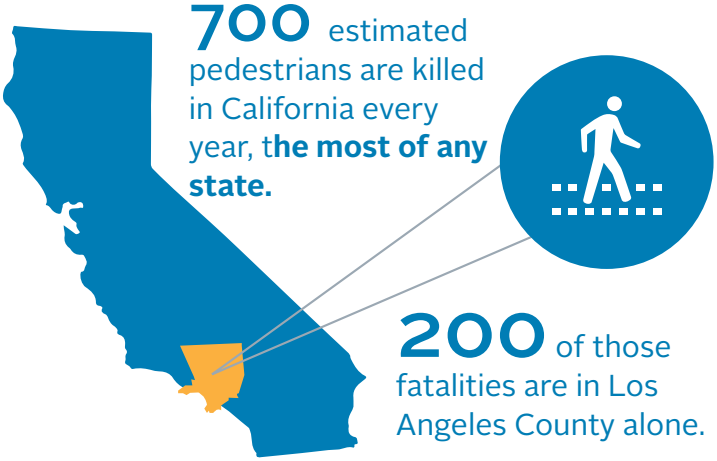
The new street connection will provide a link between the University and the emerging “Biotech Triangle.” Connecting these minds to the investment outcomes of their thinking allows this cycle of creativity to happen in the San Gabriel Valley. The new network along “Golden Eagle Boulevard” can reduce traffic at Fremont/ Mission and cut-through traffic along Concord Ave. The resulting complete street intersection on Mission will have such an manageable level of traffic entering that it could likely be handled by a single lane roundabout.

WALKING

SUPPORTED BY ENHANCED PRIORITY CROSSINGS

This budget could improve safety for pedestrians throughout the San Gabriel Valley. Crossings of major arterials, accessibility improvements to intersections and dignified transit stops could all be achieved.

PEDESTRIAN FATALITIES IN CALIFORNIA



700 estimated pedestrians are killed in California every year, t**he most of any state.**

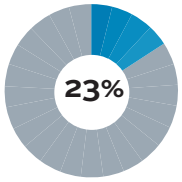
200 of those fatalities are in Los Angeles County alone.

COLLISIONS IN LA

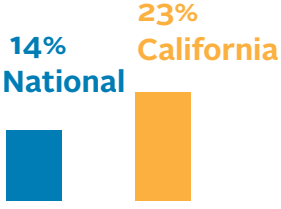
5,000 collisions involving pedestrians, in an average year in LA. County

$25 M

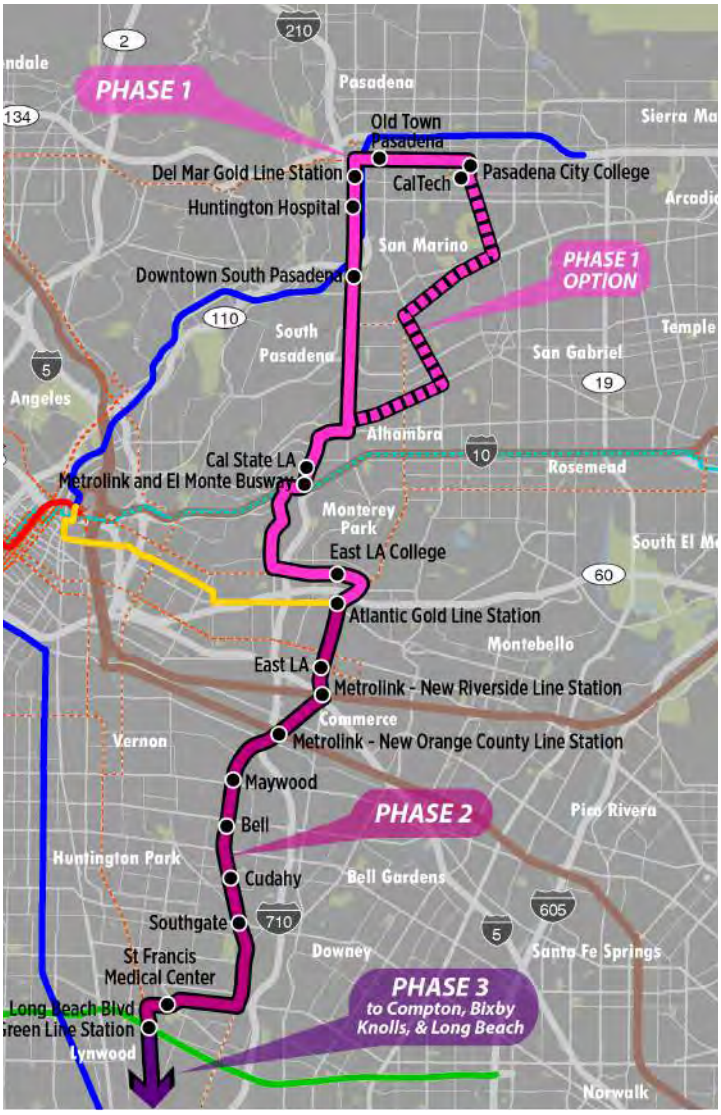
CAR CRASHES AND PEDESTRIANS IN CALIFORNIA



In 2014, 23% of those killed in car crashes in California were pedestrians – **well above the national average of 14%.**



NORTH-SOUTH CONNECTIONS

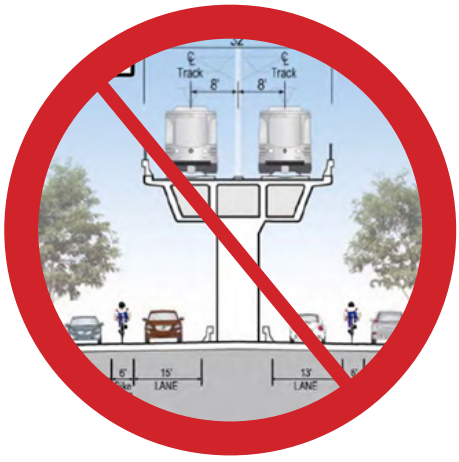


LEGEND

- Activity Centers

This option would be different from the transit alternative shown in the EIR. Rather than a disruptive aerial structure, this would be a fast, surface, community-serving alternative.

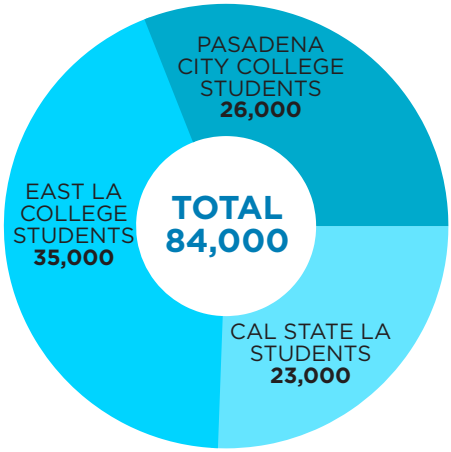
This area's great east-west transit connectivity could be supplemented by a north-south corridor that would connect both legs of the Gold Line, MetroLink's San Bernardino, Riverside and Orange County Lines, the El Monte Busway, the Green Line and the Blue Line. In addition to all those transit linkages, activity centers along the line such as Huntington Hospital, Cal State LA, East LA College, St. Francis Medical Center and the communities of Bell, Maywood and Southgate and Long Beach would all become better connected. As ridership continues to grow, the community may explore the possibility of a light rail option that could further enhance the existing transit network.



The community supports an enhanced, surface transit solution that connects to employment centers, recreational opportunities and educational institutions, not a disruptive aerial structure as proposed in the EIR.

DEMAND MANAGEMENT

CAN TDM SOLVE THE PROBLEM?



20%

VEHICLE TRIP REDUCTION ESTIMATE

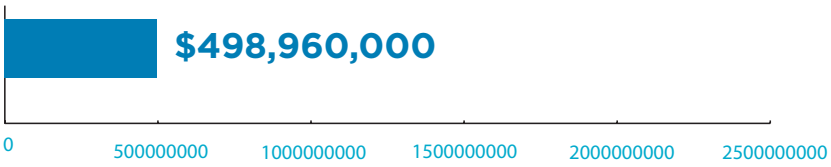
33,600 TRIPS SAVED PER DAY

302,400 TRIPS SAVED PER YEAR

YES

COST $500 M

30 YEAR COST AT MARGINAL COST RATE

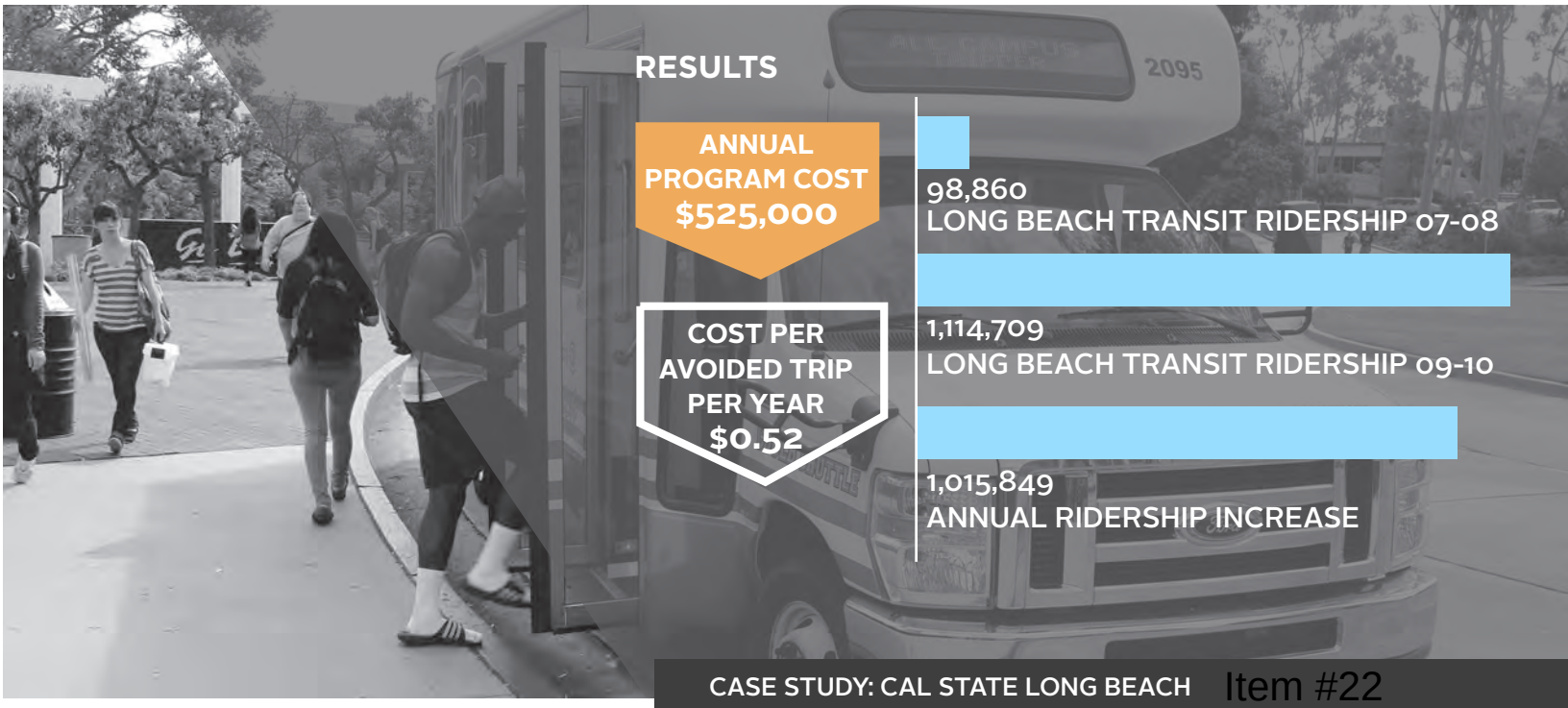


$73.00

COST PER YEAR PER RIDER - MARGINAL

CASE STUDY:

Cal State Long Beach has offered unlimited free rides on Long Beach Transit to all faculty, staff and students since 2008, achieving great results.



WHAT CAN HAPPEN NOW?

Remove the South Stub and build "Golden Eagle Boulevard," including a connection to Mission Road, as a "complete street." (bus lanes and separated bike path included)

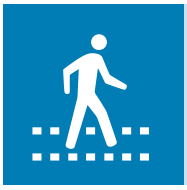
$200 M

Expanded DASH service to CalState LA

$15 M

Rebuild street connections to stitch together the North Stub

$95 M



Add 30 safe, pedestrian arterial crossings, 10 miles of new sidewalks and build the planned network of bike lanes and paths within one mile of either side of the 710 alignment

$25 M

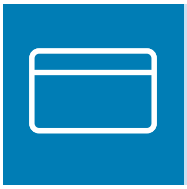
Deliver real Rapid Bus (Improved Route 762) north-south service to include greater frequency, longer hours, weekend service and some dedicated bus lanes

$170 M

Rosemead Boulevard is the main north-south street in the San Gabriel Valley, connecting the City of Rosemead to Temple City, East San Gabriel and East Pasadena. It is also served by Metro Lines 266 and 489, and a segment in Temple City features the region's first protected bike lanes.

$200 M

FUTURE PHASES: Moving forward the sale of surplus Caltrans properties could generate up to an additional $250 million to fund effective approaches such as student transit passes in the corridor:



Transit passes for 10 years for students of Pasadena City Collage, Cal State LA and East LA Collage

$170 M

WHAT COULD HAPPEN WITH MORE FUNDING

With an initiative such as Measure R2, the following projects can address the regional transportation issues throughout the area.

Premium Transit to connect the network. Pasadena-Hollywood BRT and Valley Boulevard BRT.

$13 M

Extension of the Foothill and Eastside Gold Line.

$2.3 B

Metrolink upgrades to Burbank Airport and San Bernardino. Providing 30 minute all day service.

$400 M

Gold Level Active Transportation. Safe and comfortable bike and pedestrian networks throughout the Valley.

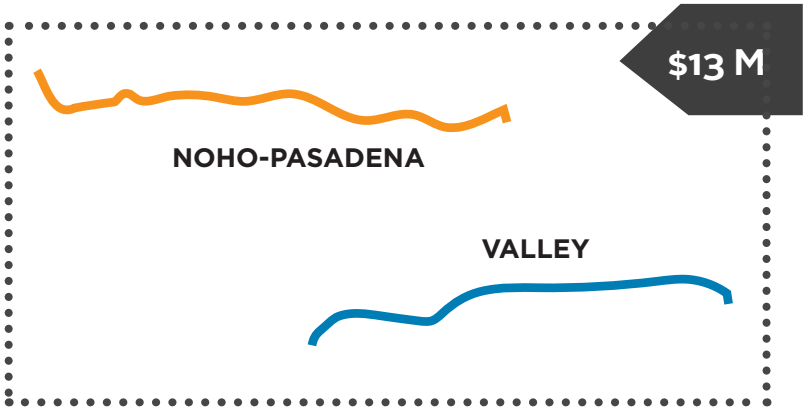
$275 M

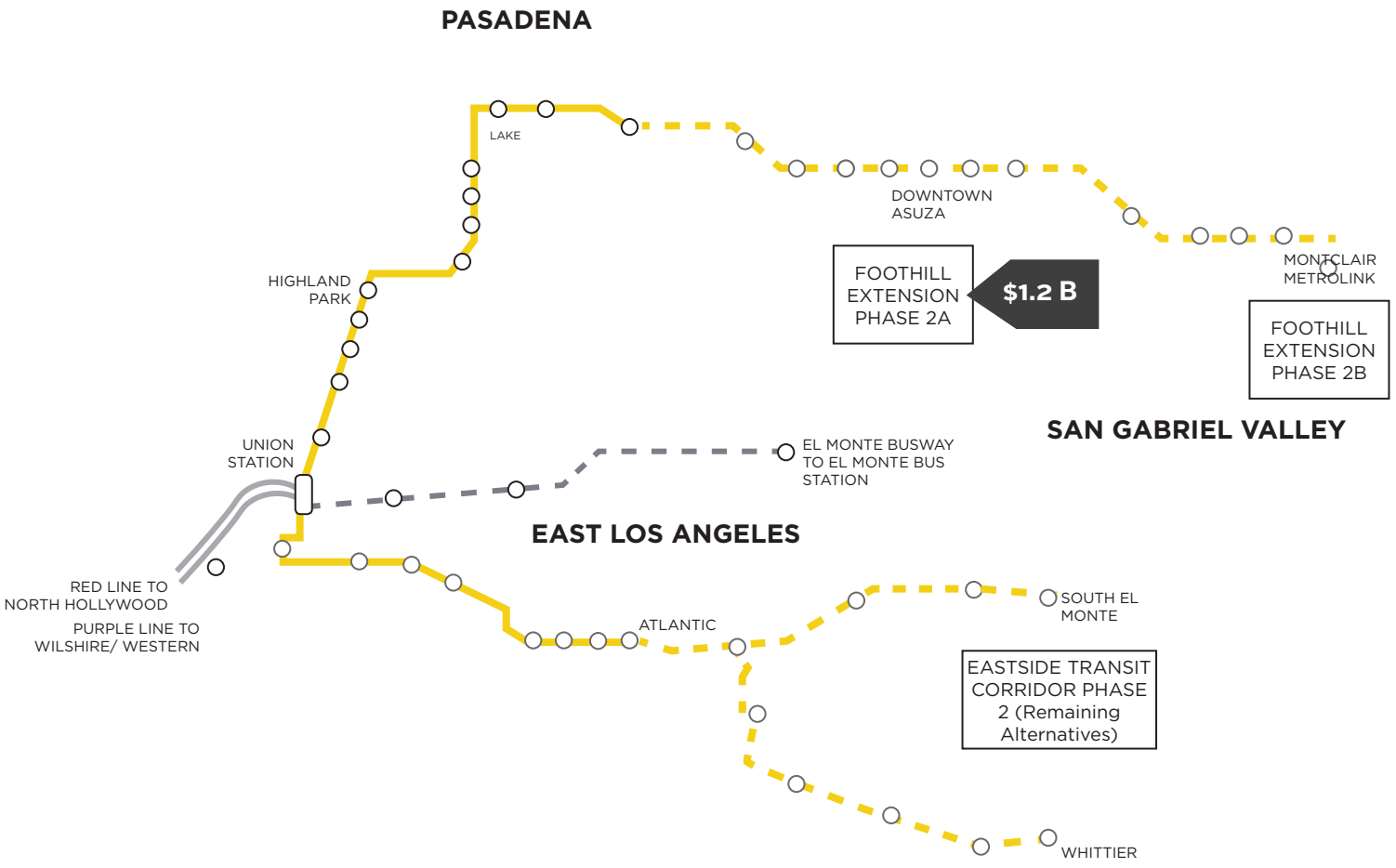
PREMIUM TRANSIT CONNECTIVITY

- **North Hollywood to Pasadena BRT** (including Burbank and Glendale)
- **Valley Boulevard BRT** (Downtown LA to El Monte Transit Center)

Rapid Bus Transit along the sub-region's key corridors can connect communities that are a bit farther from the rail network. These corridors involve more than just buses. Improvements to transit stops/stations can assure that all riders have a safe and dignified experience. Improvement of sidewalk connectivity and quality can assure people can get to the system and safely cross streets at stations. Once the sidewalks are improved, consolidating stations can make the ride much faster and more reliable.

As illustrated in this 1990 Metro Rail Plan, there has always been a "V" shaped missing link in rail planning that bypasses Glendale and Burbank. The time has come to bridge the missing link and connect communities.





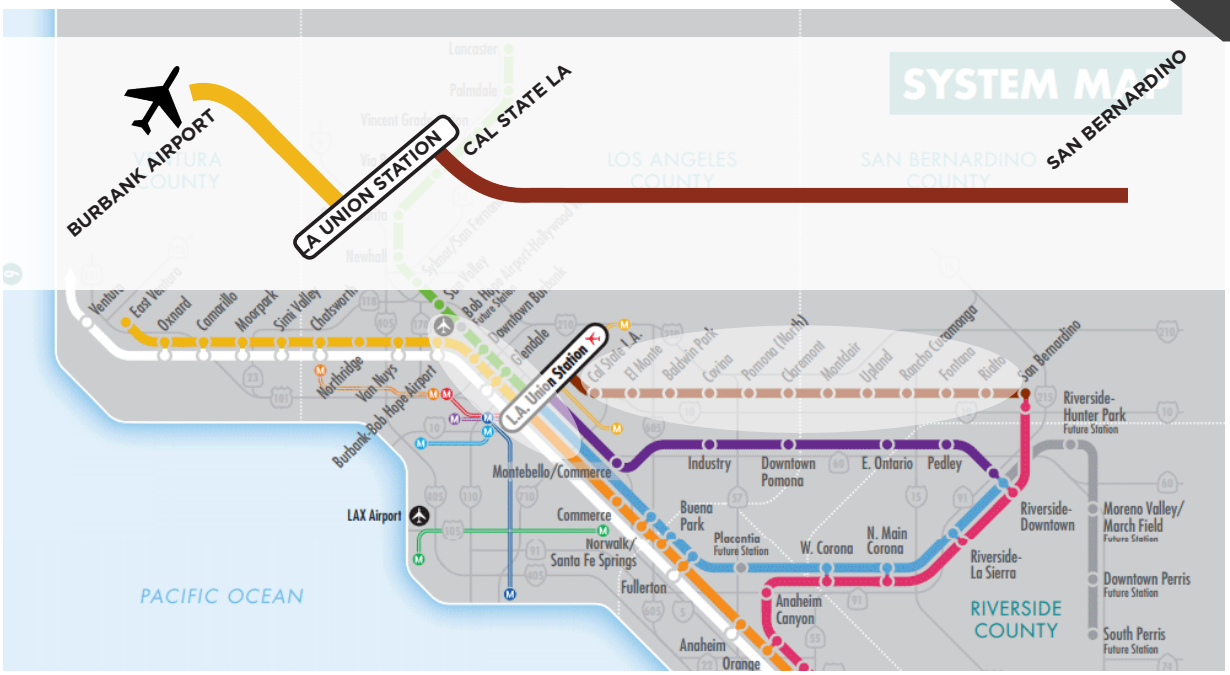
GOLD LINE COMPLETION

Premium Transit Access for the east end of the San Gabriel Valley will connect many more residents to jobs throughout Los Angeles County.

The long-planned completion of the Gold Line will connect the eastern San Gabriel Valley into the rest of the region's rapidly expanding transit network.

All day, frequent service to Burbank Airport, San Bernardino and points between will represent a significant improvement to quality of life.

$400 M

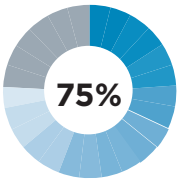


METROLINK UPGRADES

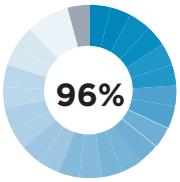
Upgrades to service on the Ventura County Line could provide 30 minute all day (and evening) service to the Burbank Airport. Improvements to the San Bernardino Line could provide hourly reverse commute and mid-day service. Both would represent a tremendous improvement to the usability of these valuable existing systems.

GOLD LEVEL ACTIVE TRANSPORTATION

This budget would be enough to create a premier, nationally-competitive bike network connecting the entire San Gabriel Valley. This system would focus on "low-stress" facilities that are comfortable to a wide range of potential users.

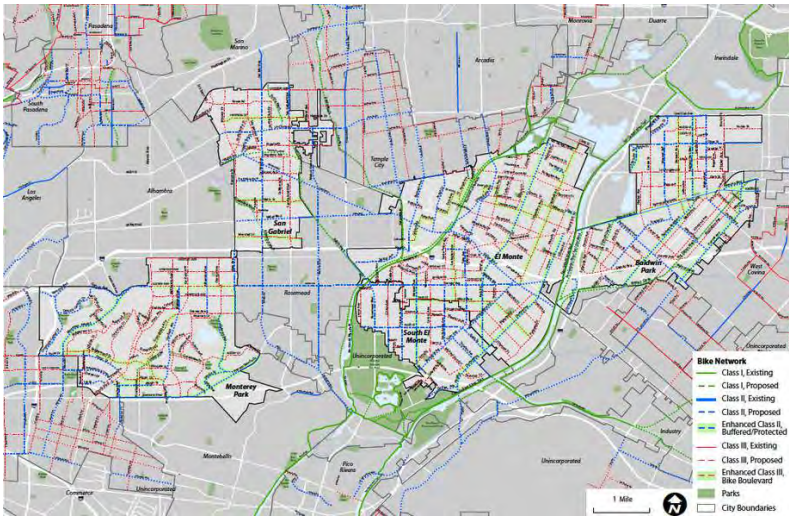


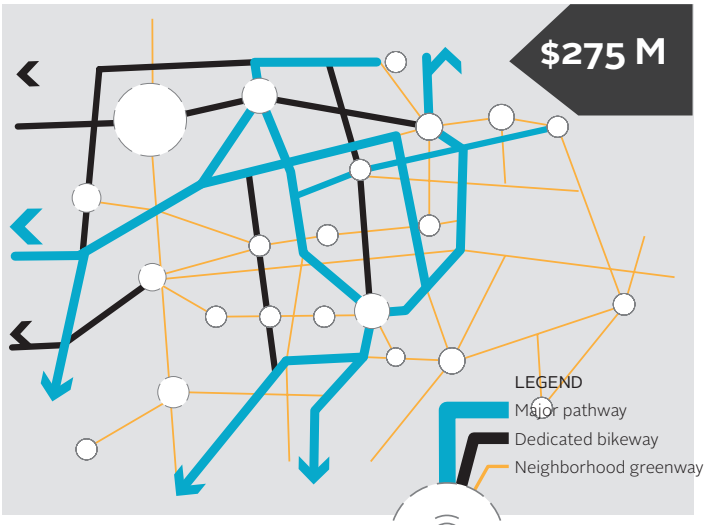
In its first year, a protected bike lane increases bicycle traffic on a street by an average of 75%



Most people riding in protected bike lanes feel safer on the street because of the lanes

SGV ACTIVE TRANSPORTATION FRAMEWORK





NETWORK PRINCIPLES

NEIGHBORHOOD GREENWAYS EVERY 1/2 MILE

SEPARATED BACKBONE EVERY 1 MILE