

#### 4.15 CONSTRUCTION-RELATED IMPACTS

Construction-related impacts are short-term impacts that would occur only during the construction of the proposed project and would not occur once construction is complete.

This section includes discussions of impacts and mitigation measures related to construction activities in the study area. The following is a summary of the construction impacts, most of which are discussed in detail in the individual topic sections (Sections 4.1 through 4.14). For the purpose of including analysis of the other alternatives considered, a brief discussion will be presented below.

The additional analyses in this section were the result of refined engineering, responses to comments received on the August 2001 DEIR/EIS, and/or additional planning efforts. Some of the modifications with construction-related impacts have been more specifically identified. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

The Reduced Build Alternative, as presented in the DEIR/EIS, has been modified and renamed the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative includes all of the Reduced Build Alternative's project features, as presented in the August 2001 DEIR/EIS, and two project components from the Full Build Alternative: one is the freeway mainline section (HOV lanes in each direction from Glassell to approximately SR-55) without the HOV freeway to freeway connecting structure, and two: an auxiliary lane from Glassell Street to Tustin Avenue in the eastbound direction (approximately 1.77 km [1.1 miles]). The extended portion of the Mainline, approximately 1.93 km (1.2 miles) at the eastern terminus of the project limits, was analyzed as part of the Full Build Alternative in the August 2001 DEIR/EIS. The added feature to the Reduced Build alternative extends the eastern terminus improvements in both directions from Glassell Street to approximately SR-55, resulting in the creation of the (Enhanced) Reduced Build Alternative.

##### 4.15.1 IMPACTS

###### A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Geology and Soils. The (Enhanced) Reduced Build Alternative would require the disturbance of soil and sediments in upland areas and in riverbeds during construction. Consequently, the potential exists for disturbed soil to erode and for sediments to be transported by water. (Section 4.1.5)

During construction, sites, structures, materials, and equipment are particularly vulnerable to impacts associated with earthquakes. Slopes that have not been stabilized can fail, incomplete structures can fall, materials stockpiles can collapse, and equipment can topple over, endangering construction workers and the public.

Isolated lenses of shallow groundwater may be encountered during construction. This may impact construction and result in polluted runoff.

Wetlands and Waters of the United States. The study area for the (Enhanced) Reduced Build Alternative supports a total of 0.615 hectares (1.52 acres) of wetlands. None of these wetlands are within the proposed right-of-way, but the wetlands could be affected by runoff or erosion from the project area during construction activities. These wetlands are located along Los Alamitos Channel. (Section 4.4.2)

The (Enhanced) Reduced Build Alternative would cross several waters of the United States. Although none of these support habitat and permanent impacts would be below the thresholds set for appropriate nationwide permits under Section 404 of the Clean Water Act, temporary impacts for construction would affect these waters. This impact would be minimal. Temporary impacts are listed in Table 4.4-1, Potential Impact to Waters of the United States, (Enhanced) Reduced Build.

During construction, access areas will be limited to those that will minimize disturbance to the beds and banks of the Santa Ana River and Santiago Creek.

Land Use. During construction, property would be occupied to accommodate construction equipment. Such areas, called Temporary Construction Easements (TCEs), may occur on occupied, private property, although vacant sites have been identified where available. TCEs occupy small portions of the properties, usually along the back or side of a parcel. TCEs will be required for testing, wall construction, retaining wall construction, and other construction-related activities. The affected property owner(s) will be contacted by the project's right-of-way agents, and they will negotiate with the property owner(s) on the terms of the temporary easement.

Employment. The (Enhanced) Reduced Build Alternative would create short-term construction jobs. An estimated maximum of 13,548 short-term employees would be required. Not all of these employees would be working at the same time. (Section 4.6.4)

Traffic Disruption. Widening of the freeways that are part of the (Enhanced) Reduced Build Alternative and interchange improvements, would result in traffic disruptions and detours. Temporary lane, interchange, and street closures would be required. There is potential for localized congestion and traffic delays. Parallel roadways can be expected to experience increased traffic during construction.

Schools located near the proposed construction could experience detours to pedestrian and vehicular traffic. In addition, emergency vehicles could also experience detours.

A Transportation Management Plan (TMP) will be prepared prior to construction activities to address construction-related impacts to the surrounding communities. In place over a longer period of time, sometimes implemented up to a year or more prior to the start of actual construction, with specific elements often implemented incrementally to coincide with construction phasing.

TMP is a method for minimizing activity-related traffic delay and accidents by the effective application of traditional traffic handling practices and an innovative combination of public and motorist information, demand management, incident management, system management, construction strategies, alternate routes and other strategies.

All TMPs share the common goal of congestion relief during the project period by managing traffic flow and balancing traffic demand with highway capacity through the project area, or by using the entire corridor.

A TMP typically involves several strategies and elements to ensure that the construction of a project proceeds expeditiously while minimizing as much impacts as possible to the affected communities. These elements include: public information; motorist information strategies; incident management; construction strategies; demand management; and alternative route strategies. The public information element usually involves brochures, mailers, and media releases to educate and inform the public of the construction activities. The motorist information strategies include message signage and highway advisory radio to alert the motorists of road closures and/or detours. The incident management element includes call boxes, traffic control officers, and Transportation Management Centers. The construction strategies element include project phasing, ramp metering, and incentive/disincentive clauses. The demand management element includes park-and-ride lots, ridesharing marketing, and shuttle service incentives to reduce the volumes of impacted areas. The alternate route strategies include ramp closures, provide temporary lanes/shoulder use, and reversible lanes.

Air Quality. During construction, the (Enhanced) Reduced Build Alternative would require the implementation of dust control measures for disturbed and exposed soil areas and stockpiles on the project site that are subject to wind erosion. These dust control measures would also need to

be implemented when significant wind and dry conditions are anticipated during construction of the project. Dust control shall be applied in accordance with the Department standard practices and as defined in the most current publication of the Department's Storm Water Management Plan. The construction contractor will be required to adhere to all laws and regulations for emissions from construction equipment, including those set forth by the South Coast Air Quality Management District at the time of construction.

Noise and Vibration. Construction noise represents a short-term impact on the environment. The duration and level of construction noise are variable, depending upon the following phases of activity:

- Ground-clearing, demolition and removal of existing structures, trees, rocks and soil
- Excavation
- Placement of foundations and roadbeds
- Erection of structures, including bridges and retaining walls
- Finishing, including filling, grading, paving, landscaping and cleanup operations

Typically, the first two phases (ground clearing and excavation) generate the highest noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers, and portable generators, can reach levels in the range of 67 to 98 dBA at 15 meters (50 feet). The EPA's Noise Control Program (40 CFR 204) regulates some construction equipment noise emissions. Presently, air compressors are the only equipment under regulation.

Construction noise is only considered to be substantial in exceptional cases, such as pile driving and crack and seal pavement rehabilitation operations. Otherwise, the Department's Standard Specifications (Section 7 and 42) and Standard Special Provisions provide limits on construction noise levels, with normal construction noise levels not exceeding 86 dBA at a distance of 15 meters (50 feet). The Full Build Alternative may require pile driving and/or crack and seal pavement rehabilitation, and substantial short-term impacts would occur. (Section 4.9.3)

The movement of heavy equipment during grading operations and the use of other equipment such as pile drivers, would be expected to create vibrations that would be felt by nearby residents. Such vibrations could affect nearby receptors, but are not expected to be of sufficient magnitude to cause structural damage to buildings located along the proposed right of way.

Utilities. Improvements proposed by the (Enhanced) Reduced Build Alternative would result in temporary utility relocations where utilities conflict with construction activities. Any service lines located in streets crossing over SR-22, where overcrossings are to be replaced or widened, could be in conflict with construction operations. Any aerial utility lines, signals or street lighting (including pole cross-arms) which are within, adjacent to or hang over right-of-way areas, could be in conflict with construction operations. Relocations could result in short-term service interruptions, although with standard construction practices, such interruptions would be minimal. (Section 4.11.3)

Hazardous Materials and Wastes. Two previously identified hazardous materials or wastes sites lie within the path of construction for the (Enhanced) Reduced Build Alternative, potentially exposing construction workers to contaminated soil; underground and above-ground storage tanks, pipes, reservoirs, etc.; debris or above-ground or underground materials from an existing or previous land use; and materials contained within structures scheduled for demolition, including lead paint and asbestos. The previously identified sites are:

- Former UNOCAL 76 Service Station
- Former Firestone Store at 3400 Metropolitan Drive

There are five residential and five non-residential displacements required for the (Enhanced) Reduced Build Alternative. Some of the structures associated with these displacements may

contain asbestos or lead-based paint. During demolition of structures containing these materials, construction workers may be exposed to hazards from these materials.

There is a potential that the (Enhanced) Reduced Build Alternative may affect unidentified hazardous materials and waste sites within the area to be disturbed. Construction workers may be exposed to these previously unidentified hazards.

Soil in unpaved areas next to traffic lanes and shoulders might be contaminated with lead from vehicle emissions (ADL). Construction workers may be exposed to these hazardous soils.

Naturally occurring hazardous materials, such as radon and methane, could be encountered during construction, exposing construction workers to danger.

Hazardous materials may be used during construction of the (Enhanced) Reduced Build Alternative, such as paving materials, chemicals, and paints. These materials may be a potential health threat to people working on the project. Transporting these materials to the job site may create additional hazards related to traffic and handling accidents. (Section 4.5.4)

Visual Quality. Storage of construction vehicles, equipment and materials in staging areas would result in a short-term reduction of visual quality. Precise locations of construction staging areas have not yet been defined.

Energy. The construction (indirect) energy associated with construction of the (Enhanced) Reduced Build Alternative would be approximately 8,768 billion BTUs or about 1,512,000 barrels of oil. (Section 4.14.2)

## B. OTHER ALTERNATIVES

### 1. NO BUILD ALTERNATIVE

Since the No Build Alternative would not include any major capital improvements to SR-22 other than adjacent projects that were analyzed in other environmental documents, no additional substantial construction-related impacts would occur.

### 2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Only minor construction is proposed under the TSM/Expanded Bus Service Alternative. Construction would include minor work for such TSM measures as signal synchronization/controller upgrades, automated response plan, highway advisory radio, changeable message signs, fleet management system, and transit intersection priority system. Thus, construction impacts would be negligible.

The construction (indirect) energy associated with construction of the TSM/Expanded Bus Service Alternative would be associated with signal synchronization/controller upgrades, automated response plan, highway advisory radio, changeable message signs, fleet management system and transit intersection priority system. This would result in energy consumption of approximately 5,037 billion BTUs or about 868,570 barrels of oil. (Section 4.14.2)

### 3. FULL BUILD ALTERNATIVE

Geology and Soils. The Full Build Alternative would require the disturbance of soil and sediments in upland areas and in riverbeds during construction.

During construction, sites, structures, materials, and equipment are particularly vulnerable to impacts associated with earthquakes.

Isolated lenses of shallow groundwater may be encountered during construction. This may impact construction and result in polluted runoff.

Biology. Maternity colonies of Big Brown Bats and Mexican free-tailed bats are reported to occur at the SR-55 bridges crossing over Santiago Creek. If project construction occurs between March 1 and August 31, it would result in disturbances and possible destruction of the bridge nooks used by the bats. This would be a substantial impact, because maternity colonies of bats are rare. In addition, the bridge provides nesting habitat for migratory birds, such as cliff swallows, rough-winged swallows, and white-throated swifts.

Wetlands and Waters of the United States. The study area for the Full Build Alternative supports a total of 0.629 hectare (1.55 acres) of wetlands. None of these wetlands are within the proposed Full Build Alternative right-of-way, but runoff or erosion from the project area during construction activities could affect the wetlands.

The Full Build Alternative would cross several waters of the United States. Although none of these support habitat and permanent impacts would be below the thresholds set for appropriate nationwide permits under Section 404 of the Clean Water Act, temporary impacts for construction would affect these waters.

Land Use. During construction, temporary construction easements on adjacent properties may be necessary. If these easements result in impacts that would make the affected property unusable for its existing use, substantial impacts would occur.

Employment. The Full Build Alternative would create short-term construction jobs. An approximate maximum of 21,528 short-term employees would be required. Not all of these employees would be working at the same time.

Traffic Disruption. Widening of the freeways that are part of the Full Build Alternative and interchange improvements would result in traffic disruptions and detours. Temporary lane, interchange, and street closures would be required.

Please see Section 4.15.1 (a) for discussions on the TMP.

Air Quality. During construction, the Full Build Alternative would be required to comply with regional rules, which would prevent substantial short-term air pollutant emissions. Compliance with the regional rules is assumed for the project and, thus, substantial short-term impacts would not occur.

Noise and Vibration. Construction noise represents a short-term impact on the noise environment. The duration and level of construction noise is variable, depending upon the following phases of activity:

- Ground-clearing, demolition, and removal of existing structures, trees, rocks, and soil
- Excavation
- Placement of foundations and roadbeds
- Erection of structures, including bridges and retaining walls
- Finishing, including filling, grading, paving, landscaping, and cleanup operations

Utilities. Improvements proposed by the Full Build Alternative would result in temporary utility relocations where utilities conflict with construction activities. Any service lines located in streets crossing over SR-22, where overcrossing are to be replaced or widened, could be in conflict with construction operations. Any aerial utility lines, signals, or street lighting

(including pole cross-arms), which are within, adjacent to, or hang over right-of-way areas could be in conflict with construction operations.

Hazardous Materials and Wastes. Previously identified hazardous materials or wastes sites lie within the path of construction for the Full Build Alternative, potentially exposing construction workers to contaminated soil; underground and above-ground storage tanks, pipes, reservoirs, etc.; debris or above-ground or underground materials from an existing or previous land use; and materials contained within structures scheduled for demolition, including lead paint and asbestos.

There are 144 potential residential and 35 potential non-residential displacements required for the Full Build Alternative. Some of the structures associated with these displacements may contain asbestos or lead-based paint. During demolition of structures containing these materials, construction workers may be exposed to hazards from these materials.

Hazardous materials may be used during construction of the Full Build Alternative, such as paving materials, chemicals, and paints. These materials may be a potential health threat to people working on the project.

Visual Quality. Storage of construction vehicles, equipment, and materials in staging areas would result in a short-term reduction of visual quality. Precise locations of construction staging areas have not yet been defined.

Energy. The construction (indirect) energy associated with construction of the Full Build Alternative would be approximately 10,558 billion BTUs or about 1,820,300 barrels of oil.

#### **Thresholds of Significance for CEQA:**

- Substantial impacts on construction from shallow groundwater lenses and potential pollution of runoff during de-watering operations
- Substantial impacts from temporary construction easements, preventing use of adjacent land for intended uses or causing long-term impacts
- Substantial visual impacts associated with views of construction staging areas
- Substantial traffic disruption during construction
- Substantial traffic disruption during construction affecting school bus and emergency response routes
- Substantial danger to construction workers and the general public due to potential earthquake damage during construction
- Substantial impact on capacity of landfills from demolition.

#### **CEQA Findings:**

##### **A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE**

Under the (Enhanced) Reduced Build Alternative, isolated lenses of shallow groundwater may be encountered during construction, and temporary construction easements on adjacent properties may be necessary. Widening of the freeways that are part of the (Enhanced) Reduced Build Alternative and interchange improvements would result in traffic disruptions and detours. Storage of construction vehicles, equipment and materials in staging areas would result in a short-term reduction of visual quality. After mitigation, the impacts outlined above are anticipated to be less than significant (see CON-(E)RB-1, CON-(E)RB-2, CON-(E)RB-3, CON-(E)RB-PA-4, CON-(E)RB-5, CON-(E)RB-6, CON-(E)RB-PA-7).

**B. OTHER ALTERNATIVES****1. NO BUILD ALTERNATIVE**

The No Build Alternative would not have impacts to the above construction activities.

**2. TSM/EXPANDED BUS SERVICE ALTERNATIVE**

Only minor construction is proposed under the TSM/Expanded Bus Service Alternative. All impacts related to construction are anticipated to be less than significant.

**3. FULL BUILD ALTERNATIVE**

Under the Full Build Alternative, isolated lenses of shallow groundwater may be encountered during construction, and temporary construction easements on adjacent properties may be necessary. Widening of the freeways that are part of the Full Build Alternative and interchange improvements would result in traffic disruptions and detours. Storage of construction vehicles, equipment, and materials in staging areas would result in a short-term reduction of visual quality. After mitigation, the impacts outlined above are anticipated to be less than significant.

**4.15.2 MITIGATION****A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE**

See Sections 4.1 through 4.14 for mitigation measures for the (Enhanced) Reduced Build Alternative. In addition, the following mitigation measures are required:

CON-(E)RB-1. If shallow groundwater lenses are encountered during construction, appropriate dewatering measures will be used to prevent impacts on construction and to ensure that polluted runoff does not leave the site. Disposal of the excess water shall be in compliance with the applicable NPDES permit and the Department's standards.

CON-(E)RB-2. If temporary construction easements result in an inability for landowners to use their property as intended, additional substantial impacts not foreseen in this document could occur. Following construction, affected properties will be returned to their pre-construction condition.

CON-(E)RB-3. Where appropriate and feasible, construction staging areas will be located inconspicuously to minimize adverse visual effects upon residential and recreational areas.

CON-(E)RB-4. During final design, the Department will work closely with the affected local agencies to coordinate traffic control plans, construction schedules, and necessary detours for both motorized and non-motorized vehicles. The Department will establish a Transportation Management Plan (TMP) consistent with the Department's standard procedures to minimize localized congestion and travel delays during construction. Development and implementation of this plan shall be coordinated with local agencies and transit districts. The TMP will include provisions for public notification through various forms of media. Construction will begin after right-of-way acquisitions and final designs are complete. The TMP will ensure that the construction activities of the project will not negatively impact school bus and emergency services, and any other essential services. There will be a public hotline for concern citizens to report any construction activities that are negatively impacting their community.

CON-(E)RB-5. Prior to beginning construction, the Department will submit a copy of the proposed construction schedule and detour information to all potentially affected school districts

and associated transportation departments so that school bus routes and emergency vehicle routes can be revised.

CON-(E)RB-6. The Department will require all construction contractors to integrate recycling or material reuse programs into their bid proposals.

CON-(E)RB-7. Construction techniques will be used to ensure the safety of construction workers and the general public in the event of an earthquake. Such techniques will include the use of shoring and falsework to support structures under construction and limiting access to dangerous areas, such as the foot of newly constructed slopes, areas around equipment, and materials storage areas.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None required.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None required.

3. FULL BUILD ALTERNATIVE

See Sections 4.1 through 4.14. In addition, mitigation measures CON-PA 1 through CON-PA 7 (listed under the PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE) are required.

4.15.3 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

It is unlikely that all construction staging areas can be located inconspicuously in the dense urban areas that border the project. Therefore, substantial short-term impacts would remain after mitigation for the construction period.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Less than substantial.

3. FULL BUILD ALTERNATIVE

See A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE, above.