TEMPORARY CONSTRUCTION IMPACTS

Construction activities would have a temporary impact on businesses and residences in the Study Area. During construction, motorists and other people living and working in the surrounding area could experience temporary inconveniences associated with traffic delays, detours, and construction dust and noise.

Potential construction impacts for each action alternative and measures to reduce impacts are presented in this section. The following environmental categories have been considered in this analysis: air quality, noise, water resources, socioeconomic conditions, pedestrian and vehicular traffic, utilities, and visual resources. Construction impacts on biological resources and cultural resources are presented in the sections, *Biological Resources* and *Cultural Resources*, on pages 4-117 and 4-128, respectively.

ENVIRONMENTAL CONSEQUENCES AND MITIGATION

All Action Alternatives, Western and Eastern Sections

Air Quality

Construction air quality impacts of the proposed action would be limited to short-term increased fugitive dust and mobile source emissions. CO is the pollutant of concern when considering localized air quality impacts of motor vehicles. Because CO emissions from motor vehicles increase with slower speeds, disruption of traffic during construction could result in short-term elevated concentrations of CO because of the temporary reduction of road capacity and increased queue lengths. To minimize emissions, efforts would be made during the construction phase to limit disruption to traffic, especially during peak travel periods.

A traffic control plan would be developed and implemented (as described later in this section) to help reduce impacts of traffic congestion and associated emissions during construction.

Fugitive dust would be generated by haul trucks, concrete trucks, delivery trucks, and other earthmoving vehicles operating around the construction sites. Increased dust levels would be attributable primarily to PM resuspended by vehicle movement over paved and unpaved roads and other surfaces, dirt tracked onto paved surfaces from unpaved areas at access points, and material blown from uncovered haul trucks.

Generally, the distance that particles drift from their source depends on size, height at which the emission occurs, and wind speed. Small particles (30- to 100-micron range) can travel more than 30 feet before settling to the ground, depending on wind speed. Most fugitive dust, however, is made up of relatively large particles (i.e., greater than 100 microns in diameter). These particles are responsible for the reduced visibility often associated with this type of construction. Given their relatively large size, these particles tend to settle within 20–30 feet of their source.

To reduce the amount of construction dust generated, particulate control measures related to construction activities must be followed. The following mitigation measures would be followed, when applicable, in accordance with the most recently accepted version of the ADOT *Standard Specifications for Road and Bridge Construction* (2008).

- Site preparation
  - Minimize land disturbance.
  - Use watering trucks to minimize dust.
  - Stabilize the surface of dirt piles if not removed immediately.
  - Use windbreaks to prevent accidental dust pollution.
  - Limit vehicular paths and stabilize temporary roads.
  - Prevent dirt from being tracked or washed onto paved roads, by using 50-foot-long track-out pads consisting of 12-inch-deep aggregate, 3 to 6 inches in diameter, placed over geotextile fabric adjacent to paved roads.
- Construction
  - Use dust suppressants on unpaved travel paths.
  - Minimize unnecessary vehicular and machinery activities.
  - Prevent dirt from being tracked or washed onto paved roads, by using 50-foot-long track-out pads consisting of 12-inch-deep aggregate, 3 to 6 inches in diameter, placed over geotextile fabric adjacent to paved roads.
- Postconstruction
  - Revegetate or use decomposed granite on all disturbed land (see section, *Mitigation*, beginning on page 4-126, regarding applicable measures to reduce impacts on biological resources).
  - Remove dirt piles and unused materials.
  - Revegetate all vehicular paths created during construction to avoid future off-road vehicular activities.

In accordance with Maricopa County Rule 310, Fugitive Dust Ordinance, the contractor shall obtain an approved "Application for Earth Moving Permit, Demolition, and Dust Control Plan" prior to construction from MCAQD for all phases of the proposed action. The permit would describe measures to control and regulate air pollutant emissions during construction.

Noise

Construction noise differs from traffic noise in several ways (see text box on page 4-89 regarding construction noise).

- Construction noise can be louder than traffic noise, but lasts only during the construction contract and is usually limited to the daylight hours, when most human activity occurs.
- Construction activities generally are of a short-term nature, and, depending on their nature, such activities could last from seconds (e.g., a truck passing a receiver) to months (e.g., construction of a bridge).
- Construction noise is also intermittent and dependent on the type of operation, location, function of the equipment, and the equipment use cycle. Traffic noise, on the other hand, is present in a more continuous fashion after construction activities are completed.

Land uses near the proposed freeway would be exposed to noise from construction activity if any of the action alternatives were the Selected Alternative. The only differences between alternatives would be the location where construction would occur. As noted, the impacts would be temporary, ending upon completion of construction.

To minimize noise impacts from construction activities, the following measures would be implemented for the Selected Alternative:

- All equipment exhaust systems would be in good working order. Properly designed engine enclosures and intake silencers would be used.
- Equipment would be maintained on a regular basis.

- New equipment would be subject to new product emission standards.
- Stationary equipment would be located as far away from sensitive receivers as possible.
- Construction-related noise generators would be shielded from noise receivers (e.g., use temporary enclosures to shield generators or crushers, take advantage of site conditions to provide topographic separation).
- Construction alerts would be distributed to keep the public informed of construction activities and a toll-free number for construction-related complaints would be provided.
- During the design phase, hours of operation would be evaluated to minimize disruptions during construction.

Water Resources

Construction activities for all action alternatives would result in the potential for soil erosion and subsequent increased sediment loading into Study Area receiving waters. Without protective measures during construction, these conditions could persist until the proposed freeway were completed, when permanent measures would be established to minimize impacts on the quality of the receiving waters.

The types of construction-related impacts on water quality would be similar among the action alternatives. Each action alternative would require earthwork with the potential to adversely affect water quality in adjacent receiving waters in the Study Area. The permitting processes described in the sections, *Water Resources* and *Waters of the United States*, beginning on pages 4-93 and 4-108, respectively, outline procedures to mitigate water quality impacts during construction.

Socioeconomic Conditions

Construction may temporarily disturb access to local businesses in the Study Area. The effect would be expected to be minimal because most of the freeway would be built on a new alignment. Mitigation of potential business impacts would be achieved using traffic control management procedures set forth in ADOT's *Standard Specifications for Road and Bridge Construction* (2008).

Pedestrian and Vehicular Traffic

Construction would temporarily affect traffic movement, on-street parking, and access to adjacent properties along existing streets during times that construction activity would occur (e.g., during interchange construction). The number of lanes along existing arterial streets near construction may need to be reduced at times. Detours may be necessary at some locations.

Congestion from construction-related traffic would create temporary impacts in the project vicinity. The magnitude of these impacts would vary, depending on the location of sources of fill material and of disposition sites for surplus material, land uses along the routes, duration of hauling operations, staging locations, and construction phasing. To identify acceptable routes and times of operation, ADOT, or its representative, would prepare an agreement with local agencies regarding hauling of construction materials on public streets.

Traffic would be managed by detailed traffic control plans and by procedures and guidelines specified in Part VI of FHWA's *Manual on Uniform Traffic Control Devices*, 2009 edition, and by the Arizona Supplement to Part VI of the *Manual on Uniform Traffic Control Devices* (ADOT 2012). In planning traffic control measures, the contractor would coordinate with potentially affected public services. Access would be maintained during construction, and construction activities that might substantially disrupt traffic would not be performed during peak travel periods. To minimize disruption, ADOT would coordinate with local jurisdictions regarding traffic control and construction activities during special events. Requirements for the use of construction notices and bulletins would be identified as needed. The effectiveness of the traffic control measures would be monitored during construction and any necessary adjustments would be made.

Cultural Resources

Pedestrian access to the TCPs would not be precluded during construction, but might temporarily involve out-of-direction travel. It is understood that Community use of the TCPs is not seasonal, so avoidance of impacts would not be possible through construction scheduling. All TCPs would be appropriately protected (e.g., temporary fencing) during construction.

Utilities

Table 4-53 shows the major existing public utilities within the alignments of the action alternatives. Lengths of impact shown in this table are at the planning level and are subject to change. ADOT would coordinate with the responsible local entities regarding the relocation of utilities, as appropriate. ADOT coordination with affected utilities would be ongoing and would continue through the design phase. Utilities with prior rights would be relocated at ADOT cost according to the requirements of the utility.

Disruptions to utility services, if necessary, would be restricted to being short term and localized. Advanced planning would be accomplished during the Selected Alternative's design phase (if an action alternative were identified as the Selected Alternative) so that interruptions in utility services to customers would not occur or would be minimized. ADOT and project contractors would continue to coordinate with utility providers during the design phase and during project construction to identify potential problems and/or conflicts and to provide opportunities for their resolution prior to proposed actions. Replacement and/or relocation of utilities would be coordinated with ADOT construction activities and other projects in the area to minimize disruption to adjacent properties and traffic. Planning for the proposed action, if an action alternative were to become the Selected Alternative, would include scheduling of disruptions and prior notification of adjacent property owners who would be affected by temporary service cutoffs. Emergency response procedures would be outlined by ADOT in consultation with local utility providers to ensure quick and effective repair of any inadvertent or accidental disruptions in service.

Visual Resources

Temporary construction features, such as excavation areas, soil stockpiles, crane towers, equipment and materials storage, false work, and other miscellaneous items, would be visible from surrounding land. Temporary visual impacts would be greatest where the freeway route would be located adjacent to existing residential developments and where large system traffic interchanges would be constructed. No mitigation measures are proposed.

Table 4-53 Potential Major Utility Impacts, Action Alternatives

Utility	Western Section										Eastern Section	
	W59 Alternative		W71 Alternative		W101 Alternative Western Option		W101 Alternative Central Option		W101 Alternative Eastern Option		E1 Alternative	
	Line Type	Length of Impact (feet)	Line Type	Length of Impact (feet)	Line Type	Length of Impact (feet)	Line Type	Length of Impact (feet)	Line Type	Length of Impact (feet)	Line Type	Length of Impact (feet)
Cable	OH[a] FO[b]	1,300	OH FO	4,185	OH FO	1,030	OH FO	1,030	OH FO	1,030		
			UG[c] cable	690	UG FO	1,340	UG FO	1,260	UG FO	1,890		
			UG FO	1,150	OH cable	1,770	OH cable	2,910	OH cable	1,585		
									UG cable	465		
Gas	7"[d]–10"	650	7"–10"	1,630	7"–10"	740	7"–10"	1,960	7"–10"	2,310	7"–10"	2,750
	17"–30"	540	17"–30"	635	11"–16"	930	11"–16"	1,920	11"–16"	1,765	11"–16"	1,575
					17"–30"	620	17"–30"	990	17"–30"	720		
Phone	CenturyLink	15,895	CenturyLink	17,885	CenturyLink	17,965	CenturyLink	13,705	CenturyLink	11,270	CenturyLink	22,585
	AT&T	605	AT&T	640	Sprint	750	Sprint	940	Sprint	1,160		
	Sprint	1,300	Sprint	840								
Power	OH SRP[e]	15,940	OH SRP	9,190	OH SRP	5,000	OH SRP	6,575	OH SRP	6,535	OH Western	830
	OH Western[f]	470	OH Western	1,200	OH Western	515	OH Western	490	OH Western	645	UG SRP	3,880
	UG SRP	1,300	UG SRP	1,630							OH SRP	1,175
	OH APS[g]	470									OH APS	400
Sewer	17"–30"	10,480			31"–48"	2,965	17"–30"	2,375	17"–30"	3,675	31"–48"	19,790
	>49"	3,200			>49"	8,290	31"–48"	5,715	31"–48"	7,940		
							>49"	10,270	>49"	7,990		
Water	11"–16"	4,760	11"–16"	5,570	11"–16"	1,560	11"–16"	9,760	11"–16"	8,370	11"–16"	1,355
			>49"	2,655							31"–48"	34,445
Irrigation	SRP siphons	3,235	SRP siphons	3,805	SRP siphons	4,200	SRP siphons	4,200	SRP siphons	4,200	SRP laterals	790
	SRP laterals	19,230	SRP laterals	23,115	SRP laterals	25,405	SRP laterals	24,045	SRP laterals	25,145		
	RID[h] canal	565	RID canal	1,210								

[a] overhead [b] fiber-optic [c] underground [d] inches [e] Salt River Project [f] Western Area Power Administration [g] Arizona Public Service [h] Roosevelt Irrigation District

Section 4(f) Resources

Trails near and adjacent to the proposed action would experience temporary closures or detours during construction for safety reasons. In the event of short-duration closure, the remaining portions of the trail would remain accessible.

No-Action Alternative

No construction-related impacts would result from this alternative.

CONCLUSIONS

Construction activities associated with a project the size and magnitude of the proposed action would create temporary impacts on human and natural environments. Throughout the Phoenix metropolitan area, ADOT and FHWA have demonstrated experience in the construction of projects like the proposed action. Similar measures outlined in this section and in previous sections of this chapter (e.g., *Topography*, *Geology*, *and Soils*, beginning on page 4-113) have been applied to those projects and have proven effective in reducing construction-related impacts.

Public awareness during construction

As projects transition into construction, ADOT maintains its dedication to communicating with the public. Public information meetings are typically held at the beginning of construction activities, informing communities of the upcoming improvements and work schedules. The public can also be kept informed through construction updates/newsletters, fliers, project information hotlines, Web sites, periodic meetings, project offices, and radio and newspaper advertising. See Chapter 6, *Comments and Coordination*, for additional information regarding public interaction for the proposed action.