

Jurisdictional Waters Report

In support of the Environmental Impact Statement

South Mountain Transportation Corridor in Maricopa County, Arizona

> Arizona Department of Transportation Federal Highway Administration in cooperation with U.S. Army Corps of Engineers U.S. Bureau of Indian Affairs Western Area Power Administration



November 2012

Federal-aid Project Number: NH-202-D(ADY) ADOT Project Number: 202L MA 054 H5764 01L



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Abstract: This document assesses and describes the effects on jurisdictional waters that would occur as a result of the construction and operation of the proposed South Mountain Freeway as adopted in the 2003 *Regional Transportation Plan.* Contents of this document will be presented in Chapter 4 of the South Mountain Transportation Corridor Environmental Impact Statement.

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List of Acronyms and Abbreviations

ADEQ	Arizona Department of Environmental Quality		
ADOT	Arizona Department of Transportation		
С	Central		
C.F.R.	Code of Federal Regulations		
Community	Gila River Indian Community		
CWA	Clean Water Act		
Ε	Eastern		
E1	E1 Alternative		
EIS	environmental impact statement		
EPA	U.S. Environmental Protection Agency		
FHWA	Federal Highway Administration		
FR	Full Reconstruction		
I-10	Interstate 10		
MAG	Maricopa Association of Governments		
NEPA National Environmental Policy Act			
OHWM ordinary high water mark			
R Partial Reconstruction			
SMTC	South Mountain Transportation Corridor		
SR	State Route		
TI	traffic interchange		
TNW	traditional navigable water		
USACE	U.S. Army Corps of Engineers		
W	Western		
W101CFR	W101 Alternative, Central Option, Full Reconstruction		
W101 CPR W101 Alternative, Central Option, Partial Reconstr			
W101EFR W101 Alternative, Eastern Option, Full Recon			
W101 Alternative, Eastern Option, Partial Reconst			
W101WFR W101 Alternative, Western Option, Full Reconstruct			
W101WPR W101 Alternative, Western Option, Partial Recons			
V59 W59 Alternative			
W71	W71 Alternative		

Glossary

affected environment	Those elements of the Study Area that may be changed by the proposed alternatives. These changes might be positive or negative in nature.		
aquifer	A saturated permeable geologic formation that can transmit significant quantities of water under hydraulic gradients.		
capacity	The maximum number of vehicles that a given section of roadway or traffic lane can accommodate.		
cumulative impact	The impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 Code of Federal Regulations § 1508.7)		
direct impact	A direct consequence of the construction or operation of a proposed action alternative on the environment in the Study Area.		
Eastern Section	The portion of the Study Area located east of 59th Avenue.		
environmentalThe project documentation prepared in accordance with the Nationimpact statementEnvironment Policy Act when the project is anticipated to have a s(EIS)impact on the environment.			
ephemeral	Present only during a portion of the year. Generally refers to watercourses that flow only after storms.		
Federal Highway Administration (FHWA)	A branch of the U.S. Department of Transportation responsible for administering the Federal-aid Program. The program provides financial resources and technical assistance for constructing, preserving, and improving the National Highway System along with other urban and rural roads.		
fill	Earth used to create embankments or to raise low-lying areas in order to bring them to grade.		
floodplain	The part of the ground surface inundated with water on a recurring basis, usually associated with the 1 percent recurrence interval (100-year) flow.		
floodway	Defined with respect to flood control, the floodway is that portion of the floodplain in which construction would raise the water level during the 100-year flood by more than 30 centimeters (1 foot).		
	As a general definition, the floodway is (1) a part of the floodplain, otherwise leveed, reserved for emergency diversion of water during floods and kept clear of encumbrances to facilitate the passage of floodwater, and (2) the channel of a river or stream and those parts of the floodplains adjoining the channel that are reasonably required to carry and discharge the floodwater or flood flow of any river or stream.		

intermittent	A stream that flows at only certain times of the year (not continuous) because of the balance between water losses from evaporation and seepage and actual stream flow.			
jurisdictional waters	Waters of the United States, as defined in 33 Code of Federal Regulations § 328.3(a).			
mitigation	An action taken to reduce or eliminate an adverse impact stemming from construction, operation, or maintenance of a proposed action alternative. Mitigation could reduce the magnitude and extent of an impact from a level of significance to a level of insignificance. Mitigation includes avoiding the impact altogether by not taking a certain action or parts of an action; <i>minimizing</i> impacts by limiting the degree of magnitude of the action and its implementation; <i>rectifying</i> the impact by repairing, rehabilitating, or restoring the affected environment; <i>reducing or eliminating</i> the impact over time by preservation and maintenance operations during the life of the action; and <i>compensating</i> for the impact by replacing or providing substitute resources or environments. (40 Code of Federal Regulations § 1508.20)			
perennial	Present throughout the year.			
riparian	An aquatic or terrestrial ecosystem that is associated with bodies of water, such as streams, lakes, or wetlands, or is dependent on the existence of perennial, intermittent, or ephemeral surface or subsurface water drainage. Riparian areas are usually characterized by dense vegetation and an abundance and diversity of wildlife.			
secondary impact	A change that is caused by the action and is later in time or farther removed in distance, but is still reasonably foreseeable. Secondary impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air, water, and other natural systems, including ecosystems.			
Study Area	The geographic area within which action alternative solutions to a problem are developed.			
upland	Ground elevated above drainage features, wetlands, and rivers that could be banks, hills, and slopes. Land that is generally dry.			
Western Section	The portion of the Study Area located west of 59th Avenue.			
wetlands	According to the U.S. Army Corps of Engineers, wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, under normal conditions, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and similar areas, and are subject to protection under Executive Order 11990 and Section 404 of the Clean Water Act, as amended.			

1. Project Description and Purpose and Need

Project Description

The Arizona Department of Transportation (ADOT) is studying the South Mountain Transportation Corridor (SMTC) in southern Phoenix, Maricopa County, Arizona. The South Mountain Freeway corridor was adopted into the Maricopa Association of Governments (MAG) regional freeway system in 1985 as part of the MAG Freeway/Expressway Plan (MAG 1985), at which time it was placed on the state highway system by the State Transportation Board. In 1988, ADOT prepared a design concept report and a state-level environmental assessment for the project, identified at that time as the South Mountain Parkway (ADOT 1988a, 1988b). As presented then, the project would connect Interstate 10 (I-10) (Maricopa Freeway) south of Phoenix with I-10 (Papago Freeway) west of the city, following an east-to-west alignment along Pecos Road through the western tip of the Phoenix South Mountain Park/Preserve, then north to I-10 between 59th and 99th avenues. Because of the time elapsed since those documents were approved and to secure eligibility for federal funding for a proposed project within this corridor, ADOT and the Federal Highway Administration (FHWA) are now preparing an environmental impact statement (EIS) in accordance with the National Environmental Policy Act (NEPA). In November 2004, the MAG Regional Transportation Plan (2003) was placed before Maricopa County voters, who approved the sales tax funding the plan. The South Mountain Freeway was included in this plan.

Alternatives considered for the SMTC included past freeway proposals as well as transportation system management, transportation demand management, transit improvements, arterial street network improvements, and land use controls. A freeway facility was determined to best address the project purpose and need. Therefore, this report discusses the potential impacts of a proposed freeway in the SMTC.

The Study Area for the EIS encompasses more than 156 square miles and is divided into a Western Section and an Eastern Section at a location common to all action alternatives (Figure 1). The division between sections occurs just east of 59th Avenue and south of Elliot Road.

Within the Western Section, three action alternatives are being considered for detailed study. These are the W59, W71, and W101 Alternatives. The W59 Alternative would connect to I-10 at 59th Avenue, while the W71 Alternative would connect at 71st Avenue. The W101 Alternative would connect to I-10 at the existing State Route (SR) 101L (Agua Fria Freeway)/I-10 system traffic interchange (TI) and has six associated options. The W101 Alternative options vary geographically among the Western (W), Central (C), and Eastern (E) Options and would vary geometrically based on a Partial Reconstruction (PR) or a Full Reconstruction (FR) of the system TI.

Improvements to I-10 (Papago Freeway) would occur for each Western Section action alternative (W59, W71, and W101). Improvements to SR 101L would occur for each option associated with the W101 Alternative.



Within the Eastern Section of the Study Area, one action alternative is being considered. The E1 Alternative would begin near Elliot Road and 59th Avenue and proceed to the southeast to Pecos Road, which it would follow to the east until connecting to I-10 (Maricopa Freeway) at the Pecos Road/I-10/SR 202L (Santan Freeway) system TI.

The action alternatives and options are summarized in Table 1.

Section	Interstate 10 Connection	Action Alternative	Option – Broadway Road to Buckeye Road	Option – State Route 101L/ Interstate 10 Connection Reconstruction	Option Name
	59th Avenue	W59	a		
	71st Avenue	W71	—		_
	State Route 101L	W101	Western	Partial Reconstruction	W101WPR
Western				Full Reconstruction	W101WFR
western			Central	Partial Reconstruction	W101CPR
				Full Reconstruction	W101CFR
			Eastern	Partial Reconstruction	W101EPR
				Full Reconstruction	W101EFR
Eastern	Eastern Pecos Road E1 —				

Table 1. Action Alternatives and Options

^a not applicable

The No-Action Alternative is being considered for the entire Study Area.

Purpose and Need

An analysis of population trends, land use plans, and travel demand shows that a considerable traffic problem in the Phoenix metropolitan area is projected for the future, resulting in the need for a new freeway in the SMTC. This traffic problem is likely to worsen if plans are not made to accommodate the regional travel anticipated. The purpose of a freeway within the SMTC is to support a solution to traffic congestion. Between the early 1950s and the mid-1990s, the metropolitan area grew by over 500 percent, compared with approximately 70 percent for the United States as a whole (MAG 2001). From 1980 to 2005, the Maricopa County population more than doubled, from 1.5 million to 3.7 million. The MAG region has been one of the fastest-growing metropolitan areas in the United States; Phoenix is now the fifth-largest city in the country, and the region ranks as the 12th-largest metropolitan area in the country.

Travel demand and vehicle miles driven in the metropolitan area are expected to increase at a faster rate than the population. MAG projections (conducted in collaboration with the Arizona Department of Economic Security) indicate Maricopa County's population will increase from 3.7 million in 2005 to 6.5 million in 2035 (MAG 2009). It is projected that in the next 25 years, daily vehicle miles traveled will increase from 101 million to 185 million.

Even with anticipated improvements in light rail service, bus service, trip reduction programs, and existing roads and freeways, vehicle traffic volumes are expected to exceed the capacity of Phoenix metropolitan area streets and highways by as much as 11 percent in 2035. A freeway within the SMTC would accommodate approximately 6 percentage points of the 11 percent of the unmet travel demand and would be part of an overall traffic solution.

2. Affected Environment

Background

The U.S. Army Corps of Engineers (USACE) administers Section 404 of the Clean Water Act (CWA), which regulates the discharge of dredged or fill material into waters of the United States (jurisdictional waters), including wetlands. USACE regulates jurisdictional waters through permitting, using nationwide and individual permits.

Types of waters of the United States that are regulated include wetlands, ephemeral washes, perennial streams, springs, riverbeds, and special aquatic sites. The physical attributes of a water body are a key component of the waters of the United States determination. The types of activities that may affect jurisdictional waters are fundamental to the associated permitting requirements and development of appropriate mitigation measures.

Clean Water Act Sections 404 and 401 Permitting

On February 8, 2005, FHWA, ADOT, and USACE entered into an Operating Agreement (see Appendix A) that applies to transportation projects that are both an FHWA action under NEPA and require a USACE individual permit under Section 404 of the CWA (USACE et al. 2005). The Operating Agreement commits FHWA, USACE, and ADOT to integrating NEPA and Section 404 of the CWA in the transportation planning, decision-making, and implementation process. According to the Operating Agreement, when avoidance of waters of the United States is not practicable, minimization of impacts would be achieved, and unavoidable impacts would be mitigated to the extent reasonable and practicable. The permitting process for Section 404 requires CWA Section 401 certification. This certification is regulated by the Arizona Department of Environmental Quality (ADEQ) for waters of the United States, except on tribal land, which is regulated by the U.S. Environmental Protection Agency (EPA).

It is anticipated that an individual Section 404 permit and an individual Section 401 certification would be needed. It would be filed with USACE according to the Operating Agreement.

Description of Jurisdictional Waters

Jurisdictional waters in the Study Area include the Salt and Gila rivers and possibly ephemeral washes. No springs, wetlands, or other special aquatic sites are known to be within the Study Area.

According to 33 Code of Federal Regulations (C.F.R.) § 328.3(a), waters of the United States are interstate "navigable waters" (defined in 33 C.F.R. § 329) of the United States, including the territorial seas that are currently used, have been used in the past, or may be used in the future for foreign or interstate commerce. These are water bodies that have been used, are being used, or could be used to transport goods or services (including recreation) for interstate or foreign commerce. Such waters include interstate lakes, rivers, and streams (including intermittent streams) and their tributaries; mudflats; sandflats; wetlands; sloughs; prairie potholes; wet meadows; playa lakes; or natural ponds whose use,

degradation, or destruction could affect interstate or foreign commerce activities. USACE determines whether a feature is a water of the United States eligible for protection under Section 404 of the CWA.

In two 2006 court cases, *Rapanos v. United States* and *Carabell v. United States*, the Supreme Court addressed instances where the federal government can apply the CWA. These cases challenged federal jurisdiction to regulate isolated wetlands under the CWA. In response to the 2006 Supreme Court cases, the EPA headquarters provided guidance (EPA and USACE 2008) to EPA regions and USACE districts to ensure that jurisdictional determinations and permitting are consistent with the decision. The guidance addresses which waters are subject to CWA regulations and identifies waters that fall under USACE's jurisdiction. This guidance further defined waters of the United States, within 33 C.F.R § 328.3(a), as traditional navigable waters (TNWs) or those waters (including ephemeral washes) that demonstrate a significant nexus, or surface connection, to a TNW. USACE interprets a TNW to be a "navigable water" as defined in 33 C.F.R. § 329. According to this guidance, USACE "will assert jurisdiction over TNWs, wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally, wetlands that directly abut such tributaries" and wetlands and other waters with a significant nexus to TNWs (EPA and USACE 2008).

The basis used to identify existing conditions is summarized as:

- discussions with USACE regarding the method of identifying waters of the United States in Arizona, including ephemeral washes and the Salt River channel
- USACE regulatory guidance letter (No. 08-02) for jurisdictional delineations, dated June 26, 2008 (USACE 2008a)
- CWA jurisdictional memorandum and guidance to EPA regions and USACE districts regarding the Supreme Court decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (December 2, 2008)
- ► field investigation of waters of the United States to determine jurisdictional limits (field investigation of ephemeral washes in the Eastern Section E1 Alternative was conducted in 2003)

Wetlands are a special class of waters of the United States that, for at least part of the growing season, exhibit a dominance (greater than 50 percent) of hydrophytic vegetation, have soil indicators (hydric soils), and have defined wetland hydrology. USACE has established a specific methodology to delineate the boundary of a wetland, which is found in the USACE *Wetlands Delineation Manual* (1987). The delineation manual establishes specific field indicators to measure the vegetation, soil characteristics, and hydrologic regime to determine whether the area is considered a jurisdictional wetland.

Wetlands are relatively scarce in southern Arizona and are normally found only in locations adjacent to river/stream channels, surface springs, or closed drainage basins. In some cases, artificial augmentation of the area hydrology from effluent discharge or irrigation return water can form wetland areas.

The jurisdictional boundary of ephemeral washes defined as waters of the United States is determined based on establishment of the "ordinary high water mark" (OHWM). USACE has developed a specific methodology for establishing the OHWM and the jurisdictional status of channels, outlined in the *Final Summary Report: Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest* (USACE 2001) and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). Using this methodology, the OHWM is determined by means of field observation of physical evidence such as changes in soil characteristics, presence of waterborne debris, drift lines, cut banks, changes in vegetation patterns, or features associated with the limits of an active floodplain. The methodology also involves evaluation of the connectivity of the channel, the hydrologic regime, and other physical characteristics to establish the regulatory status of the channel.

Jurisdictional Waters within the Study Area

Western Section

Much of the Western Section of the Study Area is in agricultural, residential, industrial, or another developed use. These areas are relatively flat, and drainage patterns have been altered by land use practices. Numerous lined and unlined irrigation conveyance channels (supply, feeder, and return) have been constructed in the upland agricultural areas (Figure 2).

Approximately 9 linear miles of the Salt River channel are within the Study Area. The Salt River channel is considered a water of the United States. The channel functions as a surface water conveyance system and offers some attenuation of flood flows (Arizona Floodplain Management Association 2000). The channel may trap suspended sediment and retain nutrients from discharge flows, thus serving a water quality function.

The Salt River is oriented from east to west across the Western Section of the Study Area, from 39th Avenue to 111th Avenue. The Salt River channel is surrounded by cultivated fields and developed (residential, commercial, or industrial) areas. These areas are relatively flat, with drainage patterns altered by land use practices. Several locations in the Salt River channel have been mined for aggregate material, and, as a result, there are several abandoned or active aggregate extraction pits. The pits may intercept groundwater and may have varying depths of water depending on time of year and fluctuating annual hydrologic cycles. The channel may also receive occasional irrigation return flows, stormwater outfall discharge flows, or wastewater treatment plant effluent discharge flows.



Several active facilities and projects are located within and adjacent to the Salt River. The Tres Rios project, near the 91st Avenue Wastewater Treatment Plant, is a constructed wetlands demonstration project that includes three separate facilities (Figure 3) (USACE 2000). The first facility is the Hayfield wetland site, currently the only functioning facility of the three facilities. It is located on what was once an old cultivated field. The site consists of two kidney-shaped wetland cells whose flow paths are oriented from west to east and have identical surface areas. The site is located on a level terrace situated above the Salt River floodway and would be subject to flood flows that exceed only the 100-year flood. Each Hayfield cell is approximately 750 feet long and 200 feet wide, with a surface area of 3 acres (USACE 2000). The second Tres Rios facility is the Cobble wetland site, which consists of two elongated cells located within the Salt River floodway. Both cells have identical surface areas with their flow paths oriented from east to west. Each basin is approximately 900 feet long and 115 feet wide, with a total surface area of approximately 2.2 acres. The southern cell was decommissioned in 2004. The third wetland system at Tres Rios is a series of 12 small research cells located within two unused sludge-drying basins; the cells cover approximately 3.6 acres. These cells were decommissioned in 2003 (City of Phoenix 2008).

The Rio Salado Oeste River Restoration Project is a proposed USACE and City of Phoenix project currently in the preliminary engineering and design phase. When completed, the project would be located in the Salt River between 19th and 83rd avenues in the Western Section of the Study Area. If and when completed (full funding is not yet available), Rio Salado Oeste would restore flood conveyance, improve the native riparian ecosystem, and provide incidental passive recreation associated with the ecosystem (USACE 2002).

Eastern Section

The Eastern Section of the Study Area contains potential ephemeral washes (waters of the United States) that drain the southern side of the South Mountains and their associated foothills. These washes trend to the south or slightly southwest and discharge to the Gila River (south of the E1 Alternative) or to the inactive agricultural fields along the Gila River Indian Community (Community) border. Cultivated fields are present along the Community border south of Pecos Road from approximately 1 mile west of 27th Avenue to approximately 0.5 mile east of 27th Avenue. Inactive agricultural fields are present from 24th Street to the eastern limits of the Eastern Section. A concrete-lined irrigation conveyance channel is present throughout the Eastern Section adjacent to the northern boundary of the cultivated fields. Most of the washes identified cross under Pecos Road in culverts. Residential development along the foothills of the South Mountains has also altered some drainage and washes. Two representative washes are illustrated in Figure 4.

These washes and drainages vary from 1 to over 25 feet in width. The channel substrate also varies, but is generally bedrock, gravel/cobble, or coarse sand. Many of the channels are relatively shallow with marginal bank definition. Many have several braided subchannels within the main channel. This is most evident in the channels along the southernmost portion of the South Mountains drainage.





Figure 4. Typical Ephemeral Washes

Ephemeral wash – Eastern Section



Typical small ephemeral wash network - Eastern Section

Most of the channel bottoms are devoid of vegetation, with the upland vegetation adjacent to the drainages consisting of typical Sonoran Desert plants such as paloverde, mesquite, ironwood, creosote bush, and various species of cacti, including saguaros (Figure 4).

Northwest of the foothills of the South Mountains, the ephemeral wash channel banks become less defined. Many of the washes near 51st Avenue and the Community consist of shallow, multibraided subchannels. These subchannels are subject to movement and realignment during storm flows and along existing road alignments or other areas of disturbance.

3. Environmental Consequences

This section is provided to facilitate the USACE review of the proposed action alternatives associated with Section 404 of the CWA. Section 404 of the CWA of 1977 (33 United States Code § 1251) establishes a permit program for activities that would discharge dredged or fill material into waters of the United States. Each action alternative was evaluated based on its potential impact on waters of the United States (fill or other permanent impacts), and potential mitigation is proposed. The analysis of CWA Section 404 requirements would be supported by close coordination with USACE in support of its role as a cooperating agency for the EIS. Section 401 of the CWA, the State Water Quality Certification, would be addressed as a component of the Section 404 process.

As stated previously, FHWA, ADOT, and USACE have entered into an Operating Agreement regarding the integration process related to transportation projects that are both FHWA actions under NEPA and require a USACE individual permit under Section 404 of the CWA. The steps outlined below would be taken by ADOT to satisfy provisions of Section 404(b)(1) of the CWA, which describes requirements for alternatives analysis in accordance with Section 404 (see the February 8, 2005, Operating Agreement in Appendix A).

- Avoid impacts altogether by not taking a certain action or part of an action. This mitigation is not possible for any action alternative. Any new freeway in the southwestern Phoenix metropolitan area connecting I-10 (Maricopa Freeway) to I-10 (Papago Freeway) would have to cross the Salt River and ephemeral washes.
- Minimize impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology or by taking affirmative steps to avoid or reduce impacts.
- Rectify impacts by repairing, rehabilitating, or restoring the affected environment.
- ▶ Reduce impacts over time by preservation and maintenance operations during the life of the action.
- Compensate for impacts by replacing, enhancing, or providing substitute resources or environments.
- Monitor impacts and take appropriate corrective measures.

In accordance with the Operating Agreement, USACE participated in the identification of the Preferred Alternative in accordance with Section 404(b)(1) of the CWA. USACE is obligated to select the least environmentally damaging practicable alternative after taking into consideration cost, existing technology, and logistics in light of overall project purposes (40 C.F.R. § 230). The operating agreement would need to consider the effects of the December 2, 2008, jurisdictional guidance memorandum (described in the *Affected Environment* section) on the designation of ephemeral washes as waters of the United States.

Impacts Associated with Western Section Action Alternatives

Jurisdictional Waters

All action alternatives in the Western Section would cross the Salt River channel, which is considered a water of the United States. Some roadway bridge structures associated with each action alternative would affect jurisdictional waters (Salt River) by adding fill in the channel. For this report, the bridge design is preliminary. The acreage of potential impacts is calculated based on preliminary design. The acreage associated with roadway bridge construction was determined based on the estimated dimensions (length and width) of the bridge structure over the waters of the United States.

The bridge width would be 145 feet without auxiliary lanes and 160 feet with auxiliary lanes. Table 2 provides the jurisdictional water acreage impacts associated with the proposed Western Section action alternatives and options. The actual impact of bridge structures on the bed of the Salt River would be substantially less than shown in Table 2 because the structure is anticipated to be designed such that only the piers would actually rest on the bed of the river.

Western Section Action Alternative/Option	Acreage	
W59	45.7	
W71	19.3	
W101WPR	16.8	
W101WFR	16.8	
W101CPR	16.8	
W101CFR	16.8	
W101 EPR	16.8	
W101EFR	16.8	

 Table 2. Jurisdictional Water Acreage Impacts on the Salt River for the Western

 Section Action Alternatives and Options

Wetlands

There are human-made constructed wetlands in the Study Area that do not exhibit all three indicators (soil, vegetation, and hydrology) and are not considered jurisdictional. The constructed wetlands (Tres Rios) east of the City of Phoenix 91st Avenue Wastewater Treatment Plant (Figure 3) and the former gravel mine pits in the Salt River are not jurisdictional. One former gravel mine pit in the Salt River channel that exhibits the hydrology indicator of a wetland may be directly affected by action alternatives in the Western Section. This former gravel mine pits are not regulated wetlands if there is an absence of wetland vegetation or if the pits are actively used in mining. Based on a field investigation of the site in October 2009, wetland vegetation was absent, or the pits have been actively mined since the original technical report was initiated. Therefore, these pits are not regulated wetlands.

Consultation with the USACE Phoenix Arizona office regarding this area resulted in a determination that the former gravel mining pit is not a wetland.¹ Former gravel mine pits are determined by USACE on a case-by-case basis. USACE jurisdictional waters guidelines state:

... certain water bodies are generally not considered waters of the United States. Water bodies usually not considered waters of the United States include ... pits excavated in dry land for the purpose of obtaining fill, sand or gravel unless and until the construction or excavation operation is abandoned and resulting body of water meets the definition of waters of the United States. Although the above water bodies are typically not considered waters of the United States, the Corps of Engineers reserves the right, on a case-by-case basis, to determine that a particular water body within the above categories represents a jurisdictional water of the United States. (USACE 2001)

USACE informally agreed with the conclusion that there were no jurisdictional constructed wetlands in the Study Area in 2003; however, new determinations will be made prior to publication of the Final EIS.

Impacts Associated with Eastern Section Action Alternatives

Ephemeral Washes

The Eastern Section of the Study Area contains numerous ephemeral washes that drain the southern side of the South Mountains and their associated foothills. Approximately 51 ephemeral washes were identified from the 2003 field investigation and were presented to and discussed with USACE in October 2003. At that time, USACE concurred that the ephemeral washes identified were jurisdictional. The *Rapanos* guidance from EPA and USACE (2008) means that these determinations need to be revisited with USACE. This process will occur prior to the final EIS.

Site conditions have changed slightly since 2003 because of natural and human influences. The culverts under Pecos Road may have caused some erosion, with new washes forming as a result of erosion. Approximately 30 of the ephemeral washes crossing the E1 Alternative are truncated by cultivated fields or a concrete-lined irrigation conveyance channel east of 27th Avenue; in these situations, the 2008 *Rapanos* guidance may apply. Water tends to pond along the northern edge of the irrigation channel in many locations. Approximately 15–20 washes crossing the western end of the E1 Alternative, south and west of the South Mountains and west of the cultivated fields, may have a downstream connection to the Gila River and would be considered potential waters of the United States.

¹ Personal communication between Dana Owsiany, U.S. Army Corps of Engineers, and HDR Engineering, Inc., on December 31, 2003, Phoenix



The roadway structures associated with the E1 Alternative would affect (through placing fill in some of the channels) jurisdictional waters (ephemeral washes) if USACE were to determine that the washes were still considered waters of the United States.

The off-site drainage system anticipated for this section of the project would include a combination of new small detention basins (upstream side of roadway) and transverse crossings under the roadway. Major washes would be conveyed through new culverts or through extended existing culverts. The acreage impact associated with roadway construction was determined using the following assumptions:

- ► The average ephemeral wash width for the E1 Alternative is 5 feet, based on field observations.
- ► The roadway right-of-way width would be 300 feet.
- Total acreage impacts would occur primarily in the immediate area of the roadway within the proposed right-of-way.
- Some impacts would occur downstream if the washes were truncated and directed to a single culvert.
- ► The roadway would affect all ephemeral washes that might occur within the alternative alignments.

Based on these assumptions and the number of washes identified at the alternative, implementation of the E1 Alternative would permanently affect approximately 2 acres of ephemeral washes. Temporary construction zones might have additional impacts. A determination would be made by USACE, ADOT, and FHWA regarding whether additional mitigation would be warranted.

Wetlands

No jurisdictional wetlands or other special aquatic sites are known to occur in the Eastern Section of the Study Area.

Secondary and Cumulative Impacts

Secondary effects are defined by the Council on Environmental Quality as impacts that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 C.F.R. § 1508.8). Secondary impacts can be impacts that occur over time or are geographically removed from a direct relationship to the project. No adverse secondary impacts have been identified in the present analysis; however, effects to waters of the United States could cause ephemeral flows to increase or decrease when waters are dredged or filled, and could negatively affect xeroriparian vegetation downstream if flows were to be reduced. If the washes were to be filled, a new flow path could be created, possibly causing erosion. A secondary impact could arise if the proposed project were to block an existing drainage path, backing up water on a frequent basis and causing an area to assume wetland characteristics. This is not anticipated to occur because design criteria require maintaining existing drainage characteristics up to a 100-year flow.

Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions ..."

(40 C.F.R. § 1508.7). If a project does not directly affect a particular environmental resource, the project would not contribute to cumulative impacts on that resource. If a project contributes to an increase in the rate of land use conversion, the proposed action could increase the rate of impacts on jurisdictional waters.

Future residential, industrial, commercial, and transportation projects in the greater Phoenix metropolitan area may result in modification of existing washes. Based on the assumption that some potentially affected washes are jurisdictional, the proposed action would be a contributing factor to cumulative impacts on jurisdictional waters. For project construction, ADOT and its contractors would be required to comply with Sections 401 and 404 of the CWA and ensure that permit conditions and mitigations would be met during construction. Each future residential, commercial, and local and county transportation development resulting in impacts on jurisdictional waters would be subject to Sections 401 and 404. Therefore, potential effects on jurisdictional waters within the greater Phoenix metropolitan area would be studied and mitigated on a case-by-case basis (see the *Secondary and Cumulative Impacts Report* for further discussion).

No-Action Alternative

With the No-Action Alternative, there would be no direct impacts on any jurisdictional waters other than current impacts such as existing agriculture and development.

4. Mitigation

The following describes potential mitigation measures for ADOT to consider as future commitments to be implemented as part of the project to avoid, reduce, or otherwise mitigate environmental effects associated with the project. The discussion of these measures in this report does not obligate ADOT to these specific measures. ADOT, along with FHWA and USACE, may choose to modify, delete, or add measures to mitigate affects.

ADOT Design Responsibilities

The alternatives have been evaluated for avoidance specific to waters of the United States. Minimization would be implemented through alternatives analysis, selection, and mitigation. Compensation measures would be implemented as required (i.e., mitigation of impacts that cannot be avoided). General special conditions of the individual permit would be established as part of the permitting process and could include such conditions as listed below.

- ► ADOT would prepare and submit an application to the USACE for a CWA Section 404 permit for the entire project. The conditions of the permit would be developed according to the current Operating Agreement and would be presented in the final EIS Record of Decision. No work would occur within jurisdictional waters until the appropriate CWA Sections 401 and 404 permit were obtained.
- ► If more time were needed to complete the project than authorized by the permit, ADOT would submit a request for a time extension to USACE.
- If any previously unknown historic or archaeological remains within or adjacent to waters of the United States were discovered during construction, ADOT would immediately notify USACE.
 USACE would initiate federal and state coordination required to determine whether the discovery would warrant a recovery effort or whether the site were eligible for listing in the National Register of Historic Places.

ADOT Right-of-Way Responsibility

If ADOT were to sell the freeway, ADOT would obtain the signature of the new owner in the applicable space provided in the permit and forward a copy of the permit to USACE to validate the transfer of the authorization.

ADOT Construction District Responsibilities

The CWA Section 401 water quality certification must be reviewed and approved by ADEQ. ADEQ would review the Section 404 permit for compliance with water quality standards and would determine whether the project is in compliance with ADEQ policies and Section 401 of the CWA of 1977 (33 United States Code § 1251). ADOT would comply with specific conditions of the CWA Section 401 certification. Certification could include such conditions as:

- Prior to construction, ADOT would have the contractor review the *Environmental Protection on Arizona Department of Transportation Projects: Instructions to Contractors* and review and sign the *Checklist for Environmental Compliance*. ADOT would also sign the checklist and return it to USACE 7 calendar days prior to construction.
- The CWA Section 401 water quality certification would certify only the activities and construction of the recommended alternative and would be valid for the same period as the CWA Section 404 individual permit. If project construction has not started by the USACE deadline, the applicant would notify ADEQ.
- ADOT would provide a copy of the State 401 water quality certification conditions to all appropriate contractors and subcontractors. ADOT would post a copy of these conditions in a water-resistant location at the construction site where it may be seen by workers.
- ADOT would maintain the project authorized by the permit in good condition and in conformance with the terms and conditions of the permit. ADOT would not be relieved of this condition even if ADOT were to abandon the project. Should ADOT cease to maintain the freeway or abandon the freeway without a good faith transfer, ADOT would obtain a modification of the permit from USACE.
- ► If a substantive change/modification to the project were necessary, ADOT would provide notice and supporting information to ADEQ for review. ADEQ would then modify the certification to include the change/modifications, provided that Water Quality Standards for Surface Waters (Arizona Administrative Code Title 18, Chapter 11, Article 1) would be achieved.
- When construction begins, ADOT would notify ADEQ within 7 days of the start date. When notification is made, ADOT would provide the start date and the name and phone number of the primary contractor and a contact person. ADEQ may conduct inspections to determine compliance with surface water quality standards. When the activities are complete, ADOT would notify ADEQ within 30 days after project completion.
- Water used for dust suppression would not contain contaminants that could violate ADEQ water quality standards for surface waters or aquifers. ADOT would obtain all necessary permits for such activities, if warranted.
- ► If a dewatering operation is needed, ADOT would not discharge into waters of the United States unless the quality meets the appropriate water quality criteria for the receiving water body and ADOT obtains the necessary permits.
- ADOT would comply with all conditions set forth in the Section 401 water quality certification to be made part of the project.
- ► ADOT would allow USACE representatives to inspect the project at any time deemed necessary to ensure that it is being accomplished in accordance with the terms and conditions of the permit.
- ► ADOT would prepare written instructions for all supervisory construction personnel on the protection of cultural and ecological resources, including all agreed-to environmental stipulations for the project and all conditions required by the permit. The instructions would address federal and state laws

regarding antiquities, plants, and wildlife, including collection, removal, and the importance of these resources and the purpose and necessity of protecting them.

Prior to initiating construction activities under the permit, ADOT would ensure that the contractor(s) has been provided with a copy of the Section 404 authorization. This is intended to confirm that the contractor(s) has read, understood, and agrees to comply with the terms and conditions of the Section 404 authorization.

Contractor Responsibilities

- Debris (such as soil, silt, sand, rubbish, cement, asphalt, oil or petroleum products, organic materials, tires, or batteries) derived from construction or demolition activities would not be deposited at any site where it may be washed into waters of the United States. After completion of the project, the washes would be left in an environmentally acceptable condition with all trash and nonnative materials removed from the watercourse.
- Pollution from the operation of equipment in the floodplain would be cleaned up and removed before it can be washed into a watercourse. Spills would be promptly cleaned up and properly disposed.
- ► Temporary erosion and sediment control measures would be installed, at a minimum, according to the ADOT *Standard Specifications for Road and Bridge Construction* (2008) and the ADOT *Erosion and Pollution Control Manual for Highway Design and Construction* (2005). The measures would be installed prior to construction and would be maintained as necessary during construction.
- ► If permanent erosion and sediment control measures are required, they would be installed prior to construction activities and would be maintained throughout the life of the project. Permanent erosion and sediment control measures would be located to protect downstream entities from construction effects when there is a flow in watercourses within the project boundary.
- Access roadways and staging areas would be designed to allow normal storm flows to pass unimpeded. There would be no major change to the hydraulic conditions of the upstream waters as a result of the temporary constructed features.
- No petroleum products would be stored within the 25-year flood boundary (where there is a 1-in-25 chance in any given year that this area will flood) of the Salt River channel or unnamed tributary washes. Any soil contaminated as a result of contractors' operations would be disposed in an appropriate approved disposal facility.
- No excavation, fill, or leveling is permitted in watercourses outside the boundaries of the permitted work area. Work would be contained within the boundaries of work areas.
- ► No fill would be taken from any watercourse outside the boundaries of the permitted work area. Fill would come from an area outside the OHWM that does not affect the watercourses unless approved and defined within the mitigation proposal. Fill would be free of any contaminants or pollutants.
- Heavy equipment traffic is restricted from entering the watercourses outside the boundaries of the permitted work area. Appropriate barricades would be installed to preclude this activity.

- During construction, the work sites would be maintained such that no construction debris or material spillover is allowed in the watercourses. Upon completion of the work, all construction debris and excess material would be removed from the job sites and outside the USACE jurisdictional areas.
- During construction, appropriate measures would be taken to accommodate flows within the watercourses, such that waters are not diverted outside the OHWM.
- Prior to construction, the contractor would review Environmental Protection on Arizona Department of Transportation Projects: Instructions to Contractors and review and sign the Checklist for Environmental Compliance. ADOT would also sign the checklist and return it to USACE 7 calendar days prior to construction.
- The contractor would comply with all terms, general conditions, and special conditions of the Section 404 permit, as established by USACE.
- No work would occur within jurisdictional waters until the appropriate CWA Sections 401 and 404 permit were obtained.

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Appendix A

Operating Agreement

OPERATING AGREEMENT

The Integration Process Relative to the National Environmental Policy Act and Section 404 of the Clean Water Act

For projects involving:

U.S. Army Corps of Engineers - Arizona Area Office Arizona Division of the Federal Highway Administration Arizona Department of Transportation

I. APPLICABILITY

- A. This Operating Agreement (OA) applies to transportation projects that are both a Federal Highway Administration (FHWA) action under the National Environmental Policy Act (NEPA) and require a U.S. Army Corps of Engineers (COE) individual permit under Section 404 of the Clean Water Act (CWA). This OA is limited to issues pertaining to Waters of the United States (Waters), including wetlands.
- B. Participation in this OA does not imply endorsement of all aspects of a transportation plan or project. Nothing in this OA or its Appendix is intended to diminish, modify, or otherwise affect the statutory or regulatory authorities of the participating agencies.
- C. This OA is contingent upon the dedication of an employee located at the U.S. Army Corps of Engineers Arizona Office, funded by either the Federal Highway Administration (FHWA) or the Arizona Department of Transportation (ADOT), and working solely on Arizona transportation projects. In the event that a dedicated employee funded by either the FHWA and/or the ADOT is not located in the COE Office, this OA will become null and void.

II. BACKGROUND

In a May 1, 1992 agreement, the Department of Transportation, the Department of Army (Civil Works), and the Environmental Protection Agency (EPA) adopted as agency policy (1) improved interagency coordination, and (2) integration of NEPA and the CWA Section 404 procedures.

Section 1309 of the Transportation Equity Act for the 21st Century (TEA-21) calls for a coordinated environmental review process to expedite federal highway projects. In July 1999, a National Memorandum of Understanding (MOU) between the Departments of Transportation, Interior, Agriculture, Commerce, Army (Civil Works); the EPA; and the

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Advisory Council on Historic Preservation, was executed to support this environmental streamlining process. This MOU implements these policies and agreements as they relate to CWA Section 404 Individual Permits.

III. NEPA-SECTION 404 INTEGRATION

The signatories to this OA commit to integrating NEPA and Section 404 of the CWA in the transportation planning, decision-making, and implementation process. The signatories are committed to ensuring the earliest possible consideration of the potential social, economic, and environmental effects of the proposed transportation action as they relate to Waters, including wetlands, and associated endangered, threatened, and sensitive plant and animal species.

Whenever avoidance of Waters, including wetlands is not practicable, minimization of impacts will be achieved, and unavoidable impacts will be mitigated to the extent reasonable and practicable. The signatories will integrate compliance with the Section 404(b)(1) Guidelines, with compliance with NEPA.

IV. ANTICIPATED BENEFITS OF THE PROCESS

The process embodied in this OA will:

- 1. Improve cooperation and efficiency of inter-agency operations, thereby better serving the public,
- 2. Protect and enhance the Waters, including wetlands which will benefit the region's aquatic ecosystems and the public interest,
- 3. Expedite construction of necessary transportation projects, with benefits to safety, mobility, and the economy at large, and
- 4. Enable more transportation projects to proceed on budget and on schedule.

V. IMPLEMENTATION PROCEDURES

The implementation procedures are outlined in the attached Appendix.

VI. PARTICIPATION

If any Signatory Agency chooses not to participate in this NEPA – 404 Merger process for a particular project, at any time during the project, they will notify ADOT in writing. This does not mean that they will abdicate their involvement if there are scope changes or other reasons for their involvement at a later date. However, if they chose to participate in later stages during the project, they agree not to revisit earlier stages of the project. Operating Agreement Page 3 of 7

VII. MONITORING / EVALUATING IMPLEMENTATION OF OA

The signatory agencies will monitor the success of this OA process and modify it as necessary to improve it.

VIII. AGENCY ROLES AND RESPONSIBILITIES

The roles of the agencies are outlined in the attached Appendix.

IX. MODIFICATION / TERMINATION

This OA may be modified upon approval of all signatories. One or more signatories may propose modification. Proposals for modification will be circulated to all signatories for a 30-calendar day review. Approval of such proposals will be indicated by written acceptance. A signatory may terminate participation in this agreement upon written notice to all other signatories.

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The parties hereto have caused this document to be executed by the Chief, Arizona Area Office, U.S. Army Corps of Engineers; the State Engineer, Arizona Department of Transportation; and the Division Administrator, Arizona Division of the Federal Highway Administration on this day of <u>February</u>, 2005.

BY: Cindy Lester Date: 2/8/05 Cindy Lesfer, Chief, Arizona Area Office .

U.S. Army Corps of Engineers

BY:

Robert E. Hollis, Division Administrator Federal Highway Administration

BY:

Michael J. Ortega, State Engineer Arizona Department of Transportation

Date: 1/19/05

Date: 1/3/05

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OPERATING AGREEMENT

APPENDIX

NEPA – Section 404 Individual Permit Process*

- I. The Environmental & Enhancement Group (EEG) of the Arizona Department of Transportation (ADOT) will contact the employee (hereby known as "Liaison") dedicated to working solely on transportation projects for the Arizona Department of Transportation at the U.S. Army Corps of Engineers Office (COE), and inform the Liaison that a proposed transportation project will require an Individual Permit. This contact may be via phone, email, or written communication.
- II. The EEG will invite the COE Liaison to be a cooperating agency for the proposed transportation project in a written letter with a copy to the Federal Highway Administration (FHWA). The invitation letter will include the scope of the proposed project, project location, project team members, any known information regarding project design and the construction schedule, and any known project team meetings, contact lists or document distribution lists. The COE Liaison will provide a written response accepting or rejecting the invitation. The FHWA will be the lead federal agency with the responsibility to comply with NEPA and other federal legal requirements for all proposed transportation related activities that will utilize Federal aid funds.
- III. The EEG will provide the Liaison with a proposed Jurisdictional Delineation (Delineation) of the project area. The Liaison will review the proposed Delineation, and determine if it is complete. If it is incomplete, the Liaison will inform the EEG of missing and/or incomplete information, and EEG will ensure the missing and/or incomplete information is transmitted to the Liaison. If the delineation is complete, the Liaison will review the proposed delineation, and either revise the Jurisdictional Delineation and approve, or approve as proposed. (See attached document "Requirements for Obtaining a Section 404 Clean Water Act Delineation.").
- IV. The EEG will provide the Liaison with the proposed transportation project's statement of Purpose and Need. Preparation of the Purpose and Need will be done in coordination with FHWA. The Liaison will review and provide written comments back to the EEG.
- V. The EEG will provide the Liaison with the proposed transportation project's Alternative Analysis, including the No Action alternative. Preparation of the Alternatives Analysis will be done in coordination with FHWA. The Liaison will review the Alternative Analysis for compliance with the 404(b)(1) Guidelines and return comments on the analysis to EEG. The Liaison will provide written approval of the Alternatives Analysis if there are no comments. In the event that the Liaison returns comments to EEG without approval, EEG will work with the Liaison until the Alternatives Analysis is approved by the Liaison.

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- VI. EEG will provide the Liaison with a draft copy of the environmental document being prepared for the proposed project for review and comment. The Liaison's review will occur concurrently with FHWA's review. The Liaison will return any comments on the environmental document in writing to EEG.
- VII. In the event that complete avoidance of Section 404 jurisdictional waters is not possible, EEG will provide the Liaison with a Mitigation Proposal to offset the proposed loss of waters of the U.S., including wetlands. The Liaison will review the proposal, and either return comments to EEG, or provide approval. In the event that comments are provided back to EEG without approval, EEG will take into consideration the comments provided by the Liaison, and will work with the Liaison until the proposal is approved by the Liaison.
- VIII. The EEG will provide the Liaison with the Individual Permit package application. The Liaison will determine if the application is complete. If incomplete, the Liaison will inform EEG of missing and/or incomplete information, and EEG will ensure that missing and/or incomplete information is transmitted to the Liaison. If the application is complete, the Liaison will begin processing the application package. Concurrent with the Individual Permit, EEG will provide the Liaison with the COE's EA 404 (b)(1) Evaluation, in draft form. The Liaison will begin working on the COE EA, and work with EEG on any missing and or incomplete information necessary for the finalization of the draft EA. (See attached "List of Information Required for Complete Application.")
- IX. The Liaison will issue the COE's Public Notice after determining the Individual Permit application is complete. In accordance with COE regulations, the Public Notice will last 30 calendar days.
- X. In the event that other agencies or the public submit comments on the Public Notice, the Liaison will collect these comments and transmit these to EEG for review and response. The EEG will provide written response to these comments and return these to the Liaison. The Liaison, in coordination and cooperation with EEG, will resolve and finalize any comments.
- XI. The Liaison will finalize the Mitigation Proposal, if not finalized before this point, and ensure that any agreements reached in the proposal become Special Conditions in the Individual Permit.
- XII. The Liaison will finalize the draft copy of the COE's EA.
- XIII. The Liaison will transmit two (2) copies of the draft Individual Permit, and one (1) copy of the draft EA to the COE Chief, Arizona Area Office, for review and signature. Once reviewed and signed, the COE Chief, Arizona Area Office will forward the Individual Permit (2 copies) and EA (1 copy) to the COE's Branch Chief in Los Angeles for review and signature. Once signed, the Branch Chief will send 2 signed draft Individual Permits to the ADOT District responsible for the project for review and signature by the ADOT

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District Engineer. The ADOT District Engineer will send the signed copies back to the Branch Chief in Los Angeles, where the Branch Chief will finalize the permits via final signature, unless the Branch Chief assigns this task to the Arizona Section Chief. The Branch Chief will send one (1) final Individual Permit to the ADOT District Engineer, and one (1) approved Individual Permit to the COE Chief, Arizona Area Office for the project file.

XIV. The ADOT District engineer will notify the Liaison seven (7) calendar days before the commencement of construction with the estimated construction period, name of contractor(s), and sign the postcard. Likewise, the ADOT District Engineer will notify the Liaison once construction is complete, via postcard. [See attached "Department of the Army Permit" (Notification of Commencement and Completion of Work).]

* Process is documented in typical order of occurrence. For projects in which atypical situations arise (i.e., change in project scope, change in project design, etc.), order may vary and process will adjust accordingly.