



South Mountain Transportation Corridor Study

Citizens Advisory Team
Technical Report Summary

Draft Floodplains

Why study floodplains in the Environmental Impact Statement (EIS)?

Floodplains are an important component of the human and natural environment. Floodplains create a specific area for water to pass through during times of high water flow to prevent flooding in other locations (i.e., streets, businesses or homes). The boundaries of floodplains are determined and mapped by the federal government.

Floodplains also can provide natural and beneficial values. Such values include habitat for wildlife, open space and recreation areas, areas for farming, recharge of groundwater, and even mining opportunities.

Structures such as buildings or bridge piers when placed in floodplains have the potential to reduce the ability of the floodplain to handle the high water flows. This could cause flooding to occur in areas not intended for carrying flood waters. There are regulations in place that regulate what can be constructed in floodplains.

A project like the South Mountain Freeway could require bridges over floodplains. To construct such a crossing, it may be necessary to place bridge piers in the floodplain. The study team has analyzed if such a crossing would cause any changes to floodplain values and boundaries in the Study Area and the findings are summarized below.

What kind of impacts would occur from a project like the South Mountain Freeway?

A project like the South Mountain Freeway could alter floodplain boundaries and/or it could alter the natural and beneficial values that are provided by a floodplain.

Are there floodplains that could be affected by the South Mountain Freeway?

There are two known floodplains that could be affected (Figure 1).

- The Salt River floodplain is located through the entire Western Section of the Study Area. It has been substantially altered from its natural conditions through mining and agricultural uses over the course of time.
- There is an un-named floodplain just north of the Union Pacific Railroad (UPRR) tracks to the south of Van Buren Street. It is a discontinuous floodplain artificially created by the Roosevelt Irrigation Canal and the railroad.

How do the alternatives differ in floodplain impacts?

The two 100-year floodplains that would be affected (Salt River and the un-named floodplain north of the UPRR tracks) may have the following potential acreage encroachment impacts if earthen embankment were used rather than a bridge:



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Western Section Alternative/Option	Salt River Floodplain Encroachment (acres)	Union Pacific Railroad Floodplain Encroachments (acres)
W55	44.4	7.7
W71	116.1	22.1
W101WPR	30.0	32.9
W101WFR	30.0	32.9
W101CPR	30.0	32.3
W101CFR	30.0	32.3
W101 EPR	30.0	32.3
W101EFR	30.0	32.3

For any of these action alternatives, the Arizona Department of Transportation (ADOT) fully anticipates constructing bridges over much of the floodplains in order to comply with federal, state and local floodplain regulations. Bridge piers and abutments will be constructed in such a way in that they do not contribute to any substantial changes in flood water elevations.

As such, all of the action alternatives represented in the table above would have similar potential impacts on the two floodplains affected by the project.

Would floodplain impacts occur once the freeway is in operation?

Floodplain impacts are not anticipated once the freeway is completed and operating regardless of the alternative that is constructed. The proposed action would not create a substantial risk because it would encroach on either of the two floodplains in only a limited way.

What if the project was not constructed?

Growth projections for the Phoenix metropolitan area show that rapid development in the Study Area will continue over the next 20 years. If the freeway were not to be constructed, it is possible the floodplain would need to be crossed in several locations at major arterial streets to enable transportation in and out of the Study Area. Some streets currently crossing the Salt River at grade can be closed due to minor flooding of the channel.

Are there any specific and/or unique impacts from the action alternatives?

For a project of the magnitude of the South Mountain Freeway, there are no unique impacts anticipated. However, the US Army Corps of Engineers (USACE) and the City of Phoenix are looking at ways to help restore flood conveyance, habitat, and recreational values to the Salt River. The project is known as the Rio Salado Oeste project. USACE and City officials are aware of the freeway project and believe it may bring beneficial effects to their project. ADOT has agreed to continuously work with Rio Salado Oeste planners in coordinating the two projects.



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Are there things that could be done to reduce or avoid impacts?

ADOT will look to minimize floodplain impacts by using transverse crossing of the floodplains and avoiding longitudinal encroachments where possible. During final design, further analysis will be done to minimize encroachment related impacts such as hydrology, hydraulics, sediment transport, and erosion analyses.

What can be done to reduce construction impacts?

Controlling both on-site and off-site drainage flow can aid in flood control. For on-site drainage control, ADOT would follow federal and state guidelines in designing drainage facilities.

To control off-site flows affecting the proposed action, project-specific measures could include:

- Culverts sized based on the design discharge of a 100-year event (an event with a 1 percent chance of occurring in any one year),
- Surcharge of water surface elevations by the new facilities limited to the existing and proposed right-of-way,
- Culverts designed to be self-cleaning,
- Reinforced Concrete Box Culvert and Reinforced Concrete Pipe provided with adequate cover, and
- Retention/detention basins strategically sized and located to control runoff flows.

Are the conclusions presented in this summary final?

It is quite likely that quantitative findings relative to impacts are subject to change. The reasons for future changes which will be presented to the public during the Draft EIS, Final EIS and Final Design stages are based on the following:

- Refinement in design features through the design process.
- Updated aerial photography as it relates to rapid growth in the Western Section of the Study Area.
- On-going communications with the City of Phoenix regarding measures to minimize harm to South Mountain Park/Preserve.
- On-going communications with the Gila River Indian Community (GRIC) in regards to granting permission to study action alternatives on GRIC lands.
- Potential updates to traffic forecasts as updated regularly by the Maricopa Association of Governments.
- Potential updates with regards to the special 2005 survey to augment the 2000 Census.
- As design progresses, cost estimates for construction, right-of-way acquisition, relocation and mitigation will be updated on a regular basis.



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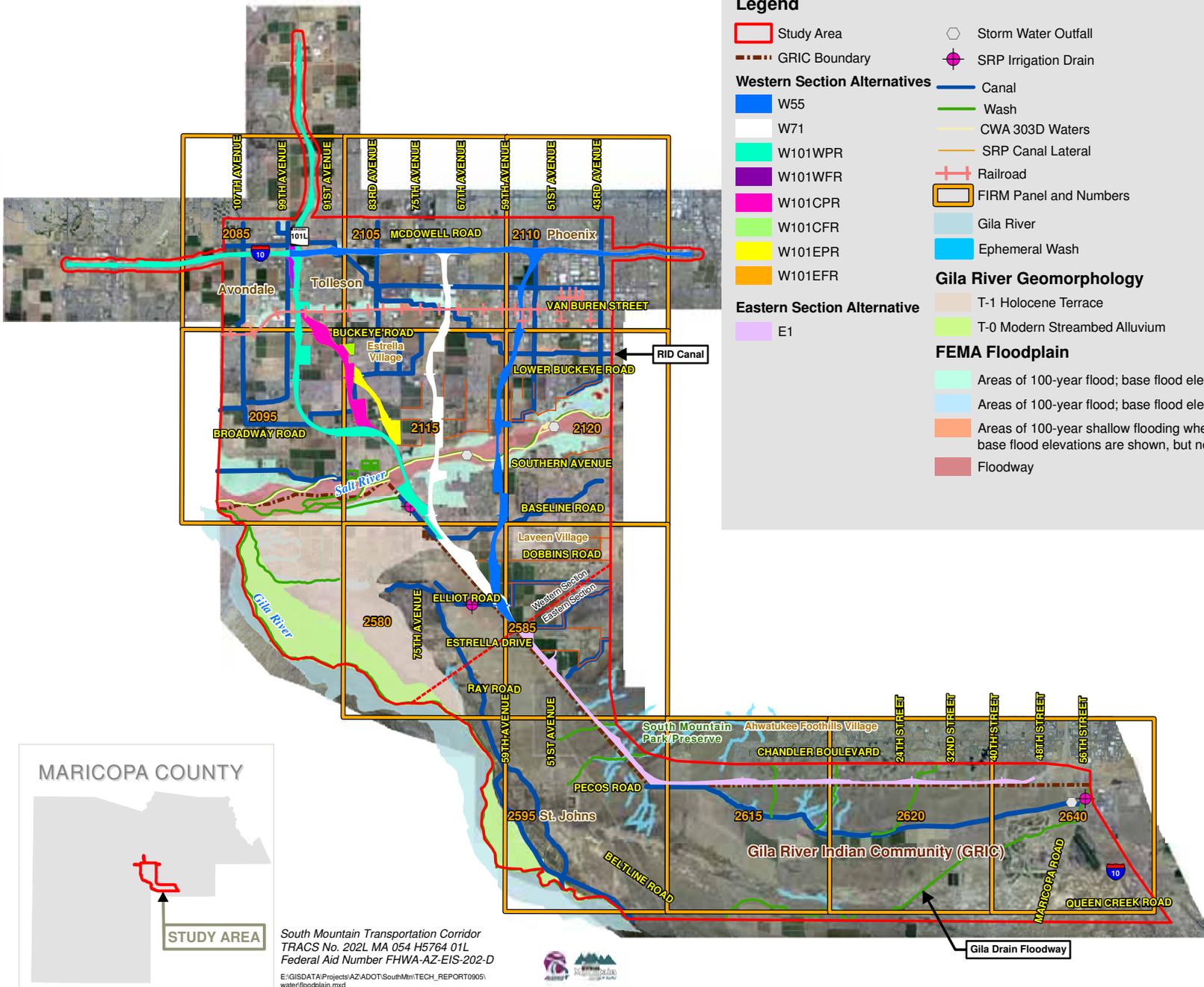
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However, even with these factors affecting findings, it is anticipated the affects would be equal among the alternatives and consequently impacts would be comparatively the same. This assumption would be confirmed if and when such changes were to occur.

As a member of the Citizens Advisory Team, how can you review the entire technical report?

The complete technical report is available for review by making an appointment with Mike Bruder at 602-712-6836 or Mark Hollowell at 602-712-6819.



Legend

- Study Area
- GRIC Boundary
- Storm Water Outfall
- SRP Irrigation Drain

Western Section Alternatives

- W55
- W71
- W101WPR
- W101WFR
- W101CPR
- W101CFR
- W101EPR
- W101EFR

Eastern Section Alternative

- E1

Canal

- Wash
- CWA 303D Waters
- SRP Canal Lateral

Railroad

- FIRM Panel and Numbers

Gila River Geomorphology

- Gila River
- Ephemeral Wash
- T-1 Holocene Terrace
- T-0 Modern Streambed Alluvium

FEMA Floodplain

- Areas of 100-year flood; base flood elevations and flood hazard factors determined.
- Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
- Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
- Floodway

0 6,000 1,000 Feet
1 inch equals 1,000 feet



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Floodplains Report

Floodplains Within the Study Area

South Mountain Freeway Transportation Corridor Study

Aerial Photography Date: April 006

Figure 1