



Second Bridge Lake Havasu City

Final Environmental Assessment

Prepared for:

United States Coast Guard, Lead Agency

United States Bureau of Land Management, Cooperating Agency

United States Bureau of Reclamation, Cooperating Agency

United States Army Corps of Engineers, Cooperating Agency

July 2026

**Second Bridge
Lake Havasu City
Mohave County, Arizona
Final Environmental Assessment
US Coast Guard**

Responsible Official:

Carl Hausner, Commander
US Coast Guard Southwest District
Coast Guard Island, Building 50-2
Alameda, California 94501

**UNITED STATES COAST GUARD (COAST GUARD) FINAL ENVIRONMENTAL
ASSESSMENT FOR THE PROPOSED NEW SECOND BRIDGE ACROSS THE
COLORADO RIVER (BRIDGEWATER CHANNEL), MILE 209.3, AT LAKE HAVASU
CITY, MOHAVE COUNTY, ARIZONA**

P(3-26-11)

This Coast Guard final environmental assessment (FEA) was prepared in accordance with Environmental Planning Policy, COMDTINST 5090.1 (series) and is in compliance with the National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321 to 4370h) and the Council on Environmental Quality Regulations dated 28 November 1978 (40 C.F.R. §§ 1500–1508).¹

This FEA serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI). This FEA concisely describes the proposed action, the need for the proposal, the alternatives, and the environmental impacts of the proposal and alternatives. This FEA also contains a comparative analysis of the action and alternatives, a statement of the environmental significance of the preferred alternative, and a list of the agencies and persons consulted during FEA preparation.

See e-signature

Date

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Carl Hausner
Document Preparer²

Bridge Management Specialist

Title/Position

¹ On 21 January 2025, President Trump signed Executive Order 14173 (Ending Illegal Discrimination and Restoring Merit-Based Opportunity). EO 14173 revoked EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations). As a result of the revocation and in alignment with DHS, environmental justice has not been considered as part of this USCG permit action.

In addition, President Trump signed Executive Order (E.O.) 14148, Initial Rescissions of Harmful Executive Orders and Actions. E.O. 14148 rescinded the following Executive Orders: E.O. 14008, Tackling the Climate Crisis at Home and Abroad; E.O. 14013, Rebuilding and Enhancing Programs to Resettle Refugees and Planning for the Impact of Climate Change on Migration; E.O. 14027, Establishment of the Climate Change Support Office; E.O. 14030, Climate-Related Financial Risk; and E.O. 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. In alignment with the rescission of the Executive Orders listed, the USCG has eliminated the use of climate change terminology in this USCG NEPA document.

In accordance with Executive Order 14154, Unleashing American Energy and the Council on Environmental Quality's February 19, 2025 memo on implementing the National Environmental Policy Act, the Coast Guard is voluntarily using the 2024 version of 40 CFR parts 1500–1508 and applying current Coast Guard and DHS procedures.

² The USCG Preparer signs for NEPA documents prepared in-house. The USCG environmental project manager signs for NEPA documents prepared by an applicant, a contractor, or another outside party. All signatories must be Coast Guard military or federal employees. Contractors must not sign Coast Guard environmental planning documents.

I reviewed the FEA and submitted my written comments to the Proponent.

9 July 2026

See e-signature
for date



William A. Robinson III
Environmental Reviewer³

Southwest District EPS

Title/Position

III

Warrant Level

I reviewed the FEA and submitted my written comments to the Proponent.

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Carl Hausner
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II

Warrant Level

In reaching my decision/recommendation on the Coast Guard's proposed action, I considered the information contained in this FEA and considered and acknowledge the written comments submitted to me from the Environmental Reviewer(s).

See e-signature
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Title/Position

³ Signature of the Environmental Reviewer/Senior Environmental Professional for the Bridge Program may be that of the Preparer's.

⁴ The individual that signs as the Proponent cannot also sign as Environmental Reviewer or Senior Environmental Professional.

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1.0 Introduction

This Environmental Assessment (EA) for Lake Havasu City's Second Bridge Project (Proposed Action) evaluates the environmental effects of the U.S. Coast Guard's (USCG's) issuance of a Bridge Permit, issued under the General Bridge Act of 1946, as amended, that would allow the construction of a second bridge over Bridgewater Channel, a portion of the Colorado River within Lake Havasu, in Lake Havasu City, Mohave County, Arizona (Figure 1). While the USCG's action is restricted to USCG's approval of the bridge construction, this EA evaluates the construction and operation of the Second Bridge and all associated street improvements as the Proposed Action. This EA also evaluates the environmental effects of the U.S. Bureau of Land Management (BLM)'s issuance of a 2.92 acre right of way to Lake Havasu City (City) for construction and operation of the bridge and street improvements on federal land. All BLM-administered land in the project area is managed as part of Lake Havasu State Park.

This EA is prepared to determine whether issuance of the Bridge Permit and right of way may significantly affect the quality of the human environment and thereby require the preparation of an environmental impact statement. For more details regarding the Proposed Action, see the Proposed Action and Alternatives section of this document (Section 2.0). The USCG is the Lead Agency for this EA, with the BLM, U.S. Bureau of Reclamation, and U.S. Army Corps of Engineers as Cooperating Agencies.

1.1 Purpose and Need

The purpose of the Proposed Action is to provide a second bridge emergency evacuation and access route from the island to the mainland for visitors and residents of Lake Havasu City, Arizona. The City entered into an Intergovernmental Agreement with the State of Arizona to accept the state-appropriated funding for this stated purpose only. A second bridge would also improve existing traffic circulation, especially during existing peak seasonal travel. Existing London Bridge traffic congestion is a public safety issue due to emergency response times, high intersection crash rates, and backups onto State Route (SR) 95 (Lake Havasu Metropolitan Planning Organization, 2022).

The USCG's purpose as Lead Agency is to respond to the City's USCG Bridge Permit application. The BLM's purpose as Cooperating Agency is to respond to the City's application for a right of way grant in perpetuity for a portion of the bridge and roadway alignment. The need for action arises from Title V of the Federal and Management Act (FLPMA) (43 United States Code [USC] 1701), which requires BLM to respond to right of way applications.

1.2 Background

The second bridge concept was initially identified as a need in the late 1980s, when the Citizens Island Bridge Company was formed. In 1997, the City secured an agreement with Arizona State Parks to reserve a future bridge and roadway alignment through Lake Havasu State Park, which included a transfer of land from the City to Arizona State Parks Board. The City also purchased three parcels of land along London Bridge Road to provide the London Bridge Road connection at that time. In 2004, the City commissioned a feasibility analysis that evaluated several bridge alternatives and alignments. The City obtained a right of way (16-01136) in perpetuity from ASLD in 2007 on the south (island) side of the proposed project. In 2024, Lake Havasu City entered into an Intergovernmental Agreement with the State of Arizona to accept state-appropriated funding for the study, design, and construction of an emergency evacuation route second bridge.

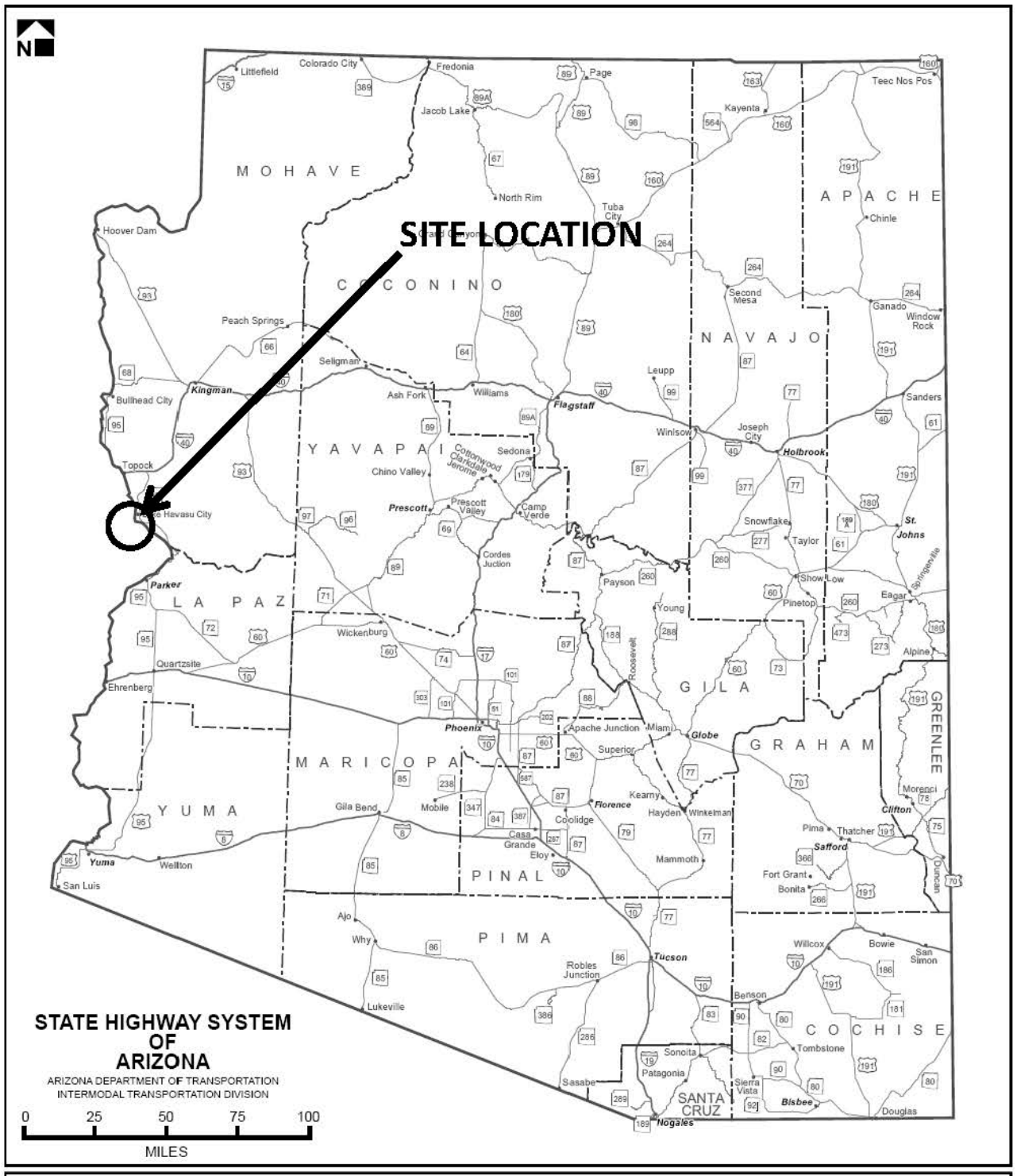


Figure 1. State Map

1.3 Proposed Action Location

The Second Bridge is proposed to be located at Colorado River Mile 209.3, across Bridgewater Channel in southern Lake Havasu City, Mohave County, Arizona. This location is approximately 0.3 river miles upstream from the existing London Bridge. Street improvements associated with the Proposed Action include approximately 1.7 miles of existing and proposed new roadways. The project site location is shown in Figures 1-3.

The Proposed Action encompasses approximately 29 acres, including existing streets, parking lots, and undeveloped areas. Land ownership consists of federal lands managed by the BLM within Lake Havasu State Park (north of the channel), State Trust land managed by ASLD (south of the channel), City-owned property, and existing city street and State Route (SR) 95 right of way, as shown in Table 1 below.

Table 1. Project Land Ownership & Location

Land Ownership	Element	Location	Acres
ASLD	Bridge, approach	SE ¼ Section 9, NE ¼ Section 16, T13S R20W	6.36
BLM (within Lake Havasu State Park)	Bridge, approach	SE ¼ Section 9, T13S R20W	2.92
Arizona State Parks Board (within Lake Havasu State Park)	Roadway	SE ¼ Section 9, T13S R20W	1.39
City parcels	Roadway	SW ¼ Section 10, T13S R20W	2.08
City street right of way	Street improvements	NE ¼ Section 16, W ½ Section 10, T13S R20W	14.31
ADOT (SR 85)	Restriping	NW ¼ & SW ¼ Section 10, T13S R20W	2.07
Total improvements			29.13
BLM (within Lake Havasu State Park)	Temporary staging area	SE ¼ Section 9, T13S R20W	0.27
Total			29.4

1.4 Coordination and Consultation with Resource Agencies

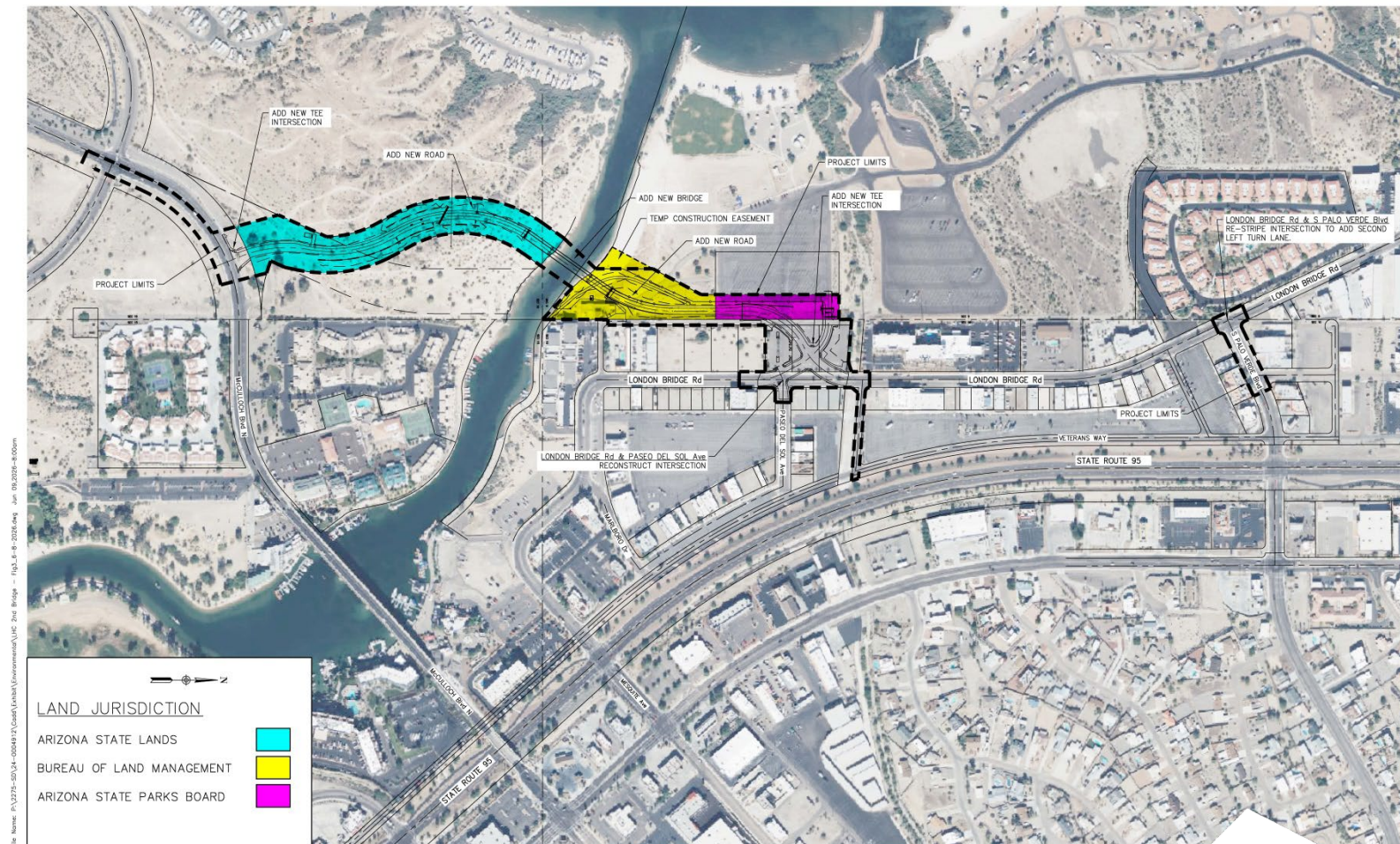
Federal resource agencies were invited to participate in the project as a cooperating agency by the USCG in a letter dated August 22, 2025. Resource agencies that accepted the role as a cooperating agency include: the BLM, Bureau of Reclamation, and the US Army Corps of Engineers. USFWS declined to be a cooperating agency. An Interagency Scoping Meeting was held on September 15, 2025 virtually to discuss the project and identify resource issues to be analyzed in this EA. The USCG initiated consultation with the USFWS on September 22, 2025 which was completed with concurrence on December 9, 2025 (Appendix C). The City has coordinated with Arizona State Parks based on the MOU since the late 1990's. As part of this coordination, Arizona State Parks provided a letter summarizing areas of interest (Appendix D). In addition, the following Federal, State, and local agencies and organizations were also contacted as part of the NEPA process:

- Arizona Department of Environmental Quality
- Arizona Department of Transportation
- Arizona Game & Fish Department
- Natural Resources Conservation Service
- State Historic Preservation Office



1 West Deer Valley Road, Suite 105 | Phoenix, AZ 85027 | www.NV5.com | Office 623.374.6637

Figure 2. Vicinity Map.



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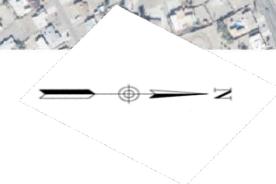


Figure 3. Proposed Action Site Map.

1.5 Public Involvement

In addition to agency involvement, the City held several public meetings as part of the 2024 Bridge Feasibility Study. Open houses were held on January 29, 2023 and June 27, 2024. The public was encouraged to provide written comment cards during and after these meetings. In addition, 423 property owners in the project area were invited to two stakeholder meetings, both held on March 5, 2024 (Michael Baker International 2024).

The USCG requested public comment on the Draft EA from May 11 to June 10, 2026. Two comments were received: one letter of support, and one letter with technical questions from a neighbor. The USCG responded to the commenters directly with no changes required to the Final EA.

1.6 Tribal Consultation

Native American consultation for the Proposed Action was initiated by the USCG by letter on September 26, 2025 in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended), as well as Executive Order 13175. Federally-recognized Tribes consulted for this project consist of the following:

- Chemehuevi Indian Tribe
- Colorado River Indian Tribes
- Fort McDowell Yavapai Nation
- Fort Mojave Indian Tribe
- Hopi Tribe
- Moapa Band of Piute Indians
- Navajo Nation
- Pueblo of Zuni
- Salt River Pima Maricopa Indian Community
- Yavapai Apache Nation
- Yavapai Prescott Indian Tribe

The Chemehuevi Tribal Historic Preservation Office (TPH) requested consultation on September 26, 2025. A consultation meeting was held on June 3, 2026 between the USCG, Chemehuevi Tribe, and Lake Havasu City, AZ. No further consultation was requested.

1.7 List of Preparers

Preparers of this EA are as follows:

- Jill Himes, Biologist & Primary Author, Himes Consulting, LLC
- Michael Cook, Cultural Resources, MCA Consulting
- Cecile Felsher, Noise Analysis, NV5
- Scott Molloy, Richard Stolpe, Michael Smyth, and Jon Champlin, Visual Analysis, NV5
- Silvester Kiran, 3d Visualizer, NV5

2.0 Proposed Action and Alternatives

This EA considers the potential environmental impacts the Proposed Action and the No Action Alternative. Other alternatives considered that were eliminated from detailed analysis are described in

Section 2.3. These other alternatives either did not meet the purpose and need or the impacts were greater than the Proposed Action.

2.1 Proposed Action

The City proposes to build the Second Bridge to the island, spanning Bridgewater Channel (a part of the Colorado River within Lake Havasu), and associated roadway improvements. Roadway improvements include bridge approaches, street connections, intersection improvements, and utility re-routing. The City is applying to the USCG for a Bridge Permit and to the BLM for a right of way permit. Elements of the Proposed Action are described in more detail below. These designs are conceptual in nature and may change as they proceed through final design.

2.1.1 Second Bridge

The proposed Second Bridge is a three-span steel girder bridge that would completely span Bridgewater Channel at River Mile 209.3 (Figure 4). All piers and abutments are proposed above the ordinary high water mark (OHWM – 452.07 feet (ft) above mean sea level NAVD 88), outside of the channel itself. The OHWM 450 ft above mean sea level (NGDV 29) was converted to the NAVD 88 datum for plan design purposes. The main span is approximately 211 ft, with a 108 ft back span on the north side and a 130 ft back span on the south side. The bridge abutment and two intermediate piers would be constructed of conventionally reinforced concrete founded in large diameter drill shafts (measuring between 8 to 10 ft in diameter). The drill shafts would include a conventionally reinforced concrete pile cap, approximately 5 to 8 ft in depth. Vertical clearance of the proposed bridge is a minimum of 35.69 ft above the OHWM (452.07 ft NAVD 88), which is higher than the clearance of the existing London Bridge (34.4 ft above OHWM). The proposed bridge would include approximately 9,000 square ft of overwater coverage. Lighting would be limited to safety and navigational lighting.

The bridge superstructure consists of a conventionally reinforced concrete deck supported by four widely spaced, fabricated steel girders. The bridge deck includes two undivided travel lanes, inside bridge barriers, a Multi-Use Path on the west (upstream) side of the bridge, and outside bridge barriers, as shown in Figure 5. Design speed of the bridge is 35 miles per hour (mph) with a posted speed limit of 30 mph. Pedestrian and bicycle accommodations would provide for connectivity to the existing walkways along the Bridgewater Channel, and the multi-use paths along SR 95 and on the island.

2.1.2 Roadway & Utility Improvements

Roadway improvements include bridge approaches, street connections, intersection improvements, re-striping, and utility re-routing. Approach roadways would be constructed extending south from the bridge 0.3 miles to McCulloch Boulevard (Blvd) and north from the bridge 0.2 miles to London Bridge Road. The proposed roadway section includes two 14 ft undivided travel lanes, a 10 ft multi-use path, 1-2 ft shoulders, and curb & gutter (Figure 6). Design speed is 35 mph with a posted speed limit of 30 mph. Specifications and configuration of the roadway approaches would be finalized in the design process.

Two new intersections are planned to connect to existing city streets, one at McCulloch Blvd approximately 500 ft northwest of Beachcomer Boulevard, and one on London Bridge Road at Paseo del Sol Avenue (refer to Figures 2-3). These intersections are planned as roundabouts, however, based on economic and inflationary factors at the time of construction, a T-intersection may be constructed initially and then phased into roundabouts. Lighting would be limited to crosswalks at intersections to reduce fugitive light.

Improvements would be completed at three existing intersections: London Bridge/Paseo del Sol, London Bridge/Paloverde Blvd South, and SR 95/South Palo Verde Blvd. The London Bridge Road at Paseo del



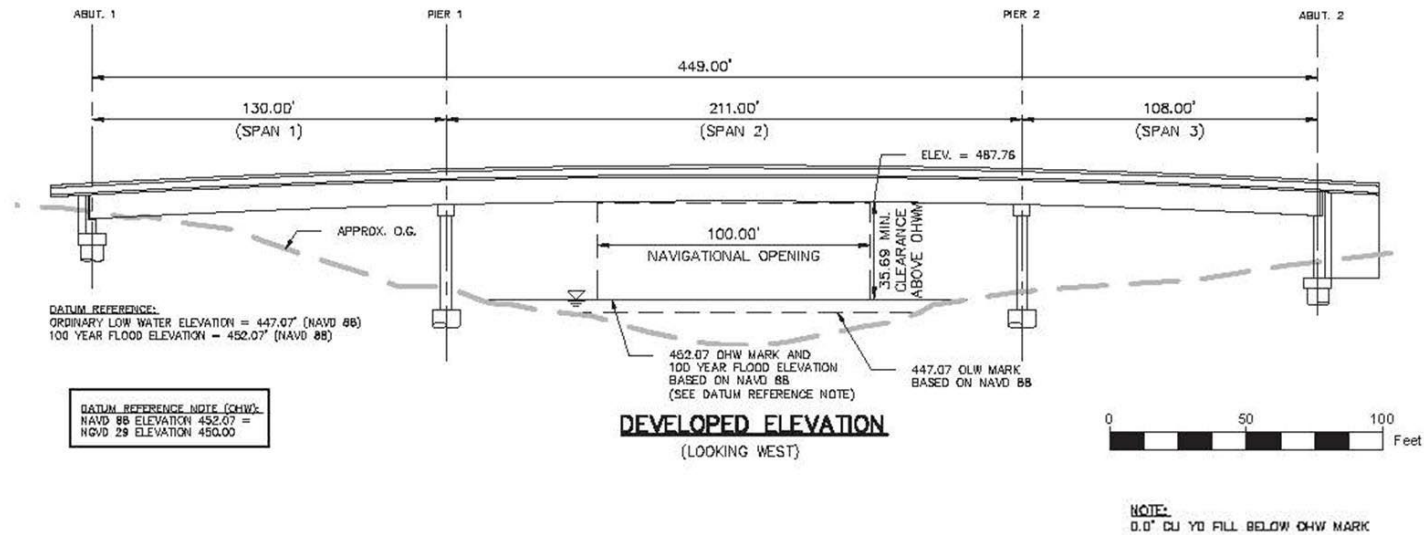


Figure 5. Typical Bridge Cross-Section

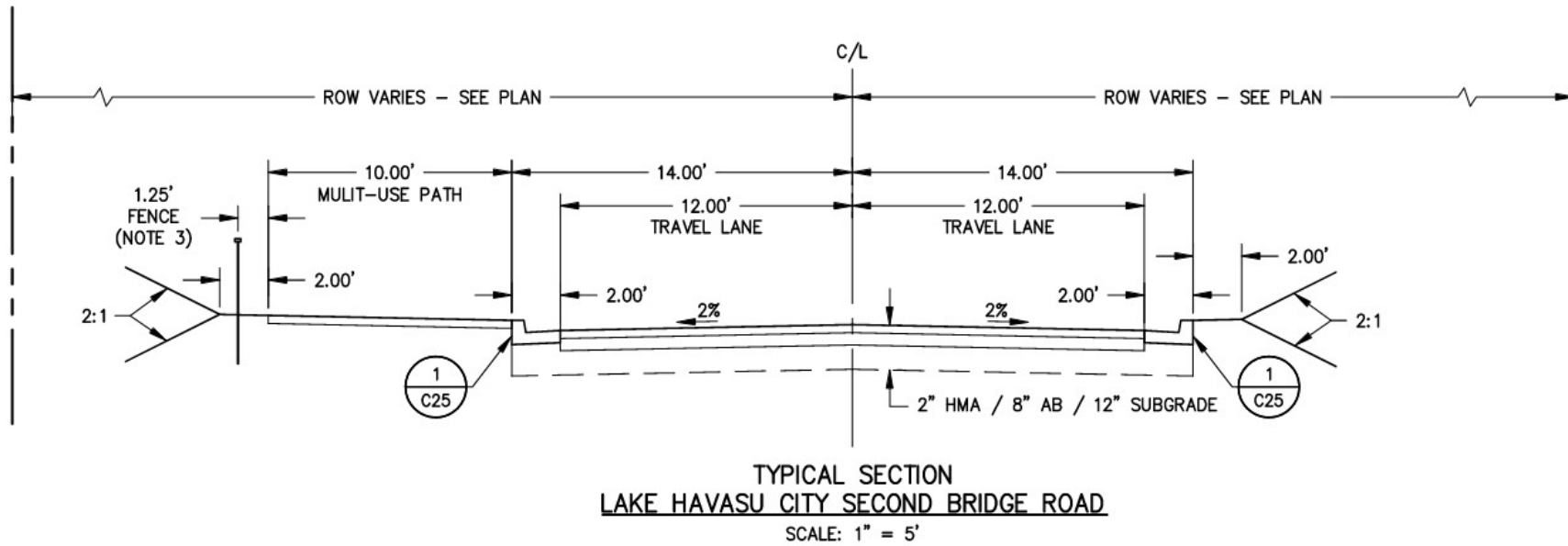


Figure 6. Typical New Roadway Cross-Section

Sol intersection would be reconstructed to accommodate the new roadway alignment. For the London Bridge at South Paloverde Blvd intersection, the intersection would be converted from a two-way stop to an all-way stop control. Restriping at this intersection would also be completed on the westbound left turn (to provide two left turn lanes and one through lane), southbound London Bridge Road (to create a temporary southbound through lane south of South Palo Verde Blvd), and the northbound right turn (to increase right turn storage from 100 to 150 ft). Restriping and pavement widening would occur along SR 95 at S. Paloverde Blvd, from 40 to 150 ft for southbound and eastbound turn lanes. Arizona Department of Transportation (ADOT) approval would be required prior to conducting any work on SR 95.

Utilities would be re-routed along the underside of the new bridge and beneath the new roadways. Existing utilities lines underneath the channel would remain in place. New utility lines include approximately 4,300 linear ft of 18 inch potable water pipeline, 4,400 ft of 18 inch reclaimed water pipeline, and 2,700 ft of 24 inch raw water pipeline. Utilities and connections are shown in Figure 7. A Work Protection Plan would ensure safety during construction near area powerlines.

2.1.4 Construction

Construction activities to complete the Proposed Action would occur over a period of approximately 15 to 24 months. Table 2 shows the construction sequence and approximate timing of the construction elements. Construction would be conducted during daytime hours on weekdays. Tasks such as utility connection and/or concrete bridge deck pour may be required to occur at night but would be limited to a few days (Ames Construction, Inc. 2025). No additional fill material is needed for construction.

Table 2. Construction Sequence and Timing.

Element	Estimated Timeframe
Bridge	
Survey to layout project boundaries	1-2 weeks
Install temporary fencing, including along channel to exclude equipment and stormwater BMPs	1 week
Install bridge foundations (12 drill shafts with casings)	3 weeks
Construct bridge abutments and pier	8 weeks
Set retaining/wing wall and backfill abutments	14 weeks
Assemble steel girders onsite in staging area	2 weeks
Place girders using barge with crane on either side of channel to lift girders into place	2 weeks
Form deck using pan decking and overhang formwork with rebar.	14 weeks
Install backwalls, multi-use path, and landscaping	14 weeks
Roadway	
Site preparation	4 weeks
Grading	24 weeks
Construct roadway embankment, utilities, and retaining walls	24 weeks
Place roadway base and compact	4 weeks
Construct curb & gutter, concrete barrier, and sidewalk	4 weeks
Install roadway striping, signage, landscaping, and permanent erosion control measures	16 weeks

Source: Ames Construction, Inc. 2025.



Figure 7. Utilities and Connections.

Storm Water Controls and Site Preparation. Erosion and sedimentation control Best Management Practices (BMPs) would be installed prior to construction to reduce the potential for storm water run-on into the construction area and to control sediment. Compliance with the Arizona Pollutant Discharge Elimination System (AZPDES) and associated storm water control measures would be implemented and maintained during construction. Construction gravel entrances would be established at construction access points as a sediment control measure. BMPs would also include waste handling and disposal methods to be implemented during construction.

Site preparation activities include clearing and grubbing within the right of way on the island side of the proposed project area. All vegetation and materials such as concrete & asphaltic concrete would be removed from the project limits and properly disposed in a landfill. Equipment and materials would be staged within the rights of way.

Bridge Construction. Bridge construction begins with 12 drill shafts, each 8 ft in diameter, which are then capped to create the bridge foundation. During drilling, a Baker tank would collect slurry with secondary containment provided on each side of the channel. Construction of the bridge is expected to require the following heavy machinery: 60-ton and 450-ton cranes, bulldozer, roller, drill rig, dump truck(s), concrete pump truck, concrete truck(s), concrete vibration equipment, and one or more lifts. Equipment and materials would also be staged within a temporary staging on the north bank of the channel adjacent to the proposed bridge location for use in bridge girder placement. A spud barge may be used to assist in transport of the girders from the north bank to the south bank due to steeper slopes on the south (island) side, making equipment staging on the south side difficult. The barge would be launched from the staging area using a planked ramp positioned above the OHWM. Four spuds (pilings), approximately 8 inches in diameter, provide temporary stabilization of the barge.

Dust Control. Dust generated during construction activities would be controlled by using a water truck within the construction area using City water. Construction vehicle speeds below 15 mph would be maintained on unpaved surfaces.

2.2 No Action Alternative

Under the No Action alternative, the proposed bridge, new roadway approaches, and roadway improvements described in Section 2.1 would not be constructed. A secondary emergency evacuation route for visitors and residents of the island would not be provided.

2.3 Alternatives Considered but Eliminated From Detailed Analysis

Alternatives for a second bridge to the island have been under development for many years. Three other alternatives were considered but eliminated from detailed analysis. Alternative 1 considered a bridge alignment straight north/south along the existing powerline, immediately adjacent to the Isles Condominiums. This alignment would have a longer bridge span of 280 ft. As this bridge span length reaches the upper limits of span length without placing piers in the channel, fewer bridge construction options and significantly greater costs are associated with this alternative.

Alternative 2 considered a skewed bridge abutment within this north/south straight alignment to shorten the bridge span to 239 ft. A skewed bridge abutment is possible but provides less stability with overall greater costs.

Alternative 3 consists of a tunnel alternative considered by the City in their 2004 Feasibility Study. This alternative was eliminated from further consideration due to excessive costs, closure of the channel for 12

months during construction, and potential environmental concerns from excavation and management of Colorado River waters.

3.0 Affected Environment

This section summarizes the potential impacts of the Proposed Action and alternatives for each impacted resource. Resources that are not present and therefore not further analyzed include: Coastal Zone Management Areas, Marine Mammals, Coastal Barrier Resources, National Marine Sanctuary Act, Marine Protected Areas, Essential Fish Habitat, Wilderness Areas, and Wild and Scenic Rivers.

3.1 Air Quality

Climate in the project area is typical of the arid southwest, which is characterized by long, hot summers and mild winters. The annual mean maximum temperature in Lake Havasu, Arizona is 87.2 degrees Fahrenheit (F), with the warmest temperatures in July (mean maximum 109.3 degrees F) and the coolest in December (mean maximum 63.8 degrees F). The annual mean minimum temperature is 61.1 degrees, with the lowest temperatures in December (mean minimum 41.8 degrees F) and the warmest lows in July (mean minimum 82.7 degrees F). The average annual precipitation is 4.16 inches, with the majority of the precipitation occurring in December, January, and February (National Weather Service, 2025).

Mohave County, in the vicinity of Lake Havasu City, is designated as an Attainment Area by the Arizona Department of Environmental Quality (ADEQ), which means that the area has pollution levels equal to or less than the national air quality standards. Under the National Ambient Air Quality Standards (NAQS), the air quality rating for BLM-administered lands within the Lake Havasu Field Office (LHFO) planning area is Class II. Class II standards allow for moderate deterioration of air quality associated with moderate controlled industrial and population growth (BLM 2007). Existing air emissions in the project vicinity include vehicle emissions from cars on local city streets, boats within Bridgewater channel, as well as dust from off-road vehicle use on Arizona State Trust lands on the island.

3.2 Biological Resources

3.2.1 Vegetation

The Proposed Action is located within the Lower Colorado River subdivision of the Sonoran Desertscrub biotic community as described by Brown (1994). Approximately 6.46 acres within the project site consist of undisturbed desertscrub with the remaining areas previously developed as city streets, parking lots, commercial areas, and some beach and graded areas within Lake Havasu State Park. Vegetation within undeveloped areas are characterized by creosotebush (*Larrea tridentata*) flats and includes paloverde (*Cercidium floridum*) and mesquite (*Prosopis juliflora*), white ratany (*Krameria bicolor*), catclaw acacia (*Acacia greggii*), white bursage (*Ambrosia dumosa*), wire lettuce (*Stephanomeria* sp.), silver cholla (*Cylindropuntia echinocarpa*), Mediterranean grass (*Schismus* sp.), and burroweed (*Isocoma tenuisecta*). Thirty-four native trees occur within the undisturbed island right of way. Along the shoreline on the island, arrow weed (*Pluchea sericea*), two small mesquite trees (*Prosopis velutina*) and two salt cedar trees (*Tamarix* sp.) occur. Within Lake Havasu State Park, arrow weed, bermuda grass (*Cynodon dactylon*), red-gland spurge (*Euphorbia melanadenia*), alkali heliotrope (*Heliotropium curassavicum*), Palmer's crinkle mat (*Tiquilia palmeri*), honeysweet (*Tidestromia suffructicosa*), and Mexican fan palm (*Washingtonia robusta*) also occur along or near the shoreline.

No emergent wetland vegetation or potential wetlands were observed within the proposed bridge alignment. The closest emergent vegetation, one small patch of bulrush (*Schoenoplectus acutus*), less than

10 square ft, was observed within the channel about 350 ft upstream of the alignment edge within Lake Havasu State Park.

3.2.2 Wildlife

The Colorado River is part of the Pacific Flyway, a major north/south migration route for birds. The proposed project site is located within Arizona Game & Fish Department (AGFD) Game Management Unit 16B in Region IV. Game within this unit consists of bighorn sheep (mountainous areas), dove, quail, and waterfowl. Wildlife and/or wildlife sign observed in the vicinity during field surveys on November 25, 2024, April 28, 2025, and June 30, 2025 are shown in Table 2 below (Himes Consulting, 2025). Bats, including the Yuma myotis (*Myotis yumanensis*) were detected in the project vicinity and are known to roost within the nearby London Bridge.

Table 3. Wildlife Detected in the Project Vicinity.

Common Name	Scientific Name
Birds	
Abert's towhee	<i>Melospiza aberti</i>
American coot	<i>Fulica americana</i>
American white pelican	<i>Pelecanus erythrorhynchos</i>
Anna's hummingbird	<i>Calypte anna</i>
Black-tailed gnatcatcher	<i>Poliophtila melanura</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Common raven	<i>Corvus corax</i>
Cooper's hawk	<i>Astur cooperii</i>
Gambel's quail	<i>Callipepla gambelii</i>
Gray flycatcher	<i>Empidonax wrightii</i>
Great-tailed grackle	<i>Quiscalus mexicanus</i>
Greater roadrunner	<i>Geococcyx californianus</i>
Green-winged teal	<i>Anas crecca</i>
House finch	<i>Haemorhous mexicanus</i>
House sparrow	<i>Passer domesticus</i>
Killdeer	<i>Charadrius vociferus</i>
Lesser goldfinch	<i>Spinus psaltria</i>
Lesser nighthawk	<i>Chordeiles acutipennis</i>
Mallard	<i>Anas platyrhynchos</i>
Mourning dove	<i>Zenaida macroura</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Ring-billed gull	<i>Larus delawarensis</i>
Song sparrow	<i>Melospiza melodia</i>
Turkey vulture	<i>Cathartes aura</i>
Western grebe	<i>Aechmophorus occidentalis</i>
Western kingbird	<i>Tyrannus verticalis</i>
White-winged dove	<i>Zenaida asiatica</i>
Yellow-rumped warbler	<i>Setophaga coronate</i>
Mammals	
Coyote	<i>Canis latrans</i>
Desert cottontail	<i>Sylvilagus auduboni</i>
Mexican free-tailed bat	<i>Tadarida brasiliensis</i>

Common Name	Scientific Name
Yuma myotis	<i>Myotis yumanensis</i>

Within Lake Havasu, fish are predominately non-native and likely include largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), green sunfish (*Lepomis cyanellus*), channel catfish (*Ictalurus punctatus*), redear sunfish (*Lepomis microlophus*), rainbow trout (*Oncorhynchus mykiss*), yellow bullhead (*Ameiurus natalis*), gold fish (*Carassius auratus*), striped bass (*Morone saxatilis*), smallmouth bass (*Micropterus dolomieu*), and threadfin shad (*Dorosoma petenense*) (Brown and Jacobson 2007).

3.2.3 Sensitive Species

A Biological Evaluation (BE) was prepared to evaluate the potential for impact to sensitive species from the Proposed Action (Himes Consulting, 2025). Sensitive species include federally-listed species and BLM sensitive species. The USFWS was contacted electronically for a list of federally-listed, proposed, and candidate species that may occur in the project vicinity. The BLM's list of sensitive species for the Colorado River District (Feb 2017) was also reviewed. The AGFD's online environmental review tool was searched for special status species that may occur in the project area. Based on these species lists, results of the site visit, the existing habitat within the project area, and known species habitat and range, species that may occur in the project area are shown in Table 4.

Table 4. Special Status Species.

Common Name	Scientific Name	Status
Birds		
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered
Western burrowing owl	<i>Athene cunicularia hypugea</i>	BLM Sensitive
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened
Fish		
Bonytail chub	<i>Gila elegans</i>	Endangered
Razorback sucker	<i>Xyrauchen texanus</i>	Endangered
Invertebrates		
Monarch butterfly	<i>Danaus plexippus</i>	Proposed Threatened
Mammals		
Yuma myotis	<i>Myotis yumanensis</i>	BLM Sensitive

Listed Species

Federally-listed species that may occur in the project vicinity include endangered fish species in Lake Havasu: the bonytail chub (*Gila elegans*) and the razorback sucker (*Xyrauchen texanus*). Lake Havasu and its 100-year floodplain is designated as critical habitat for the bonytail chub. These endangered fish species may occur within Bridgewater Channel. Other federally-listed species that may occur in the project area include the southwestern willow flycatcher (*Empidonax traillii extimus*) and the yellow-billed cuckoo (*Coccyzus americanus*). There is no suitable habitat for the flycatcher or cuckoo within the proposed project area apart from potential migratory stop-over vegetation. Monarch butterflies (*Danaus plexippus*) are proposed by the USFWS to be listed as a threatened species. Monarchs are known to occur in the project vicinity, as sightings are reported from Rotary Park, about one mile southeast of the project site (Western Monarch Milkweed Mapper 2025). Two desert milkweed plants (*Asclepias subulata*), a host plant for the species, occur within the existing right of way on the island.

Sensitive Species

BLM sensitive species that may occur in the project area include western burrowing owls (*Athene cunicularia hypugae*), and Yuma myotis bats (*Myotis yumanensis*). No burrowing owls or sign were detected during biological surveys conducted in November 2024, April 2024 and June 2025. Yuma myotis were detected within the project vicinity and roost within the nearby London Bridge (Havasus News 2015).

3.2.4 Bald and Golden Eagles

The closest known bald eagle nests to the project site are in the vicinity of Castle Rock (Mohave nest site) in the Havasu National Wildlife Refuge approximately 5 miles north of the project site, and at the confluence of the Bill Williams River, approximately 20 miles southeast of the project site (Southwestern Bald Eagle Management Committee 2016). Although these nests have not been occupied or productive in recent years, bald eagles may fly overhead in the project vicinity. Golden eagles have been known to nest in the Black Mountains, located north of Interstate 40, approximately 15 miles north of the project site (McCarty, Presler, and Jacobsen, 2023).

3.2.5 Migratory Birds

Migratory birds occur in the project vicinity, as the Colorado River functions as a corridor and flyway for a variety of species, including songbirds, raptors, and waterfowl. Migratory song birds and shoreline birds utilize the undeveloped portions of the project area (approximately 6.36 acres) for foraging, nesting, resting, and roosting, as well as Bridgewater Channel itself.

3.2.6 Invasive Species

Invasive species that occur within the proposed project site are limited but include two salt cedar (*Tamarix ramosissima*) trees along the riverbank. Within Lake Havasu, invasive aquatic species include Quagga mussel (*Dreissena bugensis*) and zebra mussel (*Dreissena polymorpha*) as well as crayfish (*Orconectus rusticus* and *Cherax quadricarinatus*) and several invasive aquatic plants and algae.

3.3 Cultural Resources

Class III pedestrian cultural resources surveys of the proposed project site were conducted on November 26, 2024 and June 9-10, 2025 by MCA Consulting, LLC (January 2025, June 2025). Cultural context of the project vicinity includes prehistoric Paleoindian, Archaic, and Patayan cultures and protohistoric Mohave and Hualapai cultures. However; the historic context of the cultural resources documented in the Area of Potential Effect (APE) are associated with Late Historical Period Euro-American contexts.

No cultural resources were identified within the APE; however, five historic in-use structures were recorded (historically named roads) and four isolated artifacts (historic unnamed roads) were recorded. All of these features are historic in-use paved roads constructed in the late 1960's or early 1970's. These features are not considered significant cultural resources eligible for listing in the National Register of Historic Places (NRHP) or Arizona Register of Historic Places (ARHP).

Consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA) was completed by the U.S. Coast Guard with the Chemehuevi Indian Tribe, the Colorado River Indian Tribes, the Fort McDowell Yavapai Nation, the Fort Mojave Indian Tribe, the Hopi Tribe, the Moapa Band of Piute Indians, the Navajo Nation, the Pueblo of Zuni, the Salt River Pima Maricopa Indian Community, the Yavapai Apache Nation, the Yavapai Prescott Indian Tribe. The Chemehuevi Tribal Historic Preservation Office (TPH) requested consultation on September 26, 2025. A consultation meeting was held on June 3, 2026 between the USCG, Chemehuevi Tribe, and Lake Havasu City, AZ. No further consultation was

requested. Consultation with the Arizona State Historic Preservation Office (SHPO) was completed on September 19, 2025 (Appendix E).

3.4 Geology & Soils

Lake Havasu City is located within the Basin and Range Physiographic Province in Arizona. Geology of the project area is unconsolidated to strongly consolidated alluvial and aeolian deposits (Richard et al. 2000). This unit includes: coarse, poorly sorted alluvial fan and terrace deposits on middle and upper piedmonts and along large drainages; sand, silt and clay on alluvial plains and playas; and wind-blown sand deposits 0-2 million years old.

Undisturbed native soils occur within the island portion of the Proposed Action, as well as within a portion of the proposed right of way within Lake Havasu State Park. The remainder of the proposed project area consists of city streets, parking lots, and other developed areas.

Soil information for the southern portion of Mohave County, including the project area, has been described by the Natural Resources Conservation Service (NRCS, 2006). Native soil types consist of Coolidge-Denure Complex, 1 to 7 percent slopes. This soil complex consists of 40 percent Coolidge and similar soils, 35 percent Denure and similar soils, and 25 percent minor components. Both Coolidge and Denure soils are found on fan and stream terraces with a parent material of alluvium derived from mixed sources. Coolidge soils are well-drained with no frequency of flooding or ponding. Typical soil profile is gravelly sandy loam (0 to 2 inches), sandy loam (2 to 46 inches), and gravelly sandy loam (46 to 60 inches). Denure soils are somewhat excessively drained with no frequency of flooding or ponding. Typical profile is loamy sand (0 to 7 inches), gravelly coarse sandy loam (7 to 18 inches) and coarse sandy loam (18 to 60 inches). No hydric soils are present within the project area.

3.5 Hazardous Materials

A regulatory database search was obtained from Environmental Data Resources, Inc. to identify any known records of hazardous materials that occur within a one mile radius of the proposed project site. This report summarizes the research of federal, state, and local environmental regulatory agencies that may have a recorded incident related to the release or potential release of petroleum products or hazardous materials at the site vicinity. The ADEQ eMaps Geographic Information System (GIS) website was also reviewed to identify any known records for the project site regarding state regulated hazardous waste programs such as Brownfields, underground storage tanks (USTs), landfills, Superfund sites, material recovery facilities, and hazardous waste generators (ADEQ 2025).

The database search identified 74 mapped sites within the search radius, including non-hazardous materials permits such as storm water permits, docks, and facilities. Of these mapped sites, no records of hazardous materials were identified within the project boundaries. Within a 0.5 mile radius, leaking UST records and Superfund sites associated with commercial areas at the following sites were identified:

- Island Wastewater Treatment Plant, 0.5 miles south, UST release (closed 1994).
- Marina, 0.4 miles southeast, UST releases (closed 1999 & 2007).
- Gas Station, 0.02 miles north, UST release, identified 2020, Paloverde South & SR 95, USTs removed 2020.
- Gas Station, 0.03 miles north, UST release (closed 2018).
- Convenience Store, 0.04 miles east, UST release (closed 2020).
- Vehicle Repair Facility, 0.1 miles east, UST release (closed 2002).
- Bahama & Bimini Lane (0.3 miles north), Superfund site, listed 2021.
- Gas station, 0.1 miles east, UST release, reported 4/30/1991, ongoing remediation.

- Gas station, 0.1 miles east, UST release, reported 3/26/2024, ongoing remediation.
- Vehicle Repair Facility, 0.2 miles east, UST releases (closed in 1998 and 2005).
- Gas Station, 0.3 miles east, UST releases (closed in 2004 and 2005).
- Vehicle Repair Facility, 0.4 miles east, UST release (closed in 2000).
- Gas Station, 0.3 miles southeast, UST release (closed 2004).
- Gas Station, 0.4 miles southeast, UST releases (closed 2016).
- Gas station, 0.5 miles southeast, UST releases (closed 2000 & 2008).
- Gas station, 0.7 miles southwest, UST release (closed 2000 & 2009).
- Gas station, 0.8 miles southwest, UST release (closed 2010, 2016 & 2021).
- Vehicle Repair Facility, 0.5 miles east, UST release (closed 2000).

Small amounts of petroleum products may be present from vehicles on city streets and parking lots within the proposed project site. No indication of spills or staining was observed within the undeveloped portions of the proposed project area during a site visit on May 15, 2024.

3.6 Hydrology and Water Quality

3.6.1 Surface Water

The proposed Second Bridge spans Bridgewater Channel, a portion of the Colorado River at Lake Havasu, originally constructed as an artificial channel in the 1971 after construction of the London Bridge (National Park Service, 1999). The channel is approximately 180 ft wide at the proposed Second Bridge location. Bridgewater Channel is considered a traditionally navigable waterway and a water of the U.S. Flow velocities within Bridgewater Channel area are approximately 2.5 to 4.0 cubic ft per second (cfs). The U.S. Army Corps of Engineers established the 450 ft above msl as the OHWM for Lake Havasu. The 450 ft elevation is considered full reservoir for Lake Havasu. Lake Havasu is 19,780 surface acres.

The Proposed Action is located within the Havasu-Mohave Lakes Sub-basin of the Colorado/Lower Gila Watershed (Hydrologic Unit Code 15030101) (USGS 2025). This sub-basin is a part of the Lower Colorado Sub-region. The Havasu-Mohave Lakes Sub-basin drains an approximate 2,783 square mile area (FEMA, 2013). Surface water flow within the lake is perennial and continues downstream to discharge into the Sea of Cortez in Mexico. No springs are located within the project area (USGS 1970). Willow Wash, an ephemeral wash, lies approximately 0.4 miles north of the proposed bridge location.

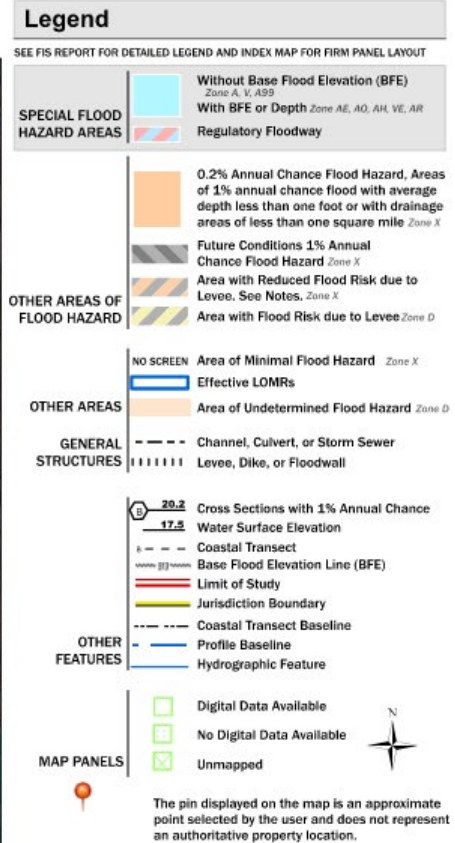
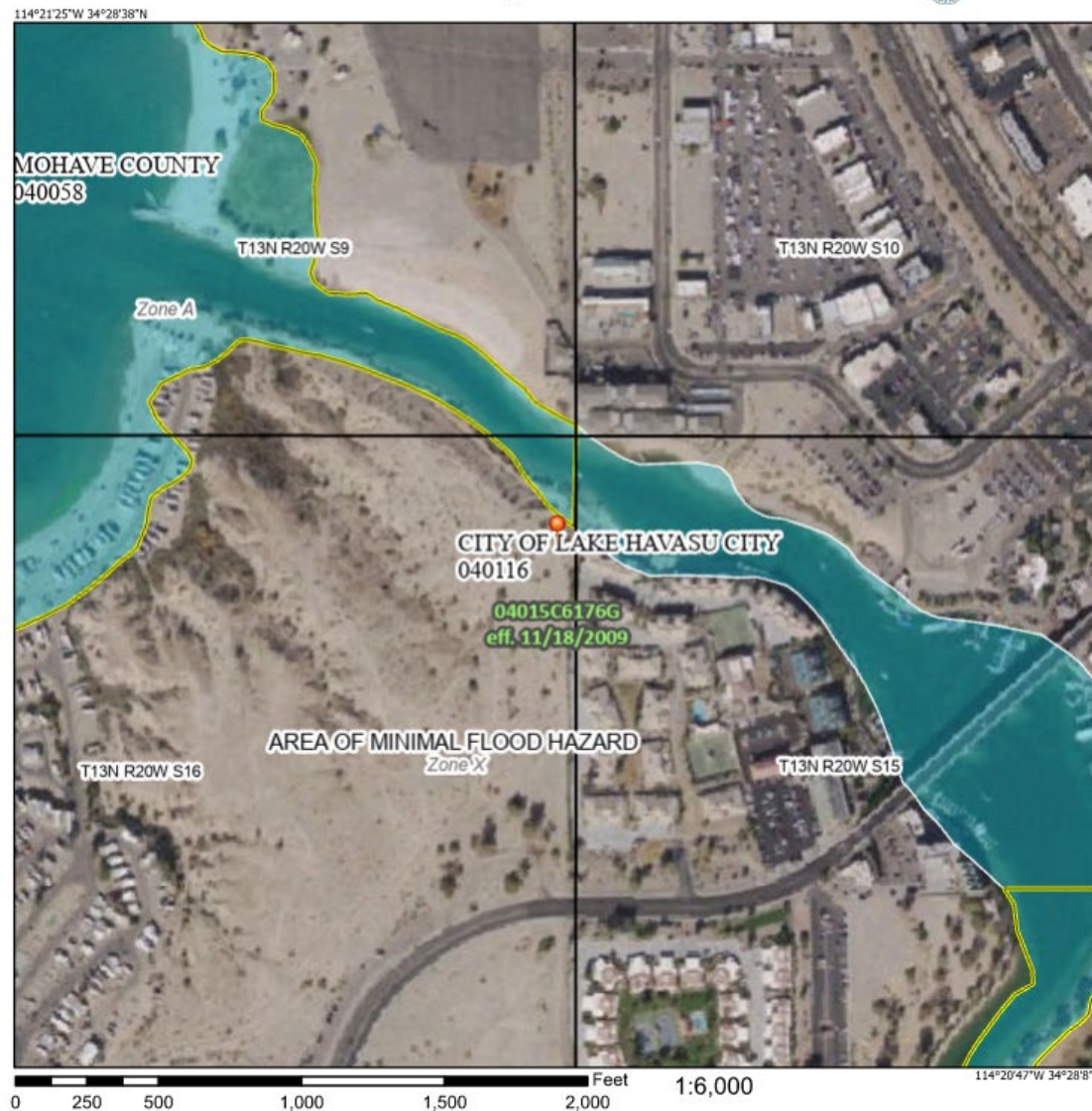
3.6.2 Floodplain

The Proposed Action is located within the Federal Emergency Management Area (FEMA) Flood Insurance Rate Map (FIRM) Panel Number 04015C6176G (FEMA, 2009), as shown in Figure 8. The proposed project area is mapped as Zone X, with Bridgewater Channel mapped as Zone A. Zone X is defined as Areas of Minimal Flood Hazard, with Zone A defined as a Special Flood Hazard Area, Without Base Flood Elevation (FEMA, 2009). Floodplain elevations along Lake Havasu generally follow the 455 ft elevation. In the vicinity of the proposed bridge location, the floodplain area is generally equivalent to the channel boundaries. Due to the relatively steep slopes in this area, all areas above 455 ft above msl are located in areas of minimal flood hazard.

3.6.3 Water Quality

Designated beneficial uses of Lake Havasu include domestic water source, fish consumption, full body contact, agricultural irrigation, agricultural livestock watering and warm water aquatic wildlife (ADEQ, 2024). The ADEQ Integrated 305(b) Assessment and 303(d) Listing Report indicates water quality in Lake Havasu is listed as impaired for Selenium (2024). Harmful algal blooms have also been reported as occurring periodically within Lake Havasu (Mohave County, 2025).

National Flood Hazard Layer FIRMette



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/28/2025 at 8:35 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Figure 8. Floodplain Map.

3.7 Land Use

3.7.1 Land Use Plans

Land use in the project vicinity is considered high-density developed. In the City's General Plan, the project vicinity is designated as Resort or Resort-Related (Lake Havasu City, 2016). These areas are generally intended to serve and support the tourism-oriented resort industry. Zoning includes Mixed Use-Channel Riverwalk, Agriculture-Preservation (State Park), and General Commercial. A proposed second bridge has been part of the City's general planning since 1997 (Lake Havasu City, 1997).

The BLM manages lands in the Lake Havasu Field Office (LHFO) under the LHFO Record of Decision and Approved Resource Management Plan (LHFO RMP) (BLM 2007). Lake Havasu State Park is located within the BLM's North Lake Havasu Recreation Management Zone (RMZ) 7 of the Lake Havasu Special Recreation Management Area (SRMA) (BLM, 2007). The prescribed recreational setting is Rural Developed (BLM, 2007). This zone is managed to provide opportunities for visitors and residents to engage in a variety of water and shoreline related activities, providing continuity to management through collaborative partnerships with other entities. Targeted use is for boating, motor sports, fishing, and public safety.

3.7.2 Land Use

Within the project site, land use consists of city streets & parking lots, powerline corridors, utility corridors, the city's pump station, recreation areas (Bridgewater Channel and Lake Havasu State Park), and wildlife habitat. Land uses within the island portion of the project area include wildlife habitat, a utility corridor, and recreation such as off-road vehicle use, boat beaching during the peak season (May through September), and walking for nearby residents. A portion of the proposed project area on the north side of the channel lies within Lake Havasu State Park. Land uses within Lake Havasu State Park include recreational beach areas, parking lots, and a city well pump station. The City entered into a Memorandum of Understanding (MOU) with Lake Havasu State Park for a right of way for the proposed bridge in 1997. As part of the agreement, the City transferred 3.79 acres to the BLM for the use of Lake Havasu State Park as compensation for the right of way.

Lake Havasu itself is considered one of the recreational boating capitals of the southwest with opportunities for world-class boating and fishing. The community regularly hosts well-known events such as Desert Storm, the World Jet Ski Finals, classic car shows, the Lake Havasu Balloon Festival & Fair, Winter Blast Western Pyrotechnics Show, and other annual events. Land uses within Bridgewater Channel include boating, the Tecopa ferry operation, recreation on beaches, fishing, underground utilities, wildlife use, and water management. All of Bridgewater Channel is a No Wake Zone.

Adjacent land uses include residential (condominiums, hotels, and mobile home & recreational vehicle [RV] parks), commercial areas, and Lake Havasu State Park. The City's channel walk and island trail system provides walking, jogging, and cycling trails around the island and along Bridgewater Channel.

3.8 Noise

Sound is a mechanical radiant energy that is transmitted by longitudinal pressure waves in a material medium, such as air in the case of traffic and stationery noise and is the objective cause for human hearing. Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. Noise is defined as an unwanted sound.

Noise is transmitted in air by pressure variations from its source to the surroundings. Noise levels will decrease as the distance between the source, and the receiver increases. While absorption by air is one of

the factors attributing to the weakening of noise during transmission, distance plays a more important role in noise reduction during transmission. Depending on the source of the sound for every doubling of distance the level will be reduced between 3 and 6 decibels (dB). The reduction of noise is called attenuation. Other factors for noise attenuation are ground absorption and shielding. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of an additional 1.5 dB per doubling of distance.

In order to break the line of sight, walls between a noise source and a receiver are often used for noise attenuation to reduce the noise levels at the receiver. Additional barriers such as buildings, hills and heavy vegetation can also reduce the noise levels. Typically, walls will reduce noise levels by 5-10 dB. The higher the wall is, the higher the noise reduction will be.

Although the Proposed Action is not a highway project, the Federal Highway Administration (FHWA) traffic noise standard was used to evaluate the traffic noise significance as it is recognized as the main roadway noise standard.

3.8.1 Sensitive Receivers

A sensitive receiver is a representative location of a noise sensitive area that may be impacted by operational and construction noise from the proposed project. Along the proposed project area, several sensitive receivers were identified for evaluation. These receivers are presented in Table 5 with their corresponding FHWA land use description and Lake Havasu City zoning designation (Lake Havasu City, 2025a). A map of the receiver locations is presented in Figure 9. The Hospice of Havasu is not included as a sensitive receiver as this location does not provide onsite medical or care services and is primarily an office location.

Table 5. Sensitive Receivers.

ID	Sensitive Receiver	Address	FHWA Land Use Description ¹	LHC Zoning ²
R1	Studio 6 Hotel	1300 McCulloch Blvd N	E	MU-CRW
R2	Isleside Condos	1402 McCulloch Blvd N	B	R-M
R3	The Isles Condos	1401 McCulloch Blvd N	B	R-M
R4	Crazy Horse Campgrounds	1534 Beachcomber Blvd	C	I-B
R5	Kings View Condos	96 London Bridge Rd	B	R-M/PD
R6	Sway Hotel	101 London Bridge Rd	E	C-1
R7	Motel 6	111 London Bridge Rd	E	C-1
R8	Hampton Inn	245 London Bridge Rd	E	C-2
R9	Super 8	305 London Bridge Rd	E	C-2
R10	Rodeway Inn & Suites	335 London Bridge Rd	E	C-2
R11	Windsor Beach Condos	375 London Bridge Rd	B	R-M

Notes:
¹ Land use as defined by the United States Code of Federal Regulations Part 772 (23 CFR 772), *Procedures for Abatement of Highway Traffic Noise and Construction Noise*
² Lake Havasu City Zoning defined as:
 MU-CRW: Channel Riverwalk C-2: General Commercial
 R-M: Multiple-Family I-B: Island – Body Beach
 R-M/PD: Multiple-Family/ PD Overlay
 C-1: Limited Commercial



Figure 9. Sensitive Receiver Map.

3.8.2 Ambient Noise Environment

Ambient noise or background levels are the all-encompassing noises associated with a given environment at a specific time, usually a composite of sound from many sources from many directions, near and far without any dominant sound. The primary existing noise sources are traffic noises from surrounding roads, boats on waterways, residential activity, and animal noises.

NV5 took ambient noise level measurements at locations along the proposed road and bridge locations as indicated in Figure 10. Short-term 15-minute measurements were made during the daytime hours on May 16th and 17th, 2025. Each measurement was placed near sensitive receivers along the path of the proposed road and bridge as indicated in Table 6 below.

Table 6. Measurement Locations.

ID	Location	Sensitive Receivers Represented
ML1	Kings View Condo - 96 London Bridge Rd, Lake Havasu City, AZ 86403	Receivers R5 – R7
ML2	Crazy Horse Campgrounds - 1534 Beachcomber Blvd, Lake Havasu City, AZ 86403	Receiver R4
ML3	The Isle Condos (By Channel) - 1401 McCulloch Blvd N, Lake Havasu City, AZ 86403	Receiver R3
ML4	Hampton Inn - 245 London Bridge Rd, Lake Havasu City, AZ 86403	Receivers R8 – R12
ML5	The Isle Condos (By Road) - 1401 McCulloch Blvd N, Lake Havasu City, AZ 86403	Receivers R1 and R2

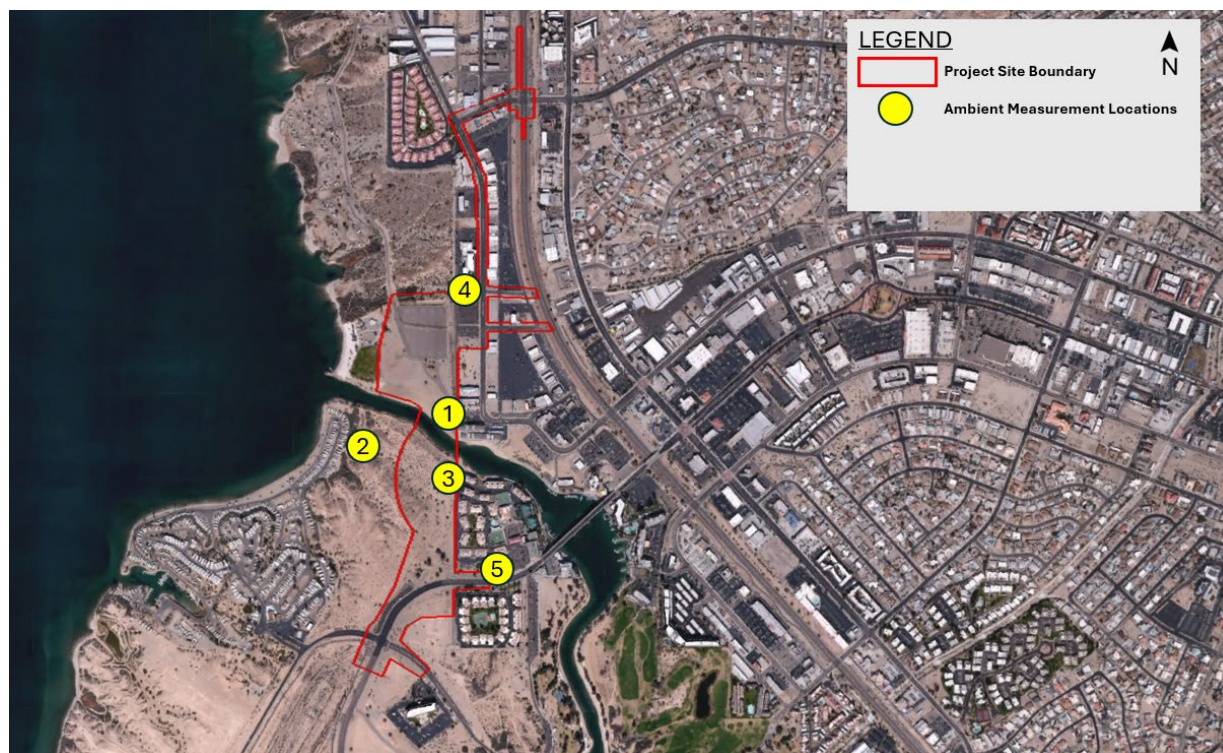


Figure 10. Measurement Locations.

All measurements were conducted using a Quest SoundPro DL-2 Sound Level Meter (SLM). The SLM was calibrated before measurements were taken and post-calibrated after measurements were completed. The measurements were made using the A-weighting scale, the SLM was placed 5 feet off the ground. A total of ten 15-minute samples were taken and analyzed with L₉₀, L_{eq} and L_{max}. The results from the ambient noise measurements are presented in Table 7. The full noise measurement reports can be found in Appendix F.

Table 7. Ambient Noise Measurements

ID	Sampling Location	Sample Date	Sample Time	Description	L _{eq} (dBA)	L ₉₀ (dBA)	LS _{max} (dBA)
ML 1	King View Condo - 96 London Bridge Rd, Lake Havasu City, AZ 86403	5/16/2025	3:53pm – 4:08pm	Stationary boats playing music, one boat across the channel playing loud music, and boats driving by.	69.4	65.3	78.1
		5/17/2025	1:53pm – 2:08pm	Stationary boats playing music and boats driving by.	68.7	62.7	81.3
ML 2	Crazy Horse Campgrounds - 1534 Beachcomber Blvd, Lake Havasu City, AZ 86403	5/16/2025	5:11pm – 5:26pm	Boats driving by and dogs barking at campground	60.6	53.9	72.1
		5/17/2025	3:44pm – 3:59pm	Boats driving by.	57.5	50.7	69.6
ML 3	The Isle Condos (By Chanel) - 1401 McCulloch Blvd N, Lake Havasu City, AZ 86403	5/16/2025	4:45pm – 5:00pm	Boats driving by, boats in channel playing music, and a boat honking.	64.8	56.5	80.1
		5/17/2025	3:21pm – 3:36pm	Boats driving by and boats in channel playing music.	58.5	55	71.8

ID	Sampling Location	Sample Date	Sample Time	Description	L _{eq} (dBA)	L ₉₀ (dBA)	LS _{max} (dBA)
ML 4	Hampton Inn - 245 London Bridge Rd, Lake Havasu City, AZ 86403	5/16/2025	2:58pm – 3:13pm	Road traffic from passenger vehicles and box trucks, and traffic in parking lot	58.6	56.1	70.3
		5/17/2025	1:14pm – 1:29pm	Road traffic from passenger vehicles, and box trucks, and traffic in parking lot	59.5	56	70.8
ML 5	The Isle Condos (By Road) - 1401 McCulloch Blvd N, Lake Havasu City, AZ 86403	5/16/2025	6:03pm – 6:18pm	Road traffic from passenger vehicles, off-road vehicles, and helicopter.	64.5	51.4	78.2
		5/17/2025	2:45pm – 3:00pm	Road traffic from passenger vehicles, off-road vehicles, a very loud honk.	64	54.4	81.2

Notes:

dBA = A-weighted decibels

L_{eq} = Equivalent continuous level over a period of 15 minutesLS_{max} = The maximum Sound Level with Slow Time weighting during the measurement periodL₉₀ = A-weighted sound level of all sound associated with a given environment, exceeded 90 percent of the time. L90 refers to ambient noise level in this report.

3.9 Transportation

3.9.1 Vessel Traffic

Vessel traffic within Bridgewater Channel includes recreational boats, including powerboats, pontoons, fishing boats, sailboats, personal watercraft, and small boats including kayaks, and the Tecopa ferry, a 65 ft passenger catamaran operated by the Chemehuevi Indian Tribe (located across the lake at Havasu Lake, California). The Tecopa operates daily every ½ hour from 6:45 am to midnight from their dock next to the English Village in Bridgewater Channel to Havasu Landing on the California side of the lake (Havasu Landing Resort & Casino 2024). The existing London Bridge vertical navigational clearance is 34.4 ft above the OHWM (450 ft elevation) (Transystems Corporation 2004). Vessel traffic is heavy within Bridgewater Channel during the busy boating season (generally mid-March through Labor Day), especially on holiday and event weekends.

3.9.2 Emergency Access

Emergency access to the island from Lake Havasu City fire stations is currently limited to the use of one travel route, McCulloch Blvd. and the existing London Bridge over Bridgewater Channel. If McCulloch Blvd. or the London Bridge are blocked due to accidents, stalled vehicles or traffic jams, emergency and medical attention may be compromised and public safety threatened. Currently, island visitors and residents are limited to McCulloch Blvd. and the London Bridge as the only emergency evacuation route.

3.9.3 Roadway Circulation

The Proposed Action lies within the Lake Havasu Metropolitan Planning Organization's (LHMPO) Planning Area, established in 2010. Roadways within the project site include SR 95, London Bridge Road, McCulloch Boulevard, South Palo Verde Boulevard, and Paseo del Sol Avenue (LHMPO, 2022). Roadway classifications are shown in Table 8. Level of Service (LOS) is a term used to describe traffic operations, ranging from LOS A (free flowing traffic) to LOS F (forced flow, or very congested) (LHMPO, 2022). High crash densities are currently present within the project area (LHMPO, 2022).

Table 8. Roadways Within the Project Area.

Roadway	Classification	# Lanes	LOS 2024	VPD 2022
SR 95	Principal Arterial	4 Lanes + Center Turn Lane	C	21,134
London Bridge Road	Major Connector	2 Lanes & 2 Lanes + Center Turn Lane	A	4,586
McCulloch Blvd (London Bridge)	Minor Arterial	4 Lanes + Center Turn Lane	B	10,430
S. Palo Verde Blvd.	Minor Arterial	2 Lanes + Center Turn Lane	A	5,848
Paseo Del Sol Ave.	Local	2 Lanes	A	NA

¹Vehicles Per Day, Year 2022 (Michael Baker International 2024).

3.9.4 Paths & Trails

The City's island trail system and channel Riverwalk provide off-street paths and trails for pedestrians and bicyclists along Bridgewater Channel and onto the island via the London Bridge.

3.10 Visual Resources

The visual resources analysis evaluates the potential for visual impacts as a result of USCG's issuance of a Bridge Permit for the construction of a second bridge over Bridgewater Channel, and the issuance of a BLM right of way to the City for construction and operation of the bridge and associated street improvements. BLM guidance for visual impacts is used to guide the analysis as a portion of the Proposed Action is located on BLM land.

3.10.1 Regulatory Context

Visual resources analysis for the Proposed Action is guided by FLPMA, which set forth land management policies in use by the BLM today, and NEPA. NEPA requires, among other things, that measures be taken to "...assure for all American [sic]... esthetically pleasing surroundings (443 U.S.C. 4321 Section 101); and that agencies "Utilize a systematic, interdisciplinary approach which will ensure the integrated use of...Environmental Design Arts in the planning and decisionmaking [sic]...." (443 U.S.C. 4321 Section 102) (BLM 1984). The BLM uses its Visual Resource Management (VRM) system/program to meet this NEPA requirement (BLM 2025a). Among the many tools used by BLM for visual analysis are the Visual Resources Inventory Manual H-8410-1 (BLM 1986a) and the Visual Resource Contrast Rating Manual 8431 (BLM 1986b).

The BLM's VRM system is a comprehensive framework for managing visual resources on BLM-administered lands. It includes processes for identifying visual resource values, minimizing the impacts of surface-disturbing activities on visual resources, and maintaining the scenic value of tracts of land for the future. The VRM system involves a systematic process for classifying the distance from which the landscape is most commonly viewed, through delineation of Distance Zones. The Scenic Quality Rating process, the Sensitivity Level Analysis, and the Distance Zone delineation process are key components of the VRM analysis. The outcome of the Visual Resource Inventory (VRI) process determines the VRI classes, which represent the relative value of the visual resources. Classes I and II are the most valued, Class III represents a moderate value, and Class IV being of lesser visual value. These inventory classes provide the basis for considering visual values.

3.10.2 Area of Visual Effect

The purpose of the visual resources analysis is to document the existing natural and built environment within the Area of Visual Effect (AVE) for the proposed project, to document the visual changes that may be perceived by people viewing the new bridge and associated improvements, both during construction and over the life of the project, to determine whether the project would result in any adverse environmental effects or impacts to the visual quality of the environment, and to provide recommended mitigation measures to reduce any adverse effects.

For the Proposed Action, the AVE was established to be Bridgewater Channel from the London Bridge northwest to the channel entrance and the open water areas of Lake Havasu with a view of the bridge. Viewpoints outside of the AVE may still have partial or full views of the new bridge and associated improvements, however, as a practical matter, these views would be partially or mostly obstructed or, in the case of views from the lake looking southeast toward the bridge, represented by views along the channel looking in the same direction.

3.10.3 Viewpoints and Viewers

The effect the view of the new bridge would have on viewers depends on their viewpoint and the duration of their view. Motorists driving across the London Bridge would be least affected by the view of the proposed bridge as they would be driving through the study area and they would be viewing the bridge from an elevated position. These viewers would have a relatively short duration view of the new bridge and they would still be able to see the Chemehuevi Mountains in the background to the northwest. Conversely, pedestrians, boaters, and residents along Bridgewater Channel would be more affected as they would be looking upward or directly at the new bridge from a relatively stationary position. The new bridge would also be a more dominant feature of the foreground of their viewpoint and would partially interrupt their view of the Chemehuevi Mountains in the background to the northwest or, for beachgoers and pedestrians along the channel northwest of the new bridge, their view of London Bridge when looking southeast down the channel. These viewers along Bridgewater Channel would be more affected by a new bridge at this location.

To effectively analyze the visual impacts of the project, three key viewpoints were established to best represent the views for the different types of viewers described above.

Viewpoint 1

Viewpoint 1 is shown in Figure 11. This viewpoint is the approximate center of the London Bridge looking northwest up the channel and towards the lake with the mountains in the background. In viewpoint 1, the lake and mountains are highly visible and unaltered from their natural state by manmade elements. From this viewpoint, Bridgewater Channel, with a mixture of residential buildings, walking paths, and boats in the foreground and middle ground, enhance the view of the background by offering an organized developed scene. This viewpoint offers the highest quality, most vivid view of Bridgewater Channel out to Lake Havasu. The boats, Shoreline Trail, and residential buildings frame both sides of the channel and the somewhat meandering nature of the channel enhances the overall quality of this viewpoint. The elevated vantage point of this viewpoint along London Bridge enhances the vividness of this viewpoint. Therefore, this viewpoint has a moderately high degree of vividness, intactness, and unity.



Figure 11. Viewpoint 1 Existing Condition.

Viewpoint 2

Viewpoint 2 is shown in Figure 12. This viewpoint is from a spot along Shoreline Trail along the east side of the channel near the Havasu Landing Ferry Boat Terminal. From this viewpoint, the viewer is looking to the northwest toward the channel opening with the lake. The Chemehuevi Mountains in the background are partially visible. From this viewpoint, the development along the channel in the foreground is contrasted with the natural bluffs near the opening of the channel and the mountains in the background. The view of the mountains in the background is significantly blocked by the residential development on the east side of the channel which dominates this view and the powerlines over the channel detract from the vividness, intactness, and unity of the view. Therefore, this viewpoint has a moderate degree of vividness, intactness, and unity.



Figure 12. Viewpoint 2 Existing Condition.

Viewpoint 3

Viewpoint 3 is shown in Figure 13. This viewpoint is from a spot northwest of the proposed bridge location along the channel near the East Quoddy Lighthouse Replica. From this viewpoint, the viewer is looking to the southeast toward London Bridge and the residential development along both sides of the channel. The Mohave Mountains are partially visible in the background behind London Bridge. This viewpoint shows a naturalized shoreline in the foreground and middle ground contrasted with a developed shoreline and London Bridge in the middle ground and background. While this viewpoint does not necessarily provide the most vivid experience looking southeast down the channel, it provides the most direct view down the channel and of London Bridge in the background. The natural state of the channel in the foreground and middle ground lacks unity with the developed areas in the background. Therefore, this viewpoint has a moderate degree of vividness, intactness, and unity.



Figure 13. Viewpoint 3 Existing Condition.

3.10.4 Existing Visual Conditions

Visual Resource Inventory Class Determination

The VRI consists of a scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. Based on these three factors, BLM-administered lands are placed into one of four visual resource inventory classes. These inventory classes represent the relative value of the visual resources. Classes I and II being the most valued, Class III representing a moderate value, and Class IV being of least value. According to the BLM National Data interactive mapping tool (BLM 2025b), the Proposed Action occurs within a Class IV area.

Scenic Quality Rating

Scenic quality is a measure of the visual appeal of a tract of land. In the VRI process, public lands are given an A, B, or C rating based on the apparent scenic quality which is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.

According to the BLM National Data interactive mapping tool (BLM 2025b), the portion of the Proposed Action within BLM land has a scenic quality rating code of C.

A Scenic Quality Rating Unit (SQRU) was evaluated from points identified by BLM and adjusted in the field to best view the characteristic landscape. The visual characteristics of form, line, color, and texture were collectively recorded on worksheets from Visual Resources Management, Manual 8400-1 (BLM 1984) as observed from all points (Appendix G). According to the BLM National Data interactive mapping tool (BLM 2025b), the Proposed Action occurs within an area that is classified as having a SQRU rating of 2. Its total score for scenic quality is 9. The scenic quality rating code of C is given to area with a scenic quality rating score of 11 or less.

Distance Zone Delineation

Within the VRI process, distance zones are assigned based on the distance of lands from places where people are known to be present on a regular basis, such as highways, waterways, trails, or other key locations. They include the following:

- Foreground-middle ground – This zone includes visible areas from 0 to 5 mi.
- Background – This zone includes visible areas from 5 to 15 mi.
- Seldom seen – This zone includes lands visible beyond 15 mi or lands hidden from view from key locations.

According to the BLM National Data interactive mapping tool (BLM 2025b), the Proposed Action lay within an area that is classified as Foreground-middle ground. The effects of distance are highly dependent on the size and other characteristics of the project and the landscape and should be incorporated into the contrast and impact analyses.

Visual Contrast Rating

The VCR process involves a systematic comparison of the landscape's visual characteristics before and after the project is implemented, as seen from key observation points (KOPs), using the basic design elements of form, line, color, and texture. KOPs are the most critical viewpoints, where there is public sensitivity to visual change due to the type of user, level of use, orientation to proposed project, etc., such as points or a series of points on a travel route, or at a use area or a potential use area. Visual Contrast Rating Worksheets were completed for the Proposed Action and are included in Appendix G. Visual contrast worksheets suggested that the visual contrast would be generally weak-to-moderate.

Artificial Light at Night

The Proposed Action would require fixed navigational lighting on the bridge and roadway intersection lighting for vehicular safety. The BLM's Best Management Practices for Artificial Light at Night on BLM-Managed Lands (BLM 2023) is utilized to minimize the potential for nighttime glare.

4.0 Environmental Consequences

4.1 Air Quality

4.1.1 Proposed Action

Potential impacts to air quality from the Proposed Action include short-term construction-related air emissions such as dust and equipment emissions. Temporary increases in fugitive dust would occur. All equipment would be equipped with standard emission controls to reduce emissions. Water would be provided during construction as dust control on an as-needed basis. Construction vehicles would be limited to 15 mph on unpaved surfaces. Based on these control measures, construction-related impacts are anticipated to be short-term, localized, and would not significantly impact air quality.

Mobile sources (vehicles) would increase in the immediate area of the proposed new bridge and roadways over the long-term while reducing vehicular traffic and associated emissions from the existing London Bridge/McCulloch Blvd (0.3 miles east). This would result in a shift in emission location from mobile sources that would not adversely impact regional air quality. No change would occur in air quality from existing vessel traffic emissions in Bridgewater Channel.

The Proposed Action would not alter the existing temperature or precipitation patterns or distribution and thus would not have any direct or indirect impacts to climate within the project area or region. A very minor increase in atmospheric CO₂ and other greenhouse gases from the Proposed Action is anticipated to occur through construction of the Proposed Action. Removal of vegetation would reduce the conversion of CO₂ to O₂ and the release of water vapor that normally occurs during photosynthesis in the immediate area.

Based on the associated control measures to be implemented, the Proposed Action would have minor, short-term adverse impacts, and a localized, long-term shift in mobile source location with no adverse air quality impacts in the region.

4.1.2 No Action

No Action would result in no change in local air quality or change the location of vehicular emissions and vessel emissions. Construction of the Proposed Action would not occur.

4.2 Biological Resources

4.2.1 Proposed Action

Vegetation

Of the 29.4 acres in the project area, native desertscrub is limited to 6.36 acres, with the remaining areas previously developed as city streets, parking lots, commercial areas, and some beach and previously-graded areas within Lake Havasu State Park. Within Lake Havasu State Park, approximately 1 acre is paved, vegetative regrowth has occurred on approximately 2.4 acres of previously graded areas, with the remaining 0.96 acres unvegetated sandy beach areas. The Proposed Action would therefore result in the loss of approximately 6.36 acres of native Sonoran desertscrub vegetation on the island and the removal of approximately 2.4 acres of vegetative regrowth within Lake Havasu State Park. All cleared vegetation would be immediately removed and properly disposed off-site. Landscaping designs would give preference to native species and provide a replacement of some of trees, shrubs, and other vegetation. As Sonoran desertscrub vegetation is abundant throughout the region, vegetation loss represents a minor, adverse impact on a regional basis.

Wildlife

The Proposed Action would result in the loss of approximately 6.36 acres of relatively undisturbed wildlife habitat. Adverse impacts to wildlife within the undeveloped portions of the right of way would occur. Wildlife would be anticipated to move to adjacent areas to avoid direct impact from construction activities. However, mortality would occur for those individuals who do not move out of the construction areas, and some mortality for displaced animals would be expected. The Proposed Action would also result in the loss of approximately 2.4 acres of previously disturbed areas on the north side of the channel. As Sonoran desertscrub is abundant within the region, overall impacts to wildlife habitat would be minor on a regional basis.

Listed Species

Bonytail Chub and Razorback Sucker. There is no in-water work associated with the Proposed Action, as the proposed bridge would completely span the channel. Impacts to the channel bed associated with the use of temporary pilings on the spud barge (for use in bridge girder transportation) are considered minimal. The addition of the bridge would increase the shaded area of Bridgewater Channel by approximately 9,000 square ft, providing some shade and associated cooler water temperatures. Storm water controls would minimize storm water runoff, and associated sedimentation, into the channel during construction. Therefore, the proposed project would have no effect on the bonytail chub or razorback sucker.

Southwestern Willow Flycatcher and Western Yellow-Billed Cuckoo. The Proposed Action would result in the loss of trees and shrubs, potential migratory stop-over habitat for the southwestern willow flycatcher and western yellow-billed cuckoo within the island right of way. Clearing and grubbing of vegetation would be conducted outside of the nesting season for these species, which is April 15 through September 30. Landscape plans include planting mesquite and other trees throughout the project site. As the site does not contain suitable nesting habitat for either species, and as vegetation removal would occur when the species are not present, the Proposed Action would have no effect on the southwestern willow flycatcher or yellow-billed cuckoo.

Monarch Butterfly. Two desert milkweed plants (host plants for the Monarch butterfly) would be removed from construction of the Proposed Action. The proposed bridge and new approaches would reduce potential habitat for the Monarch butterfly by approximately 6.36 acres.

Direct mortality or injury could occur to adult monarchs from vehicles and equipment operating in the project area during construction and post-construction. As monarchs have been recorded in Rotary Park, part of the Lake Havasu urban area downstream of the existing London Bridge, the addition of a second bridge, roadway approaches, and street improvements within a developed area are not expected to affect the ability of monarchs to migrate, forage, or disperse through the area. Impacts to individual monarchs post-construction would be limited to minor behavioral changes. Based on the existing high-density development in the project vicinity, the low habitat quality (number of host plants) within the project area, the project may affect but is not likely to adversely affect the monarch butterfly or its habitat.

Sensitive Species

As burrowing owls do not occur within the project site, the Proposed Action would have no effect on the burrowing owl or its habitat. The Colorado River provides foraging habitat for the Yuma myotis which occurs in the project vicinity. Construction activities would take place almost entirely during the day, thus foraging would still occur undisturbed at night. All construction areas would be stabilized and/or revegetated. Following construction, the bridge underside may provide additional roosting for the species. Overall, the project would have no adverse effect to the Yuma myotis or its habitat.

Bald and Golden Eagles

As no nests occur within or near the project area, the project would not result in take or disturbance to bald or golden eagles.

Migratory Birds

Potential impacts to migratory birds are considered in accordance with the Migratory Bird Treaty Act, Executive Order 13186. Impacts to migratory birds include the removal of existing vegetation. The maximum amount of vegetation disturbance (including nesting, foraging, and cover habitat) would be approximately 6.4 acres, a small percentage of habitat available to migratory birds. Construction is

currently planned in the fall and winter. If vegetation removal is conducted within the bird nesting season (mid-February through August), then a pre-construction bird nest survey would be conducted to identify any active nests in accordance with the Migratory Bird Treaty Act. The proposed bridge would also increase potential nesting surfaces for some bird species (such as swallows) after construction.

Invasive Species

The Proposed Action would include the removal of two salt cedar trees along the channel. These would be properly disposed off-site in a landfill. All construction-related equipment would be cleaned (power or high-pressure cleaning) prior to entering the project site to minimize the potential for introduction of invasive species. The City conducts annual lake weed harvesting to help clear invasive aquatic species and is committed to continuing these efforts. Therefore, there would be no adverse impacts on invasive species from the Proposed Action.

4.2.2 No Action

Under the No Action alternative, construction of the second bridge and roadway improvements would not occur. This alternative would result in no impacts to biological resources, including vegetation, wildlife, sensitive species, migratory birds, or invasive species.

4.3 Cultural Resources

Since there are no NRHP-eligible cultural resources in or adjacent to the project area, the Proposed Action would have no effect on cultural resources. SHPO concurred with this determination on September 19, 2025. Any previously unrecorded cultural resources (prehistoric/ historic sites or objects) encountered during construction would be immediately reported to the appropriate land managing agency.

4.3.2 No Action

Under the No Action alternative, construction of the second bridge and roadway improvements would not occur. The No Action alternative would have no effect on cultural resources.

4.4 Geology & Soils

4.4.1 Proposed Action

Within the 29.4 acres of the Proposed Action, undisturbed native soils are limited to approximately 6.36 acres, with the remaining areas previously developed as city streets, parking lots, and commercial areas. For the portion of the project area that lies within Lake Havasu State Park, approximately 1 acre is paved and the remaining areas are previously graded.

The Proposed Action would therefore result in direct, long-term impacts to approximately 6.36 acres of native soil within the proposed project site. Native soils within these areas would be removed, disturbed, and/or buried. The remaining soils within the project area are previously disturbed, covered by, or immediately adjacent to city streets. The staging area on the north side of the channel, consisting of beach sands, would also be temporarily impacted by the presence of equipment and materials. This staging area would be restored to existing conditions by regrading following construction.

The proposed bridge is designed according to specifications for seismic design methodologies (American Association of State and Highway Officials, 2023). Geotechnical investigations are currently underway to identify and avoid any potential site-specific soil or geologic hazards prior to final design. During construction, the use of BMPs outlined in the Storm Water Pollution Prevention Plan (SWPPP) as part of the AZPDES storm water permit would be followed to reduce soil erosion during construction. All

project areas would be stabilized by placement of materials including asphalt, cement, landscape rock, or landscaping for long-term soil stabilization.

4.3.2 No Action

Under the No Action alternative, construction of the second bridge and roadway improvements would not occur. The No Action alternative would have no effect on geology or soils.

4.5 Hydrology & Water Quality

4.5.1 Proposed Action

Surface Water

As the proposed bridge is proposed to entirely span Bridgewater Channel, direct impacts to surface water from construction or operation of the bridge would not occur. Therefore, a Section 404 permit from the U.S. Army Corps of Engineers is not required for this project. Spud barge stabilization using pilings during girder transport and placement may temporarily disturb channel bottom sediments and increase localized turbidity. However, this disturbance is anticipated to be minimal, temporary, and short-term.

Floodplain

As the floodplain in this area generally follows the limits of Bridgewater Channel, the Proposed Action would have no adverse effect on floodplains.

Water Quality

Potential water quality concerns with the proposed project focus on storm water runoff during construction into the Colorado River. Compliance with the AZPDES construction permit would ensure the use of BMPs during construction to minimize the potential for water quality impacts from storm water runoff. Based on the use of erosion and sediment controls for construction, runoff from the Proposed Action, including any very small amounts from dust control, would be minimized.

The City received a Section 401 water quality certification from ADEQ on June 8, 2026. As part of this process, the USCG notified the US Environmental Protection Agency (EPA). Long-term storm water controls as part of the Proposed Action include detention basins, one culvert with rock slope protection, scuppers, bioswales, and a concrete storm channel catch basins to treat and/or direct stormwater runoff after construction.

With implementation of the design features and mitigation, construction of the Proposed Action would result in minor, short-term adverse impacts to water quality. No impacts to regional water quality would occur from the Proposed Action.

4.5.2 No Action

Under the No Action alternative, construction of the second bridge and roadway improvements would not occur. The No Action alternative would have no effect on hydrology.

4.6 Hazardous Materials

4.6.1 Proposed Action

As part of the AZPDES permit, the SWPPP includes BMPs to address waste management and hazardous materials during construction. Construction areas and material storage areas within the project site would

be kept in an orderly condition throughout the construction period. Refuse and trash, including stakes and flags, would be removed and disposed of in an approved manner. No open burning of construction trash would be conducted as part of this project. No trash or food items would be deposited onsite. All equipment maintenance would be conducted off-site.

Post-construction, small amounts of petroleum products may occur on proposed new roadways and intersections. Curb and gutter and storm water management design would treat runoff from the proposed bridge and new roadways over the long-term.

4.6.2 No Action

Under the No Action alternative, construction of the second bridge and roadway improvements would not occur. The No Action alternative would have no change to existing hazardous materials in the proposed project area. Small amounts of petroleum products may be continue to be present from vehicles on city streets and parking lots within the proposed project site.

4.7 Land Use

4.7.1 Proposed Action

Land Use Plan Conformance

The Proposed Action would be in conformance with the City's General Plan and zoning, as the proposed bridge has been a part of the City's general planning since 1997. The Proposed Action would provide a secondary emergency access route for the island which is in support of land use planning for the area.

The Proposed Action is in conformance with the BLM LHFO Resource Management Plan (RMP) which was approved on May 10, 2007 (BLM 2007). The LHFO RMP provides direction for land use authorization, and for management of concentrated recreational use areas:

Lands and Realty, Use Authorizations (pg. 38) states the "Lake Havasu Field Office may allow the use of the public lands or interests in lands through issuance of rights-of-ways, leases, and permits. The types of uses that would be authorized by a right-of-way issued pursuant to Title 5 FLPMA would include access roads, power lines, telephone lines, fiber optic systems, communications facilities, and so forth."

Recreation Management RR-11 (pg. 65-66) – The Lake Havasu Special Recreation Management Area (SRMA) North Lake Havasu Recreation Management Zone (RMZ) 7 zone is managed "to provide opportunities for visitors and residents to engage in a variety of water and shoreline related activities, providing continuity to management though collaborative partnerships with other entities". Primary activities include boating, motor sports, fishing, and public safety

The Proposed Action supports the Rural Developed management objective as it provides a secondary emergency access route for visitors to and from the island. The Proposed Action is also in conformance with the following RMP decisions:

- WF-14. To the extent practicable, avoid, minimize impacts and/or take of migratory birds and their habitat.
- WF-15. During construction and tree pruning associated with plan implementation, identify and avoid all migratory bird nests.
- VM-5. Only native vegetation will be planted in all landscaping designs that will incorporate a Desired Plan Community (DPC) concept. Exceptions to this requirement could be made in high-traffic public recreation areas or soil stabilization/reclamation efforts where native species will

have a poor likelihood of success due to existing site characteristics. Acceptable non-native plants used for this purpose will consist of genetic variations of natives that will not become invasive and or noxious species.

- WF-15. During construction and tree pruning associated with plan implementation, identify and avoid all migratory bird nests.
- VR-9. Visual resource design techniques and best management practices will be used to mitigate the potential for short- and long-term visual impacts from other uses and activities.

Accordingly, the Proposed Action would be consistent with applicable land use plans and policies.

Land Use

The Proposed Action would result in a conversion of 6.36 acres of Arizona State Trust land from uses that include open space, wildlife habitat, and off-road vehicle use to a bridge, roadway, and multi-use pathway (160 ft right of way). The Proposed Action would also convert 0.83 acres within Havasu State Park to bridge, roadway, and associated fill slopes and retaining walls. The remaining open areas around the proposed bridge and roadway, and the proposed multi-use pathway would remain as recreational land use. The Proposed Action therefore requires a conversion of 0.83 acres of land funded by the Land and Water Conservation Fund Act Land of 1964, which is currently in process by Arizona State Parks & Trails (National Park Service, 2026). The Proposed Action would result in a right-of-way grant by the BLM in perpetuity for 2.92 acres, which includes the existing city pump station.

Potential short-term impacts on vessels due to channel closure during bridge girder placement are assessed under Transportation (see Section 4.9). Over the long-term, potential impacts to existing recreational values of the region from the Proposed Action are anticipated to be positive due to the additional route for visitors and residents to and from the island and the addition of the multi-use pathway. Connections between the multi-use pathway and the island trail would provide additional recreational use and promote use of the City's channel walk and island trail system which would improve recreational opportunities for pedestrians and cyclists over the long-term. The proposed bridge would also provide additional shaded beach and channel water area for use by boaters and shoreline visitors.

4.7.2 No Action

Under the No Action alternative, construction of the second bridge and roadway improvements would not occur. The No Action alternative would have no effect on existing land use in the area.

4.8 Noise

4.8.1 Proposed Action

Operations

Although the Proposed Action is not a highway project, the FHWA standard was used to evaluate the traffic noise impact related to the Proposed Action. The FHWA requires the use of the traffic noise model (TNM), referenced in 23 CFR 772.9(a), to predict traffic noise impacts. TNM Version 3.2 is the latest version of the noise model and was used to predict traffic noise levels during peak (busiest) traffic hours for the Proposed Action.

The traffic noise impact of a proposed project is determined by comparing the existing noise levels during peak hour traffic with the future noise levels at specific locations called receivers. If there is no existing traffic, ambient noise levels are measured close to impacted receivers.

Eleven total receivers were modeled to represent nearby sensitive receivers. Nine total models were created to analyze the noise impacts during the AM Peak Hour, PM Peak Hour, and Saturday Peak Hour for the Existing Traffic (2024), Future – No Build (2045), and Future – Build (2045). Results were compared between Future – No Build (2045) and Future – Build (2045) to evaluate the impact of the potential project-related traffic on the nearby receiver. Typically, the human ear can perceive an increase of 3 dBA or more, so a difference in excess of 3 dBA between the Future – No Build (2045) and Future – Build (2045) noise impacts would be considered a perceivable increase. Results were compared between future – Build (2045) and the FHWA Noise Abatement Criteria to determine if a traffic noise impact would occur.

The predicted noise levels for Future Traffic – Built do not approach the Noise Abatement Criteria set by the FHWA for any of the sensitive receivers along the project site.

Future noise levels associated with the Proposed Action are expected to increase by less than 5 dB for all receivers not located along the channel. For receivers situated along the channel, the proposed bridge is anticipated to increase traffic-related noise by more than 5 dB. However, ambient noise measurements conducted by NV5 indicate that existing noise levels in these areas—primarily from boats, loud music, water movement, and public activity—already significantly exceed current traffic noise levels. Details of the traffic noise modeling scenarios are provided in Appendix F. When combined with future traffic noise, the overall increase in noise levels is projected to be below 5 dB relative to existing ambient conditions. Therefore, the Proposed Action would not result in long-term adverse operational noise.

Construction

Construction activities to complete the Proposed Action would occur intermittently over a period of approximately 15 to 24 months. Construction would be conducted during daytime hours on weekdays.

Generally, nearby receivers perceive noise at construction sites within 250 feet of the activity. Noise impacts from construction may vary greatly depending on the duration and complexity of the project. This analysis relies on the reasonable criteria provided by the Federal Transit Authority (FTA) for assessing construction noise impacts based on the potential for adverse community reaction in its Transit and Noise Vibration Impact Assessment Manual (National Transportation Systems Center, 2018).

Construction activities will add to the ambient noise levels during the construction phase and are anticipated to occur during the daytime hours. Construction activities on the new roadway would have a short-term noise effect on nearby receivers. Noise impacts would occur from the use of construction equipment and increase heavy vehicle traffic. The level of this effect will depend on the construction schedule, distance work is from receivers, type of equipment in use, and if equipment is used simultaneously.

Noise levels for typical construction equipment for this project range from 76 dBA for concrete vibrator to 90 dBA for rail saw. Noise levels generated by construction equipment (or by any point source) decrease at a rate of approximately 6 dB per doubling of distance from the source. The FTA recommends that construction noise impacts for residential land uses do not exceed 90 dBA during the daytime and 80 dBA during the nighttime (National Transportation Systems Center, 2018). Nearby sensitive receivers may be as close as 50 feet to construction activities, therefore it is necessary to implement abatement measures to reduce noise impacts. Construction equipment that generates high levels of noise impacts, such as rail saw (90 dBA) and dozers (85 dBA) should not be operated closer than 50 feet to nearby sensitive receivers.

Although increases in the noise levels due to the construction of the project are temporary, measures should be taken to minimize noise impacts, including construction activity timing limits, placement restrictions, and individual equipment evaluation. These mitigation measures are included in Appendix B.

4.8.2 No Action

Under the No Action alternative, construction of the second bridge and roadway improvements would not occur. Traffic on the current roads would continue to increase. As a result, traffic noise would continue to increase for sensitive receivers along the existing path. There would not be any construction noise in the No Action alternative.

4.9 Transportation

4.9.1 Proposed Action

Vessel Traffic

As the height of the proposed bridge would exceed the height of the existing London Bridge and piers would be located outside the channel, the construction of the proposed bridge would not impact existing vessel traffic over the long-term. Construction of the proposed Second Bridge would not create restrictions to navigation within Bridgewater Channel.

The northern portion of the channel would be closed to vessel traffic during girder transport by barge for bridge construction. This activity is estimated to be conducted over a two week period. Channel closure would result in a temporary adverse impact to boaters during the off-season. Channel closure would also temporarily affect normal commercial operations of the Tecopa ferry. The City would coordinate schedules with the Chemehevi Transit Authority and the ferry could continue to operate during these times using the south entrance of the channel.

Emergency Access

Construction of the Proposed Action would provide a secondary emergency evacuation access route for island residents and visitors in addition to the existing McCulloch Blvd. and London Bridge route, reducing existing and future traffic on the existing London Bridge. Traffic and congestion on McCulloch Blvd. and the London Bridge would improve with a commensurate improvement in travel times and emergency response times to the island with the addition of an alternative travel route to and from the island.

Roadway Circulation

Construction of the intersections and street improvements would result in short-term impacts from temporarily re-routing local streets, lane closures, installation of temporary traffic controls, and reduced access for residents, businesses, and visitors. A Transportation Management Plan would be implemented prior to construction to address short-term transportation safety and access.

Table 9 below shows the expected average daily traffic volumes in 2045 with and without the Proposed Action. Existing (2022) traffic volumes are provided for comparison. Construction of the Proposed Action would alleviate high traffic volumes predicted on the London Bridge (McCulloch Blvd) and localized areas with associated increases in levels of service and lowered crash rates, while directing traffic into lower traffic areas.

Table 9. 2045 Daily Traffic Volumes in Vehicles Per Day

Roadway	2022 Traffic Volumes	2045 Estimated Traffic Volumes (No Build)	2045 (With Proposed Bridge/New Roadway)
SR 95	21,134	22,506	21,728
London Bridge Road	4,586	7,054	10,264
McCulloch Blvd @ London Bridge	10,430	20,521	9,882
S. Palo Verde Blvd, between London Bridge Rd and SR 95	5,848	8,160	7,951
Paseo Del Sol Ave.	NA	NA	10,784
New Roadway North of McCulloch Blvd	NA	NA	7,210

Source: Michael Baker International 2024 (Second Bridge Feasibility Study).

Paths & Trails

Connections between the multi-use pathway and the island trail would provide additional paths and trails for pedestrians and cyclists and promote use of the existing trails and pathways which would improve recreational opportunities over the long-term. Based on this analysis, the Proposed Action would result in short-term, minor, adverse transportation impacts and long-term, beneficial transportation impacts.

4.9.2 No Action

Under the No Action alternative, construction of the second bridge and roadway improvements would not occur. A secondary emergency access route for visitors and residents of the island would not be provided. As shown in Table 5 above, estimated daily traffic levels on McCulloch Blvd. and the London Bridge in 2045 exceed the design capacity of roadway and would result in unacceptable levels of service E and F for typical weekday traffic. As a result, crash densities would continue to worsen along with the increased traffic volumes and congestion.

4.10 Visual Resources

The visual quality analysis for this project was conducted in accordance with FLPMA and NEPA as guided by the BLM Visual Resource Management program tools. Additional Visual Impact Analysis data is included in Appendix G. Landform, water, vegetation, and man-made elements are generally analyzed based on landscape composition and vividness (or memorability), intactness, and unity. Impacts are assessed based on the compatibility of the impact, the sensitivity (of the viewers) to the impact, contrast, and the degree of the impact.

4.10.1 Proposed Action

As shown in Section 3.10, the Proposed Action area has a VRI Class of IV, which is lowest VRI value (BLM 2025b). The Proposed Action also has a scenic quality rating of C, which is the lowest ranking (BLM 2025b). Visual contrast rating for the Proposed Action is generally weak-to-moderate (BLM 2025b). However, the distance zone ranking of foreground-middle ground (BLM 2025b) means that the Proposed Action has the highest likelihood to be seen because it is located very close to (0 to 5 mi.) most potential viewers. Views of Lake Havasu and the Bridgewater Channel are important vistas for viewers in the vicinity of the Proposed Action. But as noted, the general viewshed of the area ranks low on the BLM VRM visual resources value indicators (BLM 2025b). Additionally, the majority of views and viewers will come from those crossing the London Bridge; views that will be brief and transitory.

During construction, there would be visual changes in the area containing the new bridge and associated roadway improvements. Construction fencing, lighting, and signage would be prominently displayed which would have a temporary adverse effect on the visual environment by obstructing or partially obstructing views of Havasu Lake, the Chemehuevi Mountains to the northwest, and Bridgewater Channel and the London Bridge when looking southeast. The construction zone would also block physical pedestrian, beachgoer, and boater access and their associated viewing experiences within and along both sides of the channel while the bridge and associated road improvements are being constructed.

The scale and form of the proposed bridge would be compatible with the natural, cultural, and project environment within the AVE. The proposed bridge is appropriately sized to accommodate the projected vehicle demand, the bridge is a typical form of infrastructure that is generally compatible with the developed portions of the area, which includes the existing London Bridge, and the project materials, including weathered steel girders, beige and grey abutments, and earth tone manufactured slopes are compatible with the existing natural and developed environment within the AVE. Visual simulations of the completed Second Bridge are shown for the three key viewpoints below.

Viewpoint 1

When viewed from Viewpoint 1, the new bridge would be highly visible from the London Bridge and would partially obstruct views of Lake Havasu, however, the Chemehuevi Mountains to the northwest would still be fully visible. The existing view from Viewpoint 1 has an unobstructed view of the channel, the shoreline, and portions of the lake, as shown in Figure 14. The new bridge would partially obstruct views of these natural and manmade elements, partially decreasing both the vividness and unity of the viewpoint. However, the weathered steel girders and beige and gray abutments, and earth tone manufactured slopes of the bridge would help to blend the bridge in with the natural earth tones represented by both the natural and developed areas within the AVE. The bridge streetlights would also provide some visual character, relief, and interest to the viewer. Therefore, by incorporating design elements that capture the natural tones of the surrounding environment and by not fully obstructing or interfering with the unity of the views of the natural and manmade elements associated with this viewpoint, the Proposed Action would not have an adverse effect from Viewpoint 1.

Viewpoint 2

When viewed from Viewpoint 2, the new bridge would be visually prominent in the middle ground of the viewshed and would partially obstruct views of the lake and mountains to the northwest (Figure 15). However, the lake and mountains are only partially viewable from this viewpoint in the existing condition. Further, the developed residential buildings along the eastern shoreline of the channel dominate the view from this viewpoint and partially contrasted with the less developed western side of the channel, resulting in a moderate level of intactness and unity. The new bridge would have a minor adverse impact from View point 2, but would not substantially alter the vividness of the existing view and would not significantly affect the intactness or unity of the view.



Figure 14. Viewpoint 1 (northwest) Visual Simulation.



Figure 15. Viewpoint 2 (northwest) Visual Simulation.

Viewpoint 3

When viewed from Viewpoint 3, the new bridge would be visually prominent in the middle ground of the viewshed and would marginally obstruct views of the London Bridge and Mohave Mountains in the background (Figure 16). The London Bridge and the Mohave Mountains to the southeast, the most vivid elements, would still be mostly visible through the bridge opening. The new bridge would block the view of the existing residential uses along the eastern side of the channel, however, the moderate intactness and unity of the existing view would not be substantially modified. Therefore, the Proposed Action would not have an adverse effect from Viewpoint 3.



Figure 16. Viewpoint 3 (southeast) Visual Simulation.

Artificial Light at Night

Consistent with the BLM's Best Management Practices for Artificial Light at Night on BLM-Managed Lands (BLM 2023), the Proposed Action would utilize BMPs to minimize the potential for nighttime glare. The Proposed Action would require fixed navigational lighting on the bridge and bridge roadway lighting for vehicular safety. The intersection improvements associated with the Proposed Action would also require new lighting for safety. The new lighting would be compatible with existing navigational, roadway, and glare/uplight/backlight-reduction lighting in the AVE. The new roadway, lighting including along the bridge, would be shielded and directed downward toward the road to prevent glare or spillover. Therefore, the Proposed Action would not result in a significant new source of glare or light.

Visual Quality

The Proposed Action would alter the vividness, intactness, and unity of the existing visual environment within the AVE. However, the Proposed Action is consistent with the existing forms of development within the AVE, and the project's design elements and scale would not adversely affect the overall vividness, intactness, or unity of the existing environment. Additionally, mitigation measures to reduce

potential impacts, which would also reduce visual impacts, are provided in Appendix F. Therefore, the Proposed Action would not have an adverse visual impact on the visual quality of the existing environment.

4.10.2 No Action Alternative

Under the No Action alternative, construction of the Second bridge and roadway improvements would not occur. Therefore, the No Action Alternative would not result in any visual impacts.

5.0 Cumulative Impacts

Cumulative effects are the impacts on the environment that may result from the incremental effect of the Proposed Action in combination with other past, present, and reasonably foreseeable future actions. Cumulative effects must consider the likely impact of the Proposed Action or alternatives when combined with these additional actions. This section describes the potential cumulative impacts to resources. Past, present, and reasonably foreseeable future projects and activities within the region are summarized in Table 10 below. All activities identified as part of cumulative actions have, are, and potentially would occur independent of the Proposed Action. Since there are no impacts to Cultural Resources, the Proposed Action would not contribute to cumulative effects to these resources. Potential cumulative impacts to the remaining resources are provided below.

Table 10. Past, Present, and Reasonably Foreseeable Future Projects Summary

Type of Activity	Past Activities	Present Activities	Future Activities
Road Projects	Construction of and use of city streets and roadways throughout the project area. Road maintenance occurred regularly.	Use of city streets and the London Bridge and throughout the project area continues to occur. Road maintenance occurs regularly.	Use of roads throughout the project area will continue to occur with increasing traffic. Road construction and maintenance projects are planned and outlined in the Lake Havasu Metropolitan Planning Organization's 2045 Regional Transportation Plan.
Utility operation	Operation of utilities such as water lines, sewer lines, powerlines, and communications infrastructure, including utility corridor maintenance, occurred throughout the project area, including underneath the channel during original construction. The City's pump station occurs on the north bank of the channel in the project area.	Operation of utilities such as water lines, sewer lines, powerlines, and communications infrastructure, including utility corridor maintenance, occurs throughout the project area.	Operation of utilities such as water lines, sewer lines, powerlines, and communications infrastructure, including utility corridor maintenance, is anticipated to continue to occur throughout the project vicinity.
Private land development	Development of private lands in the project vicinity	Operation of existing private resort-related and residential	Although undeveloped private land is limited in the project

Type of Activity	Past Activities	Present Activities	Future Activities
	has occurred historically, including both residential and commercial (restaurants, gas stations, retail).	would continue.	vicinity, development and redevelopment of private lands is anticipated to continue to occur within the project vicinity. One new development on the island is currently in the planning phase.
State Trust Land Development	Development on state trust lands, including mobile home and RV parks and resorts has historically occurred on the island.	Operation and maintenance of existing mobile home and RV parks and hotel resorts on state trust land on the island would continue until the expiration of current leases.	Future developments on state trust land may occur through lease renewal or sale through auction.
Recreational activities	Bridgewater Channel was constructed in 1969 to support resort development and recreational activities in the region. Recreational activities such as boating, fishing, off-road vehicle use (on the island), hiking, and bicycling have historically occurred in the vicinity of the project area.	Recreational activities such as boating, fishing, shoreline activities, sightseeing, and off-road vehicle use currently occur throughout the vicinity of the proposed project area.	Recreational activities such as boating, fishing, shoreline activities, and sightseeing are anticipated to continue to occur and potentially increase throughout the vicinity of the project area in line with population increases.

5.1 Air Quality

The Proposed Action would contribute to short-term, minor adverse impacts on local air quality related to construction. These short-term impacts would be reduced through equipment emission controls, dust controls, and vehicle speed limits on unpaved roads under construction. Potential future actions are not likely to be under construction at the same time as the Proposed Action. The Proposed Action would reduce congestion during peak periods on the existing London Bridge/McCulloch Blvd, partially shifting mobile source emissions 0.3 miles to the west. Existing emissions from vessel traffic throughout Bridgewater Channel would remain. Along with past and future projects, the Proposed Action may cumulatively contribute a very minor increase in atmospheric CO₂ and other greenhouse gases. Cumulatively, the air quality for the region would be maintained to meet applicable air quality standards.

5.2 Biological Resources

The Proposed Action would add to the incremental disturbance of approximately 6.36 acres of Sonoran desert scrub vegetation and wildlife habitat. Mitigation measures listed in Appendix B would reduce the Proposed Action's impacts on biological resources. For listed species, the Proposed Action would contribute incrementally to the removal of approximately 6.36 acres of migratory stop-over habitat for the southwestern willow flycatcher and yellow-billed cuckoo, and habitat for the Monarch butterfly, proposed for listing. Based on replacement of mesquite trees and milkweed plants, as well as construction timing-related mitigation, this incremental loss is considered to be minor on a regional basis.

Along with other past, present, and reasonably foreseeable future projects described in Table 10 above, cumulative impacts to biological resources would be minor based on the relatively small amount of disturbance and the available similar habitat in the region.

5.3 Cultural Resources

As the Proposed Action would have no impact on cultural resources, it would not contribute to potential cumulative impacts.

5.4 Geology & Soils

Development of the Proposed Action would contribute up to 6.36 acres to the incremental disturbance or alteration of native soils in the proposed project area. Impacts from these surface disturbances would be minimized through the use of BMPs to reduce soil erosion during construction. Considered cumulatively with other past, present, and potential future construction-related projects in the vicinity, cumulative impacts to soils are anticipated to be minor. Landscaping and roadway development would provide soil stabilization over the long-term.

5.5 Hazardous Materials

Construction activities associated with the Proposed Action would include the use and management of waste and common industrial materials. As part of the AZPDES permit, BMPs would be implemented to address waste management and minimize the risks associated with hazardous materials during construction. Post-construction, small amounts of petroleum products may occur on proposed new roadways and intersections. Curb and gutter and storm water management design would treat runoff from the proposed bridge and new roadways over the long-term. Based on these management controls, and considered cumulatively with other past, present, and potential future construction-related projects in the vicinity, potential cumulative impacts from hazardous materials are anticipated to be minor.

5.6 Hydrology and Water Quality

The Proposed Action would result in short-term adverse impacts to water quality from construction. Mitigation measures provided in Appendix B including construction storm water controls, long-term storm water management, and the bridge span entirely across the channel with no piers or features within the channel, these adverse impacts are minor and largely construction-related. Based on these factors, overall impacts to hydrology from the Proposed Action considered cumulatively with other past, present, and potential future projects in the vicinity would be minor on a regional basis.

5.7 Land Use

In terms of land use, the Proposed Action would fulfill long-term city land use planning goals of securing a secondary emergency evacuation route for residents and visitors to the island.

Although the conversion of recreational area to transportation use was compensated in 1997 by the transfer of 3.79 acres of land from the City to the Arizona State Parks Board, the Proposed Action would result in an incremental increase in the conversion of less than 1 acre of recreation and open space within Lake Havasu State Park to transportation use. Areas alongside and underneath the bridge would remain in recreational use.

Beneficial impacts to recreational use include the addition of a multi-use path on the bridge and new roadways to connect with the City's channel walk and island trail system as well as the addition of shaded beach and channel water area for use by boaters and shoreline visitors. Given the adverse and beneficial

long-term impacts of the Proposed Action along with past, present, and potential future actions in the project vicinity as shown in Table 10, the overall cumulative impact to these land uses is considered minor.

5.8 Noise

The Proposed Action would result in short-term, minor, adverse noise impacts. Impacts would remain under established significance thresholds. Impacts would be reduced through requiring construction equipment noise and construction staging limitations, and developing and implementing construction mitigation measures such as construction timing and equipment restrictions. The actions in Table 10 would generally consist of short-term projects which already occur. These actions would also be required to comply with local noise regulations. Additionally, the Proposed Action would alleviate bottlenecks and blockages that currently occur by the London Bridge, thus reducing road congestion and the potential for increased noise from additional road maintenance that could have otherwise been the result of other actions in Table 10. Therefore, the Proposed Action together with the actions listed in Table 10 would not have cumulatively considerable impacts on noise.

5.9 Transportation

The Proposed Action would result in the construction of a second emergency evacuation route from the island while reducing existing and future traffic on London Bridge/McCulloch Blvd. Short-term, minor, adverse impacts to roadway circulation would occur during construction to allow these long-term benefits. A project-specific Transportation Management Plan would mitigate temporary adverse impacts from construction. Other future roadway projects would not occur at the same time as the Proposed Action, thus not compounding short-term impacts. Considered cumulatively with other past, present, and reasonably foreseeable future projects, the Proposed Action would not have cumulative adverse impacts to transportation.

5.10 Visual

Within the AVE, a past project that may contribute to a cumulative effect is the presence of the existing London Bridge over Bridgewater Channel. However, the existing bridge has been in place for approximately 55 years (construction occurred between 1968 and 1971) before Bridgewater Channel was a navigable waterway connecting Thompson Bay to the northern portion of Lake Havasu. As a result, even though the Proposed Action includes the construction of a second bridge, the potential for a cumulative impact from a second bridge is offset by the first bridge having been an established part of the viewshed in the AVE for more than decades. This means that most viewers have never seen this view without a bridge. There are currently no known or anticipated future projects within the AVE. Therefore, the Proposed Action would not result in any cumulative impacts to visual resources.

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Appendix A. Acronyms

ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
AGFD	Arizona Game & Fish Department
APE	Area of Potential Effect
ARHP	Arizona Register of Historic Places
ASLD	Arizona State Land Department
ASPT	Arizona State Parks & Trails
AVE	Area of Visual Effect
AZPDES	Arizona Pollutant Discharge Elimination System
BLM	Bureau of Land Management
BMP	Best Management Practice
CFR	Code Federal Regulations
dB	Decibels
dBA	A-weighted decibels
EA	Environmental Assessment
FEMA	Federal Emergency Management Act
FIRM	Federal Insurance Rate Maps
FHWA	Federal Highway Administration
FLPMA	Federal Land and Policy Management Act
FTA	Federal Transit Authority
GIS	Geographic Information Systems
KOP	Key Observation Point
LHFO	Lake Havasu Field Office
LHMPO	Lake Havasu Metropolitan Planning Organization
LOS	Level of Service
LUST	Leaking Underground Storage Tank
MOU	Memorandum of Understanding
NAAQA	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

OHWM	Ordinary High Water Mark
RMP	Resource Management Plan
RMZ	Recreation Management Zones
RV	Recreational Vehicle
SHPO	State Historic Preservation Office
SLM	Sound Level Meter
SQRU	Scenic Quality Rating Unit
SR 95	State Route 95
SRMA	Special Recreation Management Area
SWPPP	Storm Water Pollution Prevention Plan
TNM	Traffic Noise Model
USC	United States Code
USCG	United States Coast Guard
UST	Underground Storage Tank
USFWS	United States Fish & Wildlife Service
VCR	Visual Contrast Rating
VRI	Visual Resource Inventory
VRM	Visual Resource Management

Appendix B. Summary of Mitigation Measures

Table B-1. Summary of Mitigation Measures

Mitigation Measure	Responsible Party	Timing	Anticipated Benefit
1. Comply with AZPDES Stormwater Permit Program. Obtain an AZPDES Construction Storm water Permit for the Proposed Action, including the development of a Storm Water Pollution Prevention Plan (SWPPP). Implement and maintain storm water control measures during construction, including erosion and sediment control Best Management Practices (BMPs). Establish construction gravel entrances at construction access points as a sediment control measure. BMPs include waste handling and disposal methods to be implemented during construction, as well as dust control. Stabilize all project areas over the long-term by placement of materials including asphalt, cement, landscape rock, or landscaping. Inspect and maintain construction equipment to reduce the potential for spills and runoff into the channel or upland areas.	Contractor to prepare SWPPP for review by the City, implement BMPs, and apply for NOI from ADEQ.	Prepare SWPPP and submit NOI at least 60 days before construction. Implement BMPs prior to construction as possible.	Comply with ADEQ requirements and reduce potential sediment into the Colorado River.
2. Storm Water Management. In final design, include detention basins to intercept and treat storm water runoff from the constructed site into the Colorado River and Willow Wash.	Design engineer and City	Incorporated into Final Design Plans.	Comply with City requirements and reduce potential sediment into the Colorado River and Willow Wash.
3. Channel Closure. Close northern portion of channel to vessel traffic during bridge girder placement outside the busy boating season, as possible.	The City will be responsible for channel closure to vessels and coordinate schedules with the Chemehuevi Transit Authority for ferry operation adjustments.	Channel closure for bridge girder placement to be completed from September through February, if possible.	Ensure public safety during construction.

Mitigation Measure	Responsible Party	Timing	Anticipated Benefit
4. Temporary Channel Fencing. Install temporary fencing along channel and above 450' OHWM to exclude equipment from entering the channel.	Contractor	Prior to construction activity.	Prevent any impact below the OHWM during construction.
5. Equipment Cleaning. Clean all construction-related equipment (power or high-pressure cleaning) prior to entering the project site to minimize the potential for introduction of invasive species.	Contractor	Before and during construction	Minimize the potential for introduction of invasive species.
6. Construction Vehicle Speed Limit. Maintain construction vehicle speeds below 15 miles per hour on unpaved surfaces to reduce potential fugitive dust emissions.	Contractor	During Construction	Reduce potential fugitive dust emissions.
7. Native Species Preference in Landscaping Design. Give preference to native species in landscaping designs where possible. Landscape plans include replacing at least 4 mesquite and other native trees throughout the project site.	Design Engineer and City	Incorporated into Final Design Plans	Replace mesquite trees for bird habitat.
8. Conduct Tree Removal Outside Listed Bird Species Nesting Season. Conduct tree removal outside of the nesting season for the southwestern willow flycatcher and western yellow-billed cuckoo, which is April 15 through September 30.	Contractor	Conduct tree removal from October 1 through April 14.	Required as part of Endangered Species Act consultation to avoid potential impacts to federally-listed birds.
9. Conduct Migratory Bird Nest Surveys. If vegetation removal is conducted within the bird nesting season (mid-February through August), then conduct a pre-construction bird nest survey to identify any active nests in accordance with the Migratory Bird Treaty Act. Avoid any active nests.	Contractor	Conduct vegetation removal from September through February 15, outside the bird nesting season, or conduct pre-construction bird nest surveys.	Required by the Migratory Bird Treaty Act to avoid active bird nests.

Mitigation Measure	Responsible Party	Timing	Anticipated Benefit
10. Cultural Resources Identification. Immediately report any previously unrecorded cultural resources (prehistoric/ historic sites or objects) encountered during construction would to the appropriate land managing agency and to the Chemehuevi Indian Tribe.	Contractor & City	During construction.	Requested and agreed to during Section 106 consultation with the Chemehuevi Indian Tribe.
11. Restore Staging Area. Restore the temporary staging area to pre-existing conditions post-construction.	Contractor	After construction	Topographical restoration as required by BLM as part of right of way grant.
12. Powerline Protection. A work protection plan would ensure safety during construction near area powerlines in coordination with Unisource Energy Services.	Contractor to prepare Work Protection Plan for review and input by Unisource Energy Services.	60 days before construction	Construction safety through coordination with Unisource Energy Services.
13. Transportation Management Plan. Prepare and implement a Transportation Management Plan prior to construction to address short-term transportation safety and access during construction. Maintain access to businesses during construction.	Contractor to prepare the Transportation Management Plan for review by the City. City to coordinate with businesses to address access and construction concerns.	60 days before construction	City requirement for public safety and traffic control.
14. Start/Stop Times for Construction Activities. To mitigate potential noise impacts, all construction activities should occur between 5:00am – 10:00pm from May 1st to October 15th and 6:00am – 10:00pm from October 16th to April 30th when within 500 feet of a residential zone, unless otherwise authorized by permit.	Contractor	During construction	Required by City ordinances to reduce potential noise impacts.
15. Stationary Construction Equipment Limitations. All stationary construction equipment, such as generators and compressors, should be placed as reasonably	Contractor	During Construction	Reduce potential noise impacts to residential areas.

Mitigation Measure	Responsible Party	Timing	Anticipated Benefit
practical from residential receivers but no closer than 50 feet to maintain noise impacts on residential sensitive receivers below 90dBA during the daytime.			
16. Mobile Construction Equipment Limitations. All mobile construction equipment, such as dozers and loaders, should be individually evaluated for potential impacts on nearby sensitive receivers and used at such a distance that noise impacts on residential sensitive receivers are maintained below 90 dBA during the daytime.	Contractor	During Construction	Reduce potential noise impacts to residential areas.
17. Visual Mitigation, Construction. Fugitive light from light sources used for construction should be minimized and directed only on the work zone. Where feasible, limit construction to daylight hours.	Lake Havasu City	Incorporated into Final Design Plans	Reduce potential visual impacts during construction.
18. Visual Mitigation, Design. Visual resource design techniques and best management practices will be used to mitigate the potential for short- and long-term visual impacts. These may include landscaping, veneers on bridge abutments, bridge lighting décor, cladding along the bridge girders, and a decorative railing along the bridge to provide for additional visual relief and interest.	Lake Havasu City	Incorporated into Final Design Plans	Reduce potential visual impacts over the long-term.

Appendix C. USFWS Correspondence



United States Department of the Interior

Fish and Wildlife Service Arizona Ecological Services Office

9828 North 31st Avenue, Suite C3

Phoenix, Arizona 85051

Telephone: (602) 242-0210



In reply refer to:

AESO/SE

2025-0124693-S7-001

December 09, 2025

Carl T. Hausner, Chief
U.S. Coast Guard Southwest District
Department of Homeland Security
Coast Guard Island, Building 50-2
Alameda, California 94501-5100

Chief Hausner:

Thank you for your correspondence of September 22, 2025, September 24, and November 14, 2025, received by us via electronic mail on those same days. This letter documents the U.S. Fish and Wildlife Service's (FWS's) review of the City of Lake Havasu Second Bridge and Street Improvements Project (project), Lake Havasu City, Mohave County, Arizona, in compliance with section 7 of the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. §1531 *et seq.*). We received your final Biological Evaluation (BE) to initiate section 7 consultation on November 14, 2025. Your September 22, 2025, letter concluded that the proposed project "may affect but is not likely to adversely affect" the endangered bonytail (*Gila elegans*) and its designated critical habitat, endangered razorback sucker (*Xyrauchen texanus*), endangered southwestern flycatcher (*Empidonax traillii extimus*; flycatcher), and threatened yellow-billed cuckoo (*Coccyzus americanus*; cuckoo). We concur with your determinations and provide our rationales below.

You also determined that the project "may affect but is not likely to adversely affect" the proposed threatened monarch butterfly (*Danaus plexippus*). The monarch is currently a candidate for listing under the ESA. Section 9 of the ESA does not prohibit take of candidate species, and section 7 does not require federal agencies to consult on candidate species. Because this project will not jeopardize the species, there is no need for the Coast Guard to consult on effects to the monarch butterfly; therefore, we will not address this species further in this letter.

DESCRIPTION OF THE PROPOSED ACTION

You included a complete description of the proposed action in the documentation attached to your final November 14, 2025, Biological Evaluation (BE), and September 22, 2025, correspondence requesting concurrence with your determination. We incorporate that

information here by reference and summarize the proposed action below.

The project proposes to build a second bridge to support traffic crossing on the Colorado River (River Mile [RM] 209.3), across Bridgewater Channel in southern Lake Havasu City, Arizona (Figure 1). The bridge does not have a final name, so the BE refers to it as second bridge. The purpose of the project is to provide a second bridge (other than London Bridge) and emergency evacuation route from the island to the mainland for visitors and residents of Lake Havasu City. A second bridge would also improve existing traffic circulation, especially during peak seasonal travel. Existing traffic congestion in and around the existing London Bridge has led to lower emergency response times and increased intersection crash rates and backups onto State Route (SR) 95.

This bridge location is approximately 0.3 river mile (mi) (0.4 river kilometer [km]) upstream from the existing London Bridge. Street improvements associated with the project include approximately 1.7 mi (2.7 km) of existing and new city streets (Figure 2). Roadway improvements include bridge approaches, street connections, intersection improvements and utility re-routing. Lake Havasu City is applying to the U.S. Coast Guard for a bridge permit and to the BLM for a right-of-way (ROW) permit. Since the bridge will completely span the Colorado River channel, the project does not require a U.S. Army Corps of Engineers Section 404 permit.

The project action area encompasses approximately 29.4 acres (ac) (11.9 hectares [ha]), including existing streets, parking lots, and undeveloped areas. Land ownership consists of federal lands managed by Bureau of Land Management (BLM) within Lake Havasu State Park, State Trust land managed by the Arizona State Land Department, Lake Havasu city-owned property and existing/new city street ROW, and Arizona Department of Transportation's SR 95 ROW (Table 1).

The proposed bridge will be a two-span steel girder bridge that would completely span Bridgewater Channel on the Colorado River (Figure 2). All piers and abutments are proposed above the ordinary high-water mark (OHWM; 450 feet [ft] (137 meters [m]) above mean sea level), outside of the channel itself. The main span is approximately 211 ft (64 m), with one back span on the north side and one pier on the north bank. Vertical clearance of the proposed bridge is a minimum of 35 ft (10.7 m) above the OHWM, which is higher than the clearance of the existing London Bridge (34.4 ft [10.5 m] above OHWM). The proposed bridge would include approximately 8,000 ft² (743 m²) of overwater coverage.

Construction of the bridge will include the use of cranes, a bulldozer, a roller, a drill rig, dump truck(s), a concrete pump truck, concrete truck(s), concrete vibration equipment, and one or more lifts. Crews will stage equipment and materials within a temporary staging area on the north bank of the channel adjacent to the proposed bridge location. Crews will use a spud barge to assist in transport of the girders from the north bank to the south bank due to steeper slopes on the south side of the island that make equipment staging on the south side difficult. A spud barge uses long steel pipes called "spuds" to anchor itself in place, providing a stable platform for construction. Crews will launch the barge from the temporary staging area using a planked ramp positioned above the OHWM. The barge will use four spuds (pilings), approximately 8 inches (20.3 centimeters) in diameter for stabilization.

Construction activities will occur over a period of approximately 15 to 24 months during weekdays and daytime hours. Nightwork may include utility connections and/or pouring of the concrete bridge deck.

Land use within and adjacent to the project consists of high-density development (Figure 3). Within the action area, land use consists of city streets and parking lots, powerline and utility corridors, and recreation and boating within Bridgewater Channel and Lake Havasu State Park. Boating activity is very high within the channel generally from March through September and to a lesser degree during the rest of the year. The Chemehuevi Tribe's Tecopa casino ferry also operates hourly within Bridgewater Channel. Within the island ROW, people use the area for driving off-road vehicles and dog-walking. Adjacent land uses include residential (*e.g.*, condominiums, hotels, and recreational vehicle parks), commercial areas, Lake Havasu State Park, and Lake Havasu City's pump station and recreational trail system that goes around the island and along Bridgewater Channel.

Approximately 6.46 ac (2.61 ha) within the 29.4 a (11.9 ha) project footprint, consist of undisturbed desertscrub with the remaining areas consisting of developed city streets, parking lots, commercial areas, and some beach and graded areas within Lake Havasu State Park (Figure 3). Vegetation within undeveloped areas includes creosote bush (*Larrea tridentata*) flats that also have paloverde (*Cercidium floridum*) and mesquite (*Prosopis juliflora*) trees, white ratany (*Krameria bicolor*), catclaw acacia (*Acacia greggii*), white bursage (*Ambrosia dumosa*), wire lettuce (*Stephanomeria* sp.), silver cholla (*Cylindropuntia echinocarpa*), Mediterranean grass (*Schismus* sp.), and burroweed (*Isocoma tenuisecta*). Along the island shoreline, arrow weed (*Pluchea sericea*), two small mesquite (*Prosopis velutina*) trees and two salt cedar trees occur (*Tamarix* sp.). Within Lake Havasu State Park, arrow weed, Bermuda grass (*Cynodon dactylon*), red-gland spurge (*Euphorbia melanadenia*), alkali heliotrope (*Heliotropium curassavicum*), Palmer's crinkle mat (*Tiquilia palmeri*), honeysweet (*Tidestromia suffructicosa*), and Mexican fan palm (*Washingtonia robusta*) also occur along or near the shoreline.

Himes Consulting, LLC did not observe any emergent wetland vegetation or potential wetlands within the proposed bridge alignment. They did locate one small patch of bulrush (*Schoenoplectus acutus*), less than 10 ft² (0.9 m²), within the channel on the upstream end of the beach area in Lake Havasu State Park.

Conservation Measures

- The project will use Best Management Practices (BMPs) and comply with the Arizona Pollutant Discharge Elimination System (AZPDES) to control erosion and sedimentation.
- Dust generated during construction activities would be controlled by using a water truck within the construction area using Lake Havasu City water.
- The project will ensure that construction vehicles on unpaved surfaces maintain speeds below 15 miles per hour (mph) (24 kilometers per hour [kph]).
- The project will not conduct clearing and grubbing of vegetation during the flycatcher (April 15–September 15) or cuckoo (May 25–September 30) breeding seasons.

Listed Species Information Within the Action Area

- The project will span Bridgewater Channel off the mainstem of the Colorado River, which may provide suitable habitat for the bonytail. However, there are no wild populations of bonytail, and species presence is dependent entirely on stocking. Since 2006, the Bureau of Reclamation (Reclamation) has conducted annual stocking of bonytail as part of the Lower Colorado River Multi-Species Conservation Plan (LCRMSCP). The LCRMSCP planning area consists of seven reaches and the project is within Reach 3. According to the [LCRMSCP's Fisheries website](#), Reclamation stocked 4,037 bonytail in Fiscal Year 2024 in Reach 3. The nearest stocking location is Windsor Beach approximately 0.3 mi (0.5 km) upstream of Bridgewater Channel. However, the FWS's 5-year status review for bonytail ([USFWS 2024](#)) notes that post-release encounters of stocked bonytail are extremely low and mostly occur during the first-year post-release. Therefore, it is unlikely that bonytail are present in the action area.
- The project area provides suitable habitat for the razorback sucker and there is potential that the species may be present. In 2024, the LCRMSCP stocked 3,095 razorback suckers in Reach 3, in the same stocking site used for bonytail. The FWS's Species Status Assessment for the sucker ([USFWS 2018](#)) states that the Colorado River below Parker Dam (which includes the project area) is actively stocked but survival is low. The LCRMSCP's 2020 Native Fish Monitoring Report for Reach 3 estimated 4,864 razorback suckers. Therefore, it is unlikely that razorback suckers are present in the action area.
- The project site does not contain suitable or potential nesting habitat for the flycatcher and cuckoo (Figure 3). Undisturbed vegetation within the project site is desertscrub characterized by creosote bush shrubs and paloverde trees, with a few arrow weed shrubs and small trees along the channel. Three mesquite trees occur within the island ROW towards the parking lot on McCulloch Boulevard. Along Bridgewater Channel within the proposed bridge alignment, there are a few arrow weed shrubs, two small mesquite trees, and two salt cedar trees.

DETERMINATION OF EFFECTS

We concur with your determination that the proposed action may affect but is not likely to adversely affect the bonytail, razorback sucker, flycatcher, and cuckoo, for the following reasons:

Bonytail and Designated Critical Habitat

- Based on information from the LCRMSCP's annual reporting, it is unlikely that bonytail would be present in or near the action area. Additionally, no work will occur in Bridgewater Channel as part of the proposed action because the bridge will completely span the channel. The only effects to the channel bed will be from the use of four temporary pilings (spuds) on the spud barge (for use in bridge girder transportation). Therefore, we anticipate the project will have insignificant effects on bonytail.
- Storm water controls would minimize storm water runoff, and associated sedimentation,

into the channel during construction to minimize effects to water quality. Therefore, we expect the project will have insignificant sedimentation effects on bonytail.

- The project is located on the Bridgewater Channel of the Colorado River and will not affect flow patterns, water temperatures, nursery habitat, cover, or feeding areas. We expect that the proposed activity will only have a temporary and extremely minor effects to water quality (increased turbidity) due to the use of storm water controls and BMPs to reduce sedimentation. The project would not measurably alter bonytail critical habitat. Therefore, we anticipate the project will have insignificant effects on the physical and biological factors (PBFs) of designate bonytail critical habitat.

Razorback Sucker

- Razorback suckers may occur in the vicinity of the project site, but no work will occur in Bridgewater Channel as part of the proposed action because the bridge will completely span the channel. The only effects to the channel bed will be from the use of four temporary pilings (spuds) on the spud barge (for use in bridge girder transportation). Therefore, we anticipate the project will have insignificant effects on razorback suckers.
- Storm water controls would minimize storm water runoff, and associated sedimentation, into the channel during construction to minimize effects to water quality. Therefore, we expect the project will have insignificant sedimentation effects on razorback suckers.
- The project is located on the Bridgewater Channel of the Colorado River and will not affect any backwaters, oxbows, or secondary channels which provide suitable nursery habitat and protection from predation by non-native sport fish. We expect that the proposed activity will only have a temporary and minor effects to water quality (increased turbidity) and no effects to food availability. The project would not measurably alter razorback sucker habitat. Therefore, we expect the project will have insignificant effects on razorback suckers.
- There is no designated razorback sucker critical habitat within the action area; therefore, there are no effects to the PBFs of razorback sucker critical habitat.

Southwestern Willow Flycatcher and Yellow-billed Cuckoo

- Although the project area is within the species one range maps for the flycatcher and cuckoo, the action area does not contain suitable breeding habitat for the flycatcher and cuckoo. Therefore, although the project will remove some vegetation, we anticipate this will result in discountable effects to the flycatcher and cuckoo as this vegetation is unlikely to provide nesting or foraging habitat.
- All clearing and grubbing of vegetation will occur outside the flycatcher (April 15–September 15) and cuckoo (May 25–September 30) breeding seasons. Therefore, the proposed action will not disturb flycatchers and cuckoos.
- There is no designated flycatcher or cuckoo critical habitat within the action area;

therefore, there are no effects to the PBFs of flycatcher or cuckoo critical habitat.

In keeping with our trust responsibilities to American Indian Tribes, by copy of this letter we are notifying Tribes that this proposed action may affect and encourage you to invite the Bureau of Indian Affairs to participate in the review of your proposed action.

Thank you for your continued coordination. No further section 7 consultation is required for this project at this time. Should project plans change, or if information on the distribution or abundance of listed species or critical habitat becomes available, this determination may need to be reconsidered. In all future correspondence on this project, please refer to consultation number 2025-0137267-S7-001.

If you require further assistance or have questions, please contact Shaula Hedwall (Shaula_Hedwall@fws.gov) or me (Heather_Whitlaw@fws.gov).

Sincerely,

Heather Whitlaw
Field Supervisor

cc (electronic):

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Phoenix, AZ (Attn: M. Conway, R. Gordon, L. Stewart)
Senior Biologist, Himes Consulting, LLC, Phoenix, AZ
Senior Project Manager, Los Angeles District, Regulatory Division, Arizona Branch, Army Corps of Engineers, Phoenix, AZ
District Manager, Colorado River District Office, Bureau of Land Management, Lake Havasu City, AZ
Cultural Resource Center Director, Chemehuevi Tribe, Havasu Lake, AZ
Aha Makav Cultural Society Director, Fort Mojave Indian Tribe, Needles, CA
Director and Tribal Historic Preservation Officer, Hopi Cultural Preservation Office, Kykotsmovi, AZ
Director, Cultural Resources Department, Hualapai Tribe, Peach Springs, AZ
Apache Culture Director, Yavapai-Apache Culture Resource Program, Yavapai-Apache Nation, Camp Verde, AZ
Yavapai Culture Director, Yavapai-Apache Culture Resource Program, Yavapai-Apache Nation, Camp Verde, AZ
Executive Director, Inter Tribal Council of Arizona, Phoenix, AZ
Environmental Specialist, Environmental Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ

LITERATURE CITED

U.S. Fish and Wildlife Service. 2018. Species status assessment report for the razorback sucker *Xyrauchen texanus*. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, CO.

_____. 2024. 5-year Status Review Bonytail (*Gila elegans*). U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, CO.

TABLES AND FIGURES

Land Ownership	Project Element of Land	Ac (Ha)
Arizona State Land Department	Bridge, approach	6.36 ac (2.57 ha)
Bureau of Land Management (within Lake Havasu Park)	Bridge, approach	4.31 ac (1.74 ha)
Lake Havasu City-Owned Parcels	Roadway	2.08 ac (0.84 ha)
Lake Havasu City ROW	Street Improvements	14.31 ac (5.79 ha)
Arizona Department of Transportation (SR 95)	Re-striping	2.07 ac (0.84 ha)
Total Improvements		29.13 ac (11.79 ha)
Bureau of Land Management (within Lake Havasu Park)	Temporary staging area	0.27 ac (0.11 ha)
Total Area		29.4 ac (11.9 ha)

Table 1. Table of land ownership and acres affected by the proposed action.



Figure 1. Second Bridge Project Area, Lake Havasu City, Mohave County, Arizona.

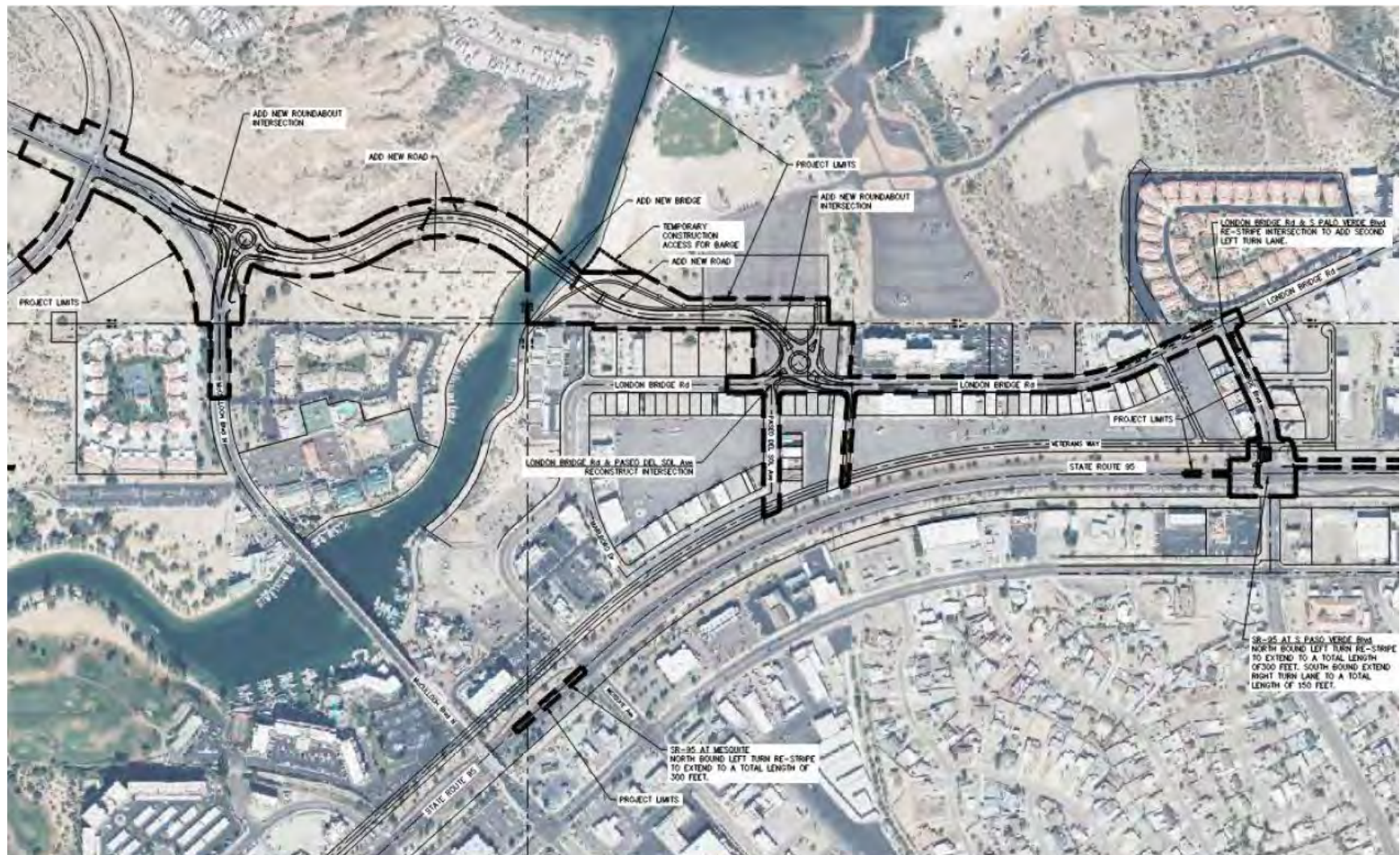


Figure 2. Proposed Second Bridge Project Footprint (outlined in bold black lines), Lake Havasu City, Mohave County, Arizona.



Figure 3. Photographs of the project action area. The top left photo is taken from London Bridge, looking upstream to where the proposed bridge will go (location past furthest condominiums on the right). The top right photos is the proposed bridge location within Lake Havasu State Park (note stake at 450-ft [137 m] ordinary high-water mark). The bottom left photo is the view of the proposed bridge location from the island looking northeast. The bottom right photo is characteristic vegetation within the proposed approach on the Arizona State Land Department ROW.

Appendix D. Arizona State Parks & Trails Correspondence



Katie Hobbs
Governor

ARIZONA

STATE PARKS & TRAILS

Bob Broscheid
Executive Director



May 24, 2025

Mr. Jason Hart
Mr. Ron Foggin
Lake Havasu City Public Works
900 London Bridge Road
Lake Havasu City, AZ 86403

Dear Jason & Ron:

Thank you for taking time on April 22 to host a meeting to review the work to-date and share the updated layouts and proposed plans moving forward on a second bridge for Lake Havasu City. Our follow-up discussions since that point have also added significant benefit as work together to craft an agreement. In order to facilitate continued progress, I am writing to confirm some of the viewpoints and items of support from the Arizona State Parks & Trails (ASPT). For the purposes of this letter, references to the project are based on the May 13, 2025 email attachment LHC 2nd Bridge – STATE PARKS ROW_4-18-25.pdf.

Here are the current points of focus from the ASPT point-of-view:

1. The footprint, alignment and layout of the roadway and the bridge portrayed in the document are supported by ASPT. Each version that has been shared with ASPT by LHC over the past 12 months have reflected the concerns of ASPT in regards to the operations of Lake Havasu State Park. While some of these improvements are cost based, ASPT acknowledges the effort to achieve designs that minimize impacts.
2. The need for transition space between LHC areas of control and ASPT areas of control has been recognized by all involved. Along this line of conversation, ASPT favors a multi modal path bordering the roadway in its entirety to the west. A mutually agreed upon fencing with landscaping would be included to the west of the path as part of the project. Access points will be taken into consideration and all bridge abutments will be east of the fencing.
3. The layout provides dedicated street access to LHSP which addresses a strong concern of ASPT. Our discussions have indicated that the exact layouts and traffic flows will require further consideration. ASPT believes these items can be addressed without significantly changing the layout as proposed. It is a concern of ASPT that project funds will be made available to achieve agreement on these points as we move forward.



Katie Hobbs
Governor

ARIZONA

STATE PARKS & TRAILS

Bob Broscheid
Executive Director



4. The layout creates a land parcel to the north and west of the roundabout that could help to address the ASPT need to satisfy LWCF land use concerns. This item will require further specific conversation and documentation. It is likely an item that will not be able to be moved forward until such time as all land being repurposed has been confirmed.

With the items listed above as considerations, ASPT supports moving forward with this design. We are continually committed to continuing cooperative efforts towards developing an agreement that ASPT and LHC can move forward for legal review and approval.

Please reach out should there be any need for clarification or questions. I also look forward to scheduling or next focused meeting when appropriate.

Best Regards,

A handwritten signature in black ink, appearing to read "D. Roddy".

Daniel Roddy
Western Region Manager
Arizona State Parks & Trails
(602) 620-5825
droddy@azstateparks.gov



CTH
Katie Hobbs
Governor

ARIZONA
STATE PARKS & TRAILS

Colorado River (209.3)

Bob Broscheid
Executive Director



March 16, 2026

Mayor Cal Sheehy, City Manager Jess Knudson
Lake Havasu City
2330 McCulloch Blvd N
Lake Havasu City, AZ 86403

Received

APR 8, 2026

Bridge Section

Dear Mayor Sheehy and City Manager Knudson:

Arizona State Parks and Trails (ASPT) appreciates your office hosting the February 26 discussion regarding the Lake Havasu City (LHC) Second Bridge project. We also appreciate the significant coordination to date between ASPT and LHC on this complex project, and we believe that bringing everyone together effectively established priorities and tasks to accelerate continued progress.

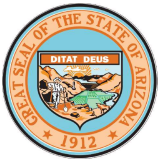
Accordingly, here are the points of emphasis that we have refined based on our February 26th meeting:

1. ASPT will provide a letter to LHC acknowledging the need for an LWCF Conversion. Responsibility for maintaining LWCF compliance rests with the State of Arizona as the grant recipient. ASPT as the State lead agency, is responsible for ensuring federal compliance and completing any required conversion actions. LWCF compliance requirements do not function as an enforcement mechanism that independently authorizes or halts local construction activities. While the National Park Service (NPS) documents and works with the State to resolve instances of noncompliance, LWCF does not itself prevent a project sponsor or local jurisdiction from proceeding with construction. ASPT supports construction to begin on this project before formal NPS conversion approval; our intention is to complete the conversion process as soon as possible to ensure compliance.

LHC's role in the conversion has been settled in regard to the 2nd Bridge project. (Acreage determinations are being provided by LHC as drawings are finalized, etc.). We have also attached a letter from the National Park Service, dated March 4, 2026, that clarifies the compliance requirements and responsibilities ASPT will have to satisfy under the Land and Water Conservation Fund (LWCF).

2. LHC will include ASPT Chief of Development Tom Kmetz (tkmetz@azstateparks.gov) in the distribution of plan drawings and other documents associated with the project.

3. The draft IGA provided by LHC will move forward through ASPT and AG processes with the focus being on the overall cooperative effort to maximize the public good of this project. Minor project-related decisions will be addressed outside of the IGA as needed..



Katie Hobbs
Governor

ARIZONA

STATE PARKS & TRAILS

Bob Broscheid
Executive Director



4. ASPT will request a letter from NPS explaining the necessary compliance requirements for resolving any land conversion issues (see March 4, 2026 letter).

5. LHC and ASPT are committed to ensuring Lake Havasu State Park emerges from this project with a dedicated roadway entrance as well as pedestrian park access in proximity to the existing Paseo Del Sol park entrance/exit. Due to the design, construction, workflow, legal review and approvals that this component will require, this element of the project will continue concurrently so as not to delay progress.

6. ASPT continues to recommend a regular cadence of meetings for those actively working on this project. A bi-weekly virtual check-in has been discussed and the ASPT Operations staff will be working towards this plan.

Please let us know should you believe any of these items require clarification or correction from the Lake Havasu City viewpoint. We would also gladly review any items that you believe may have been overlooked. I can assure you that ASPT has been making progress on these points over the last week and additional correspondence is forthcoming.

As always, please do not hesitate to reach out as needed for this or any other concern involving Lake Havasu City. Our recent meeting is another example of how government agencies can collaborate on challenging items in order to effect better outcomes for the public. Thank you again for that.

Sincerely,

A handwritten signature in black ink, appearing to read "Bob Broscheid".

Bob Broscheid

Executive Director, ASPT

CTH

Colorado River (209.3)



United States Department of the Interior

NATIONAL PARK SERVICE
Land and Water Conservation Fund
One Denver Federal Center - Building 50
Denver, CO 80225



8.A.2(WASO-LWCF)
(via email)

June 8, 2026

Carl Hausner
Commander, USCG Southwest District
Coast Guard Island Building 50-2
Alameda, CA 94501-5100
510-219-4366
Carl.T.Hausner@uscg.mil

Subject: Reasonable Assurance for Proposed Conversion of LWCF-Assisted Property – Lake Havasu State Park

Dear Mr. Carl Hausner

The National Park Service (NPS) acknowledges receipt of information provided by Arizona State Parks and Trails regarding the proposed conversion of Land and Water Conservation Fund (LWCF)-assisted property at Lake Havasu State Park associated with construction of a new bridge by Lake Havasu City. NPS understands that Lake Havasu City is operating under a constrained project schedule for construction of the new bridge.

Based on the information currently available, NPS is not aware of any issues that would preclude completion of the proposed conversion. NPS provides reasonable assurance that the conversion will be completed, provided that Arizona State Parks and Trails satisfies all applicable requirements of Section 6(f)(3) of the Land and Water Conservation Fund Act, as well as all related National Park Service policies, regulations, and procedures governing conversions. NPS further understands that Arizona State Parks and Trails will complete the conversion process within one year of the date this letter is signed.

Accordingly, this letter serves as NPS concurrence that the proposed conversion may move forward through the review process and that NPS is not currently aware of any issues that would prevent approval. This concurrence does not constitute final approval of the conversion. Final approval remains contingent upon submission and approval of all documentation required under Section 6(f)(3) of the Land and Water Conservation Fund and applicable National Park Service policies and procedures.

Received

JUN 8, 2026

Bridge Section

If you have any questions, please contact Steven Rossi, Compliance Officer, at 415-515-1474 or steven_rossi@nps.gov

Sincerely,

**HALLIE
GROFF**

Digitally signed by
HALLIE GROFF
Date: 2026.06.08
07:49:34 -06'00'

Hallie Groff
Supervisory Compliance Officer
Land and Water Conservation Fund
National Park Service |
1201 Oakridge Dr
Fort Collins, CO 80525
hallie_groff@nps.gov

Appendix E. SHPO Concurrence

CTH

SHPO-2025-0048 (182578)

Rec: 08-20-25

U.S. Department of
Homeland Security

**United States
Coast Guard**



Commander
USCG Southwest District

Coast Guard Island, Bldg. 50-2
Alameda, CA 94501-5100
Staff Symbol: dpw
Phone: (571) 607-2207
Email: D11Bridges@uscg.mil

16593

Colorado River (209.3)

August 20, 2025

State Historic Preservation Office
Attn: Kathryn Leonard, State Historic Preservation Officer
1110 W. Washington St., STE 100
Phoenix, AZ 85007

Received

SEP 19, 2025

Bridge Section

Subj: Section 106 Consultation and No Adverse Effect Determination for the Proposed
Freedom Bridge, at Lake Havasu City, Mohave County, Arizona

Dear Ms. Leonard:

The U.S. Coast Guard (USCG) wishes to initiate consultation with Arizona State Historic Preservation Office (SHPO) regarding the proposed construction of a new bridge across the Colorado River (Bridgewater Channel), just upriver from the existing London bridge, river mile 209.3, at Lake Havasu City, Mohave County, Arizona. This project is being undertaken in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and its implementing regulations at 36 CFR Part 800. The project will require a U.S. Coast Guard Bridge Permit issued under the General Bridge Act of 1946, as amended (33 U.S.C. 525).

The proposed bridge would consist of a two-lane undivided facility with bicycle lanes and a barrier-separated multi-use path. Roadway improvements associated with this project include bridge approaches, street connections, utility re-routing, and intersection improvements. The need for the action is to provide an emergency evacuation route from the island to the mainland for visitors and residents of Lake Havasu City, Arizona. This second bridge, across the Colorado River (Bridgewater Channel) would also improve existing traffic circulation, especially during existing peak seasonal travel. The downriver existing London bridge traffic congestion is a public safety concern due to emergency response times, high intersection crash rates, backups onto State Route (SR) 95, and emissions from idling vehicles.

The Area of Potential Effects (APE) has been defined in accordance with 36 CFR § 800.4(a)(1), which requires consideration of both direct and indirect effects of the undertaking.

The APE for this project consists of an irregular-shaped polygon with a maximum length of 1,708-m (5,606 feet) and a maximum width of 509-m (1,672 feet). The APE was defined to provide for all areas in which disturbance associated with the geotechnical investigations was included. The total acreage of the APE encompasses 65.36 acres. Most (47.6 acres) of the total APE was previously surveyed in November of 2024, the pedestrian survey focused on the 17 acres which was previously un-surveyed. However, all historic road features in the APE were relocated, rephotographed, and re-evaluated in the current project.

The Coast Guard requests SHPO's concurrence on the delineation of APE for the proposed bridge project.

A cultural resources review and survey of the APE have been conducted by qualified professionals in accordance with applicable federal and state guidelines. The results of this review indicate that:

1. No historic properties listed in or eligible for listing in the National Register of Historic Places (NRHP) are located within the APE.
2. No archaeological sites or other cultural resources were identified that meet the criteria for NRHP eligibility.

Based on these findings, we have determined that the proposed undertaking will result in **no historic properties affected** as defined in 36 CFR § 800.4(d)(1). We are providing the following documentation to support this determination:

1. A map delineating the APE (Enclosure 1).
2. Results of the Class III Cultural Resource Survey, including methodology and findings (Enclosure 2).

We respectfully request your concurrence with our determination of "no historic properties affected" for this undertaking. If your office has additional information regarding historic properties within the APE or other concerns related to this project, we welcome your input and will work to address any issues that may arise.

16593
Colorado River (209.3)
August 20, 2025

Please do not hesitate to contact me by telephone at (510) 219-4366 or by email at D11Bridges@uscg.mil if you require additional information or have any questions. We look forward to your response and appreciate your assistance in completing the Section 106 consultation process.

Sincerely,



CARL T. HAUSNER
Chief, Bridge Section
USCG Southwest District
By direction of the District Commander

Enclosure: (1) Project APE
(2) Cultural Resources Survey

Copy: U.S. Coast Guard Sector Los Angeles Long Beach, Waterways Management
Jesse Rice, USACE, Los Angeles District, Regulatory Division, AZ Branch
William Mack, U.S. Bureau of Land Management
Anna Pinnell, U.S. Bureau of Reclamation
Amber Troidl, Arizona State Land Department
Jill Himes, Himes Consulting, LLC

SHPO concurs with the Coast Guard's delineation of the APE and finding of No Historic Properties Affected.



Erin Davis
Archaeological Compliance Specialist
Arizona State Historic Preservation Office
September 19, 2025

U.S. Department of
Homeland Security

**United States
Coast Guard**



Commander
USCG Southwest District

Coast Guard Island, Bldg. 50-2
Alameda, CA 94501-5100
Staff Symbol: dpw
Phone: (571) 607-2207
Email: D11Bridges@uscg.mil

16593
Colorado River (209.3)
August 20, 2025

State Historic Preservation Office
Attn: Kathryn Leonard, State Historic Preservation Officer
1110 W. Washington St., STE 100
Phoenix, AZ 85007

Subj: Section 106 Consultation and No Adverse Effect Determination for the Proposed
Freedom Bridge, at Lake Havasu City, Mohave County, Arizona

Dear Ms. Leonard:

The U.S. Coast Guard (USCG) wishes to initiate consultation with Arizona State Historic Preservation Office (SHPO) regarding the proposed construction of a new bridge across the Colorado River (Bridgewater Channel), just upriver from the existing London bridge, river mile 209.3, at Lake Havasu City, Mohave County, Arizona. This project is being undertaken in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and its implementing regulations at 36 CFR Part 800. The project will require a U.S. Coast Guard Bridge Permit issued under the General Bridge Act of 1946, as amended (33 U.S.C. 525).

The proposed bridge would consist of a two-lane undivided facility with bicycle lanes and a barrier-separated multi-use path. Roadway improvements associated with this project include bridge approaches, street connections, utility re-routing, and intersection improvements. The need for the action is to provide an emergency evacuation route from the island to the mainland for visitors and residents of Lake Havasu City, Arizona. This second bridge, across the Colorado River (Bridgewater Channel) would also improve existing traffic circulation, especially during existing peak seasonal travel. The downriver existing London bridge traffic congestion is a public safety concern due to emergency response times, high intersection crash rates, backups onto State Route (SR) 95, and emissions from idling vehicles.

The Area of Potential Effects (APE) has been defined in accordance with 36 CFR § 800.4(a)(1), which requires consideration of both direct and indirect effects of the undertaking.

The APE for this project consists of an irregular-shaped polygon with a maximum length of 1,708-m (5,606 feet) and a maximum width of 509-m (1,672 feet). The APE was defined to provide for all areas in which disturbance associated with the geotechnical investigations was included. The total acreage of the APE encompasses 65.36 acres. Most (47.6 acres) of the total APE was previously surveyed in November of 2024, the pedestrian survey focused on the 17 acres which was previously un-surveyed. However, all historic road features in the APE were relocated, rephotographed, and re-evaluated in the current project.

The Coast Guard requests SHPO's concurrence on the delineation of APE for the proposed bridge project.

A cultural resources review and survey of the APE have been conducted by qualified professionals in accordance with applicable federal and state guidelines. The results of this review indicate that:

1. No historic properties listed in or eligible for listing in the National Register of Historic Places (NRHP) are located within the APE.
2. No archaeological sites or other cultural resources were identified that meet the criteria for NRHP eligibility.

Based on these findings, we have determined that the proposed undertaking will result in **no historic properties affected** as defined in 36 CFR § 800.4(d)(1). We are providing the following documentation to support this determination:

1. A map delineating the APE (Enclosure 1).
2. Results of the Class III Cultural Resource Survey, including methodology and findings (Enclosure 2).

We respectfully request your concurrence with our determination of "no historic properties affected" for this undertaking. If your office has additional information regarding historic properties within the APE or other concerns related to this project, we welcome your input and will work to address any issues that may arise.

16593
Colorado River (209.3)
August 20, 2025

Please do not hesitate to contact me by telephone at (510) 219-4366 or by email at D11Bridges@uscg.mil if you require additional information or have any questions. We look forward to your response and appreciate your assistance in completing the Section 106 consultation process.

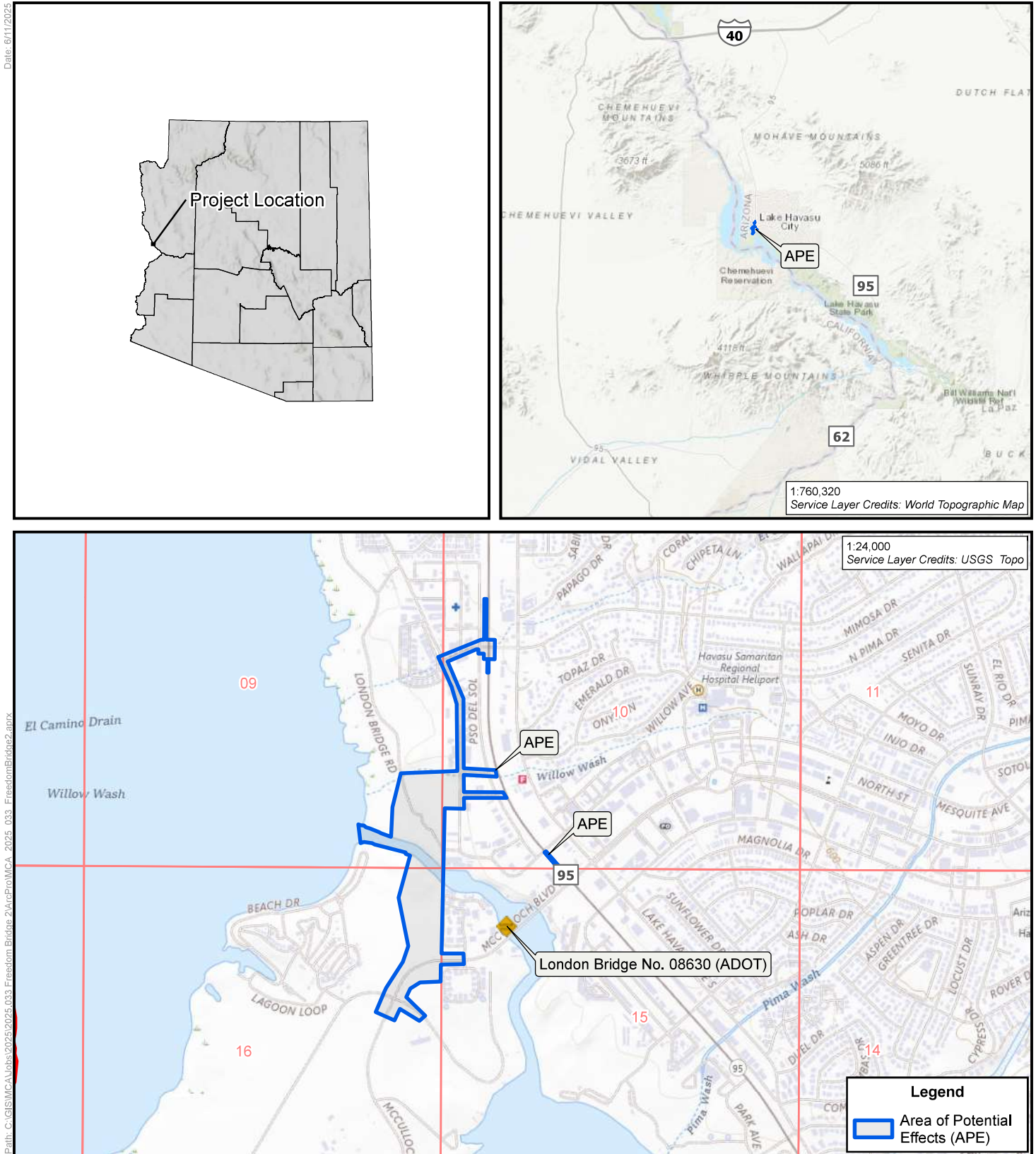
Sincerely,



CARL T. HAUSNER
Chief, Bridge Section
USCG Southwest District
By direction of the District Commander

Enclosure: (1) Project APE
(2) Cultural Resources Survey

Copy: U.S. Coast Guard Sector Los Angeles Long Beach, Waterways Management
Jesse Rice, USACE, Los Angeles District, Regulatory Division, AZ Branch
William Mack, U.S. Bureau of Land Management
Anna Pinnell, U.S. Bureau of Reclamation
Amber Troidl, Arizona State Land Department
Jill Himes, Himes Consulting, LLC



T13N, R20W, Portions of Sections 9, 10, 15, and 16,
Mohave County, Arizona
Projection: NAD 1983 2011 StatePlane Arizona West FIPS 0203 Ft Intl

Figure 1. Project location map.

CTH

Colorado River (209.3)

STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM

Received

JUL 31, 2025

Bridge Section

CLASS III CULTURAL RESOURCES SURVEY OF 65.36
ACRES FOR THE FREEDOM BRIDGE PROJECT, LAKE
HAVASU CITY, MOHAVE COUNTY, ARIZONA

FREEDOM BRIDGE

Submitted to:
Himes Consulting, LLC
and
United States Coast Guard (USCG)

Prepared and submitted by:
MCA Consulting
Michael Cook and Eliza Prouty
12190 North Tall Grass Drive
Oro Valley, Arizona 85755

ASM Accession Number: AP-2025-0236
AAA Permit Number: 2025-045bl

MCA Cultural Resources Report No. 2025.033

July 8, 2025



**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

1. REPORT TITLE

1a. Report Title: Class III Cultural Resources Survey of 65.36 Acres for the Freedom Bridge Project, Lake Havasu City, Mohave County, Arizona

1b. Report Author: Michael Cook

1c. Date: July 8, 2025 **1d. Report No.:** 2025.033

2. PROJECT REGISTRATION/PERMITS

2a. ASM Accession Number: AP-2025-0236

2b. AAA Permit Number: 2025-045bl

2c. ASLD Lease Application Number(s): N/A

2d. Other Permit Numbers: N/A

3. ORGANIZATION/CONSULTING FIRM

3a. Name: MCA Consulting

3b. Internal Project Number: 2025.033

3c. Internal Project Name: Freedom Bridge 2

3d. Contact Name: Michael Cook

3e. Contact Address: 12190 N Tall Grass Drive, Oro Valley, AZ 85755

3f. Contact Phone: (520) 203-4902

3g. Contact Email: mike@mca-arizona.com

4. SPONSOR/LEAD AGENCY

4a. Sponsor: Himes Consulting, LLC

4b. Lead Agency: United States Coast Guard (USGA)

4c. Agency Project Number(s): N/A

4d. Agency Project Name: Freedom Bridge

4e. Funding Source: State

4f. Other Involved Agencies: Bureau of Land Management (BLM)-Lake Havasu City Field Office; Arizona State Land Department (ASLD); Arizona State Parks (ASP); and Lake Havasu City (LHC)

4g. Applicable Regulations: Section 106 of the National Historic Preservation Act (36 CFR Part 800); ARS 41-861 et seq. (the Arizona State Historic Preservation Act); and ARS 41-841 et seq. (the Arizona Antiquities Act)

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

5. DESCRIPTION OF PROJECT OR UNDERTAKING: The City proposes to build the Freedom Bridge to the island, spanning Bridgewater Channel (a part of the Colorado River within Lake Havasu), and associated roadway improvements. Roadway improvements include bridge approaches, street connections, utility re-routing, and intersection improvements. The proposed bridge consists of a two-lane undivided facility with bike lanes and a barrier-separated multi-use path. The Proposed Action encompasses approximately 32 acres, including existing streets, parking lots, and undeveloped areas. This area consists of 6.36 acres of Arizona State Trust Land, 4.61 acres of BLM land within Lake Havasu State Park, and 16.2 acres of City property or existing street right of way. In addition, up to 4.76 acres within Bridgewater Channel are proposed to be dredged for bridge construction fill (**Figures 1-2**).

6. AREA OF POTENTIAL EFFECTS (APE): The APE consists of an irregular-shaped polygon with a maximum length of 1,708-m (5,606 feet) and a maximum width of 509-m (1,672 feet). The APE was defined to provide for all areas in which disturbance associated with the geotechnical investigations was included. The total acreage of the APE encompasses 51.4 acres. Most (47.6 acres) of the total 65.36-acre APE was previously surveyed in November of 2024, the pedestrian survey focused on the 17 acres which was previously un-surveyed (**Figure 3**). However, all historic road features in the APE were relocated, rephotographed, and re-evaluated in the current project.

7. PROJECT LOCATION

7a. Address: N/A

7b. Route: N/A

7c. Mileposts Limits: N/A

7d. Nearest City/Town: Lake Havasu City

7e. County: Mohave

7f. Project Locator UTM: 192047 Easting 3819160 Northing **7g. NAD 83** **7h. Zone:** 11

7i. Baseline & Meridian: Gila & Salt River Baseline & Meridian

7j. USGS Quadrangle: *Lake Havasu City South, Arizona* (2018)

7k. Legal Description: T13N, R20W, Portions of Sections 9, 10, 15, and 16 (**Figures 1-2**)

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

8. APE

8a. Total Acres: 65.36

8b. APE.

1. Land Jurisdiction	2. Total Acres Surveyed	3. Total Acres Not Surveyed	4. Justification for Areas Not Surveyed
Bureau of Land Management (BLM)	4.76	4.76	In channel, underwater
Lake Havasu State Park (BLM land)	16.92	16.92	Previously surveyed in 2024 (Cook and Prouty 2024)
Arizona State Trust land managed by ASLD	27.24	18.6	Previously surveyed in 2024 (Cook and Prouty 2024)
Private parcels owned by Lake Havasu City	16.44	12.23	Previously surveyed in 2024 (Cook and Prouty 2024)

9. ENVIRONMENTAL CONTEXTS

9a. Landform: The APE is located on the bank and flood plain of the Colorado river and Lake Havasu. A portion of the APE is located on an island within Lake Havasu.

9b. Elevation: 449-515 feet above mean sea level

9c. Surrounding Topographic Features: The APE is in the valley and floodplain of two mountain ranges, the Mohave Mountains 11-km (7 miles) to the northeast and the Whipple Mountains 4-km (3 miles) to the south.

9d. Nearest Drainage: The APE is 173-m (567 feet) from Lake Havasu, which surrounds the APE on the west and south boundaries. Lake Havasu drains into the Colorado River to the southwest of the APE.

9e. Local Geology: The APE is part of the Quaternary Surficial Deposits, undivided (Arizona Geologic Survey 2025; USGS 2025a). Unconsolidated to strongly consolidated alluvial and eolian deposits. This unit is made up of coarse poorly sorted alluvial fan and terrace deposits on middle and upper piedmonts and along large drainages; sand, silt and clay on alluvial plains and playas; and wind-blown sand deposits.

9f. Vegetation: The APE is part of the Lower Colorado River Subdivision – Sonoran Desertscrub (Turner and Brown 1982; Brown 1982).

9g. Soils/Deposition: The APE lies within two units including the Coolidge-Denure complex (1 to 7 percent slopes) and the Carrizo family very gravelly loamy sand (1 to 3 percent slopes) (NRCS 2025). Soils observed during field work were loose sandy loams with various gravel inclusions.

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

9h. Buried Deposits: Not likely.

9i. Justification: Much of the APE has been previously disturbed and there is no indication of subsurface prehistoric or historic cultural deposits.

10. BUILT ENVIRONMENT: Residential housing, commercial buildings and parking lots, and roads cover much of the Study Area (**Figure 3**). In-use roads intersecting the APE and Study Area include Crystal Avenue, Highway 95, London Bridge Road, South Palo Verde Boulevard, McCulloch Boulevard, Paseo del Sol Avenue, Beachcomber Boulevard, and Sir Peter Gadsden Street. In the southern portion of the Study Area (outside the APE) are the remains of the historic Lake Havasu Airfield, built in 1942 as part of the World War II defense plan and serving as an Air Force Base until 1946 when it was then sold to Robert P. McCulloch as a test center. The London Bridge is located to the southeast of the Study Area and was constructed in 1971 after Robert P. McCulloch purchased part of the dismantled structure in 1968.

11. INVENTORY CLASS COMPLETED

11a. Class I Inventory: ☐

11b. Researchers: Michael Cook, Eliza Prouty, Jonathan Knighton-Wisor

11c. Class II Survey: ☐

11d Sampling Strategy: N/A

11e. Class III Inventory: ☒

12. BACKGROUND RESEARCH SOURCES

12a. AZSITE: ☒

12b. ASM Archaeological Records Office: ☒

12c. SHPO Inventories and/or SHPO Library: ☐

12d. NRHP Database: ☒ (National Park Service 2020)

12e. ADOT Portal: ☒

12f. GLO Maps: ☒ (BLM 2025)

12g. Land- Managing Agency Files: BLM, Lake Havasu Field Office, December 19, 2024

12h. Tribal Cultural Resources Files: N/A

12i. Local Government Websites: N/A

12j. Other: Historic USGS topographic maps (USGS 2025b); historic aerial imagery (Historic Aerials 2025); historic mining (USGS 2025c)

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

13. BACKGROUND RESEARCH RESULTS

13a. Previous Projects Intersecting or Adjacent the APE. Five previously conducted survey projects have intersected the APE (**Figure 5**). Approximately twenty percent of the Class I Study Area (Study Area) has been previously surveyed.

1. Project Reference Number	2. Project Name	3. Author(s)	4. Year
1992-186.ASM	Pittsburg Point	Seymour, Greg	1992
2006-272.ASM	A Cultural Resource Survey for Improvements to Lake Havasu State Park	Strohmayer, Jodi	2006
2012-567.ASM	A Class III Cultural Resources Survey of 31.8 Acres Located at The South End of Main Park Road in Lake Havasu State Park	Fahrni, Grant	2013
BLM-054-78-D	Buried Telephone Cable Duct System	BLM	1979
BLM-086-C and BLM 86-D	Unknown; located near south end of APE	BLM	1986

13b. Previously Recorded Cultural Resources Within the APE. Nine archaeological sites have been recorded in the Class I Study Area (**Figure 5**). No sites intersect the APE.

1. Site Number/Name	2. Affiliation	3. Site Type	4. Eligibility Status	5. Associated Reference(s)
AZ L:11:13(ASM)	Unknown	Lithic artifact scatter	Not Evaluated	Doak 1992
AZ L:11:15(ASM)	Unknown	Lithic artifact scatter	Eligible Individually	Strohmayer 2006
AZ L:11:16(ASM)	Unknown	Lithic artifact scatter	Eligible Individually	Strohmayer 2006
AZ L:11:17(ASM)	Unknown	Lithic artifact scatter with features including a rock feature within desert pavement and	Eligible Individually	Strohmayer 2006
AZ L:11:18(ASM)	Unknown	Lithic artifact scatter	Ineligible Individually	Strohmayer 2006
AZ L:11:19(ASM)	Unknown	Lithic artifact scatter	Eligible Individually	Strohmayer 2006
AZ L:11:20(ASM)	Unknown	Lithic artifact scatter	Eligible Individually	Strohmayer 2006
AZ L:11:21(ASM)	Unknown	Lithic artifact scatter	Eligible Individually	Strohmayer 2006

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

1. Site Number/Name	2. Affiliation	3. Site Type	4. Eligibility Status	5. Associated Reference(s)
AZ L:11:22(ASM)	Unknown	Lithic artifact scatter	Ineligible Individually and Eligible	Strohmayer 2006

13c. Historic Buildings/Districts/Neighborhoods.

1. Property Name or Address	2. Year	3. Eligibility Status
Herschell Carrousel at 100 Park Avenue	1938	Not Evaluated
London Bridge	1971	National Register
Lake Havasu Airfield	1942	Not Evaluated

13d. USGS Historical Topographic Maps

1. Map	2. Scale	3. Date	4. Features within APE and Study Area
<i>Parker, Arizona</i>	1:125,000	1911 (1911, 1921, 1947 edition)	APE: Two unnamed northwest southeast running dirt roads are present within the APE. Study Area: A northwest southeast running road is present to the east of the APE.
<i>Whipple Mountains, California</i>	1:62,500	1943 (1943 edition) 1950 (1958, 1964, 1971 edition) 1952 (1952 edition)	APE: Two unnamed northwest/southeast running dirt roads intersect the APE. By 1950, a road runs north/south through the APE (Figure 7). Study Area: A northwest/southeast running road is present to the east of the APE. By 1950 the Havasu Airpark is present in the southwestern portion of the Study Area. Two unnamed dirt roads are present to the north and east of the APE.
<i>Needles, California</i>	1:250,000	1954 (1954 edition) 1956 (1956, 1962, 1964, 1968, 1969, 1972, 1976 edition)	APE: Highway 95 runs north/south through the APE. An unnamed road is present in the southern part of the APE. Study Area: Havasu Airpark is present in the southwestern portion of the Study Area.

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

1. Map	2. Scale	3. Date	4. Features within APE and Study Area
<i>Lake Havasu City South, Arizona</i>	1:24,000	1970 (1973, 1978, 1984 edition)	APE: Crystal Ave runs north/south through the northern portion of APE. McCulloch Blvd runs through the southern portion of the APE. Palo Verde Boulevard intersects the APE. Study Area: Lake Havasu City Airport is present to the south of the APE. Campgrounds, a golf course, boat ramps, wells and water tanks surround the southern portion of the APE. Numerous named and unnamed roads are present within the northern and eastern portion of the Study Area. Neighborhoods and commercial buildings are present throughout the Study Area.

13e. General Land Office (GLO) Survey Plat.

1. Township/Range	2. Plat No.	3. Date	4. Features within APE and Study Area
T13N R20W	2988	April 10, 1917	APE: An unnamed northwest southeast road is present within the southern portion of APE and extends throughout the Study Area (Figure 6). Study Area: An unnamed northwest southeast runs throughout the Study Area.

13f. General Land Office (GLO) Land Patents. A patent was filed by the Santa Fe Pacific Railroad Co for the N ½ NW ¼ of T13N R20W Section 15 under the Grant-RR-Atlantic and Pacific (14 Stat. 292) Act. A patent was filed by the State of Arizona for T13N R20W Section 10 under the Indemnity Selections (44 Stat. 1022) (BLM 2025).

13g. Historic Aerial Imagery: Historic aerial imagery is available from 1947 and 1969 (Historic Aerials 2025). Both aerials show Havasu Airpark intersecting the southern portion of the Study Area. These aerials depict the northeast end of an airport runway (oriented approximately southwest-northeast) approximately 100 m south of the APE. The 1947 aerial depicts a dirt road intersecting the APE and running east towards Havasu Airpark. The 1969 aerial depicts a paved road in a similar location along with five additional paved roads running throughout the APE. No portions of these historic roads or runway were observed within or adjacent to the APE during field survey. Residential and commercial neighborhoods intersect the Study Area as well as boat docks and developed land.

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

14. CULTURAL CONTEXTS

14a. Prehistoric Culture: Paleoindian, Archaic, Patayan

14b. Protohistoric Culture: Mohave, Hualapai

14c. Indigenous Historic Culture: Chemehuevi Indian Tribe, Colorado River Indian Tribes, Fort McDowell Yavapai Nation, Fort Mojave Indian Tribe, Hopi Tribe, Moapa Band of Paiute Indians, Navajo Nation, Pueblo of Zuni, Salt River Pima Maricopa Indian Community, Yavapai Apache Nation, Yavapai Prescott Indian Tribe.

14d. Euro-American Culture: ca. A.D. 1880s-present

15. FIELD SURVEY PERSONNEL

15a. Principal Investigator: Michael Cook

15b. Field Supervisor: Kyle Eckerstrom

15c. Crew: Jake Warford

15d. Fieldwork Date: June 9-10, 2025

16. SURVEY METHODS

16a. Transect Intervals: 15 m

16b. Coverage (%): 100

16c. Site Recording Criteria: ASM (Fish 1995)

16d. Ground Surface Visibility: 90% (within undeveloped areas)

16e. Observed Disturbances: Much of the APE is covered by existing paved road, paved parking lots, and modern infrastructure.

17. FIELD SURVEY RESULTS

17a. No Cultural Resources Identified: ☐

17b. Historical In-Use Structures (IUs) Identified: ☒; **Form(s) Attached:** ☒

17c. Number of IUs Recorded: 5

17d. Number of IOs Recorded: 4

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

17e. Table of IOs.

1. IO Number	2. Description	3. Date Range	4. UTM's
IO-1	In-use road, paved, oriented southeast/northwest for approximately 165 m (537 ft) within APE. Named on modern maps as <i>Paseo del Sol Avenue</i> . Depicted on 1969 aerial imagery (Historic Aerials 2025).	Historic, by A.D. 1969 to present	E 743321 N 3818212 E 743484 N 3818219
IO-2	In-use road, paved, oriented north/south through the APE at three separate areas for approximately 116 m (383 ft) total through the APE. Named on modern maps alternatively as <i>Veterans Way</i> and <i>El Paseo del Sol</i> . Depicted on 1969 aerial imagery (Historic Aerials 2025) and on the 1970 <i>Lake Havasu City South</i> USGS 1:24,000 Quadrangle as an unnamed road (Figure 8).	Historic, by A.D. 1969 to present	E 743492 N 3818206 E 743379 N 3818909
IO-3	In-use road, paved, oriented east/west through the APE for approximately 123 m (405 ft). Road is not named on historic or modern maps. Depicted on 1969 aerial imagery (Historic Aerials 2025).	Historic, by A.D. 1969 to present	E 743318 N 3818320 E 743441 N 3818318
IO-4	In-use road, paved, oriented north/south for approximately 19 m (63 ft) through the APE. Named on modern maps as <i>El Camino Way</i> . Depicted on the 1970 <i>Lake Havasu City South</i> USGS 1:24,000 Quadrangle as an unnamed road (Figure 8).	Historic, by A.D. 1970 to present	E 743297 N 3818873 E 743302 N 3818854

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

17f. Table of IUs.

1. IU Number	2. Description	3. Date Range	4. UTM's
IU-1	<i>Beach Comber Boulevard.</i> In-use road, paved, oriented northwest/southeast through APE for approximately 211 m (692 ft) Depicted on 1969 aerial imagery (Historic Aerials 2025) and on the 1970 <i>Lake Havasu City South</i> USGS 1:24,000 Quadrangle as an unnamed road (Figure 8).	Historic, by A.D. 1969 to present	E 743188 N 3817211 E 743004 N 3817311
IU-2	<i>McCulloch Boulevard.</i> In-use road, paved, oriented northeast/southwest through the APE for approximately 487 m (1,598 ft). Depicted on 1969 aerial imagery (Historic Aerials 2025) and on the 1970 <i>Lake Havasu City South</i> USGS 1:24,000 Quadrangle as an unnamed road (Figure 8).	Historic, by A.D. 1969 to present	E 743014 N 3817209 E 743359 N 3817473
IU-3	<i>Crystal Avenue.</i> In-use road, paved, oriented north/south through the APE for approximately 704 m (2,311 ft). Depicted on 1969 aerial imagery (Historic Aerials 2025) and on the and on the 1970 <i>Lake Havasu City South</i> USGS 1:24,000 Quadrangle as an unnamed road (Figure 8).	Historic, by A.D. 1969 to present	E 743322 N 3818152 E 743214 N 3818836
IU-4	<i>State Route 95, State Route 172.</i> In-use road, paved, oriented north/south through the APE (four segments) totaling approximately 451m (1,480 ft). Depicted on 1950 <i>Whipple Mtns., Arizona</i> USGS 1:62,500 USGS map (Figure 7).	Historic, by A.D. 1950 to present	E 743793 N 3818152 E 743793 N 3819089
IU-5	<i>Palo Verde Boulevard.</i> In-use road, paved, oriented north/south through the APE for approximately 243 m (799 ft). Depicted on 1969 aerial imagery (Historic Aerials 2025) and on the and on the 1970 <i>Lake Havasu City South</i> USGS 1:24,000 Quadrangle as an unnamed road (Figure 8).	Historic, by A.D. 1969 to present	E 743225 N 3818815 E 743454 N 3818885

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

18. COMMENTS: Four isolated occurrences and five historic in-use structures were also documented in the APE (**Figure 4**). All IOs and IUs are historic, in-use paved roads. All five IUs were previously documented with SHPO HISF forms by MCA as part of the associated part of this overall project (Cook and Prouty 2024). Accordingly, these forms were not repeated here but are available upon request. All IOs and IUs have been assessed under relevant historic contexts and are not significant cultural resources eligible for listing in the National Register of Historic Places (NRHP) or Arizona Register of Historic Places (ARHP). Therefore, no avoidance measures are recommended for the IOs or IUs during ground-disturbing activities. MCA recommends a finding of **No Historic Properties Affected**. No further archaeological investigations are recommended.

SECTION 19. ATTACHMENTS

- 19a. Project Photos:** ☒ (Photos 1-2)
19b. Project Location Map: ☒ (Figure 1)
19c. Land Jurisdiction Map: ☒ (Figure 2)
19d. Aerial Imagery of APE: ☒ (Figure 3)
19e. Results of Field Survey: ☒ (Figure 4)
19f. Background Research Map: ☒ (Figure 5)
19g. Historic maps: ☒ (Figure 6-8)
19h. References: ☒

SECTION 20. CONSULTANT CERTIFICATION

I certify the information provided herein has been reviewed for content and accuracy and all work meets applicable agency standards.



Date: July 8, 2025

Signature

Michael Cook, Owner/Senior Archaeologist
Title

**STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM**

SECTION 21. DISCOVERY CLAUSE

In the event that previously unreported cultural resources are encountered during ground disturbing activities, all work must immediately cease within 30 meters (100 feet) until a qualified archaeologist has documented the encounter and evaluated its eligibility for the Arizona or National Register of Historic Places in consultation with the lead agency, the SHPO, and Tribes, as appropriate. Work must not resume in this area without approval of the lead agency.

If human remains are encountered during ground-disturbing activities, all work must immediately cease within 30 meters (100 feet) of the encounter and the area must be secured. The Arizona State Museum, BLM, ASLD, SHPO, and appropriate Tribes must be notified of the encounter. All encounters will be treated in accordance with NAGPRA (Public Law 101-601; 25 U.S.C. 3001-3013) or Arizona Revised Statutes (A.R.S. § 41-844 and 41-865), as appropriate, and work must not resume in this area without authorization from ASM and the lead agency.

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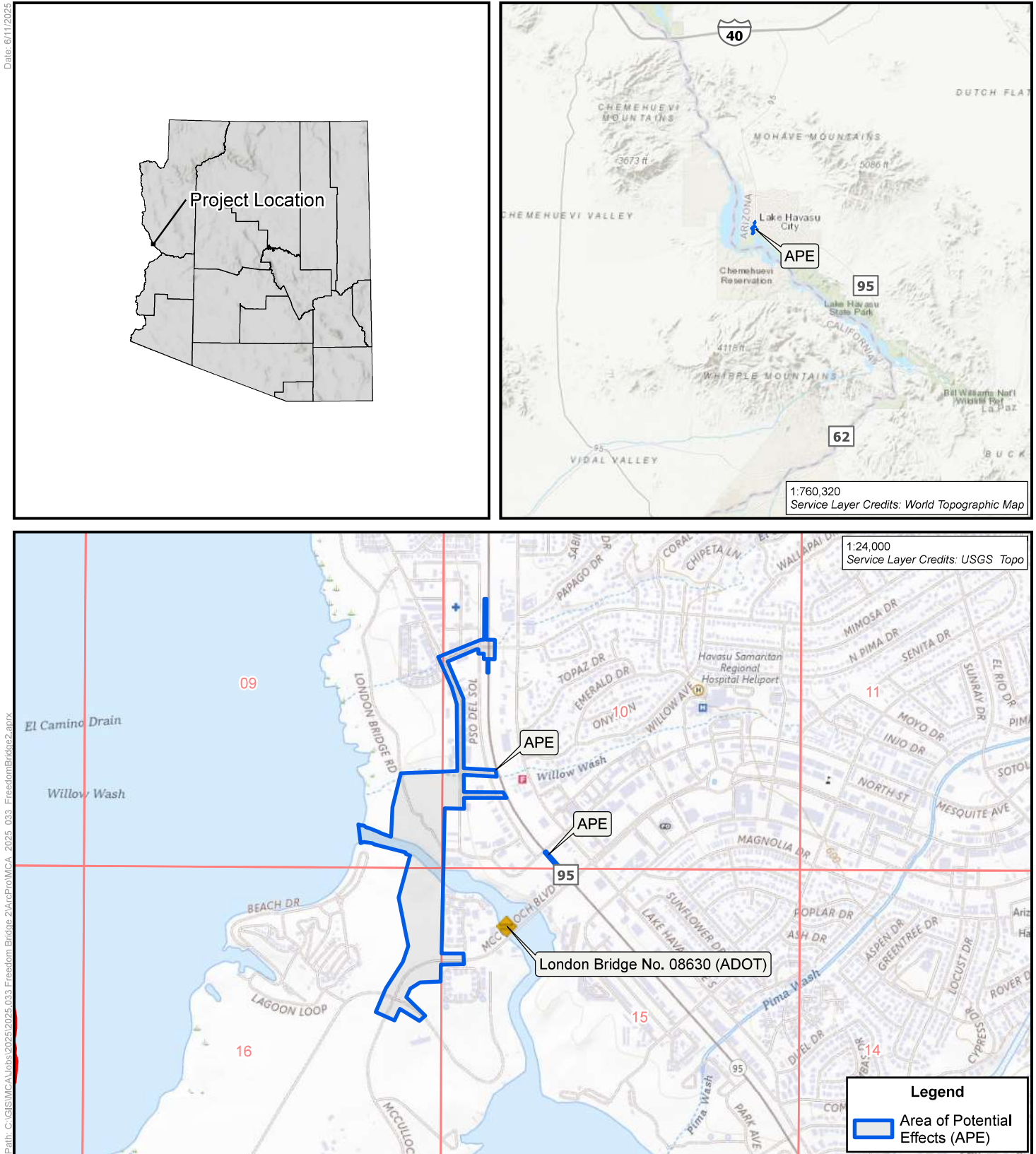
19a. Project Photos



Photo 1. Overview in south portion of APE on State land ; view to the north.



Photo 2 . Overview from London Bridge towards APE; view to the west.



T13N, R20W, Portions of Sections 9, 10, 15, and 16,
Mohave County, Arizona
Projection: NAD 1983 2011 StatePlane Arizona West FIPS 0203 Ft Intl

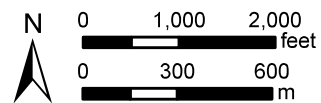
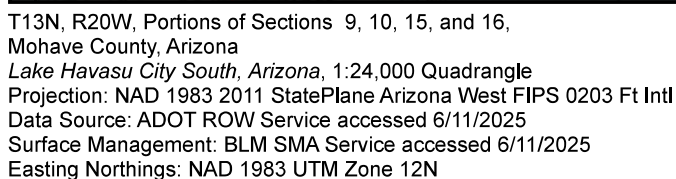
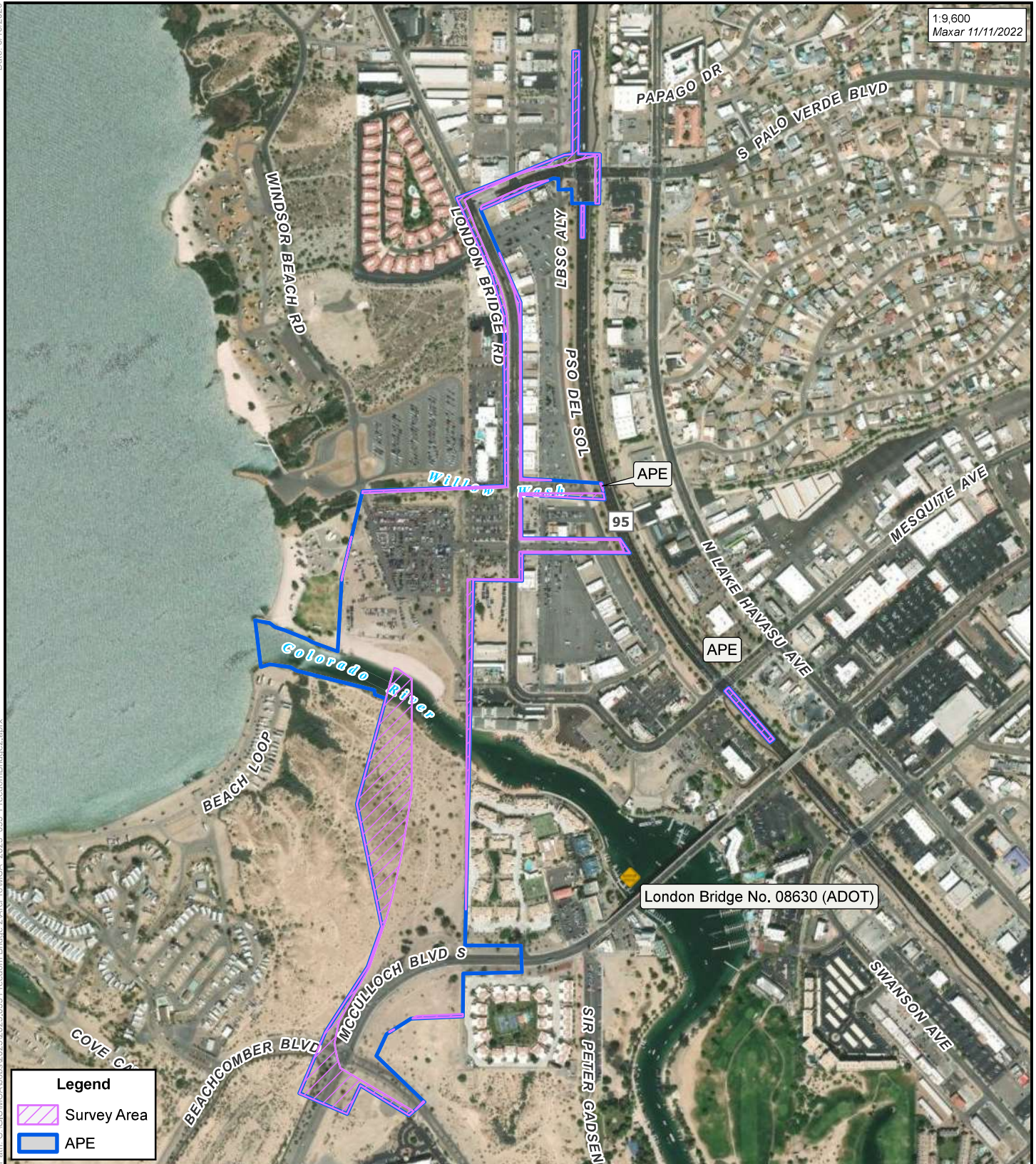


Figure 1. Project location map.



16



T13N, R20W, Portions of Sections , 9, 10, 15, and 16,
Mohave County, Arizona
Projection: NAD 1983 2011 StatePlane Arizona West FIPS 0203 Ft Intl
Data Source: ADOT Service accessed 6/13/2025

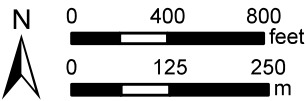


Figure 3. Aerial imagery.

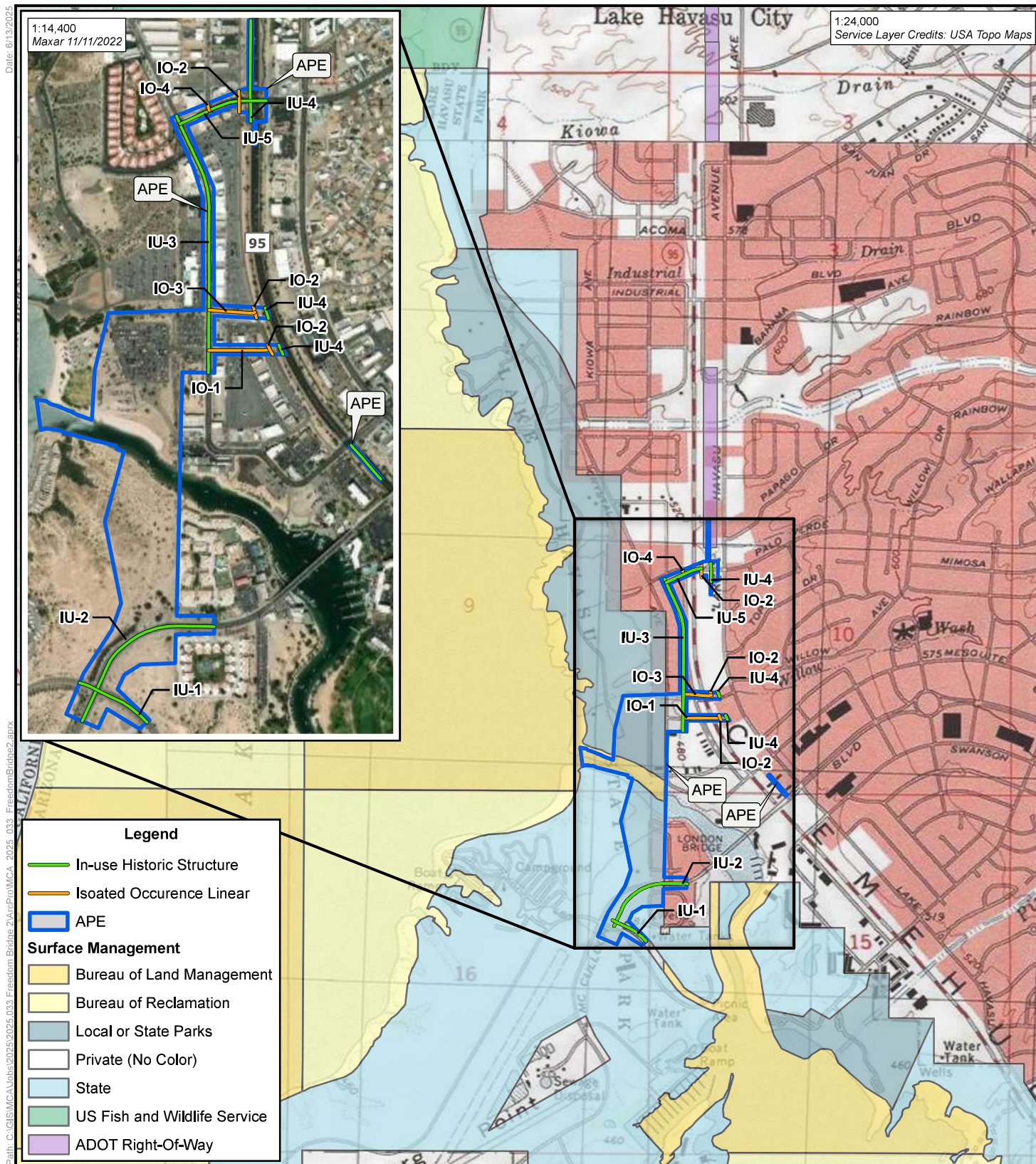
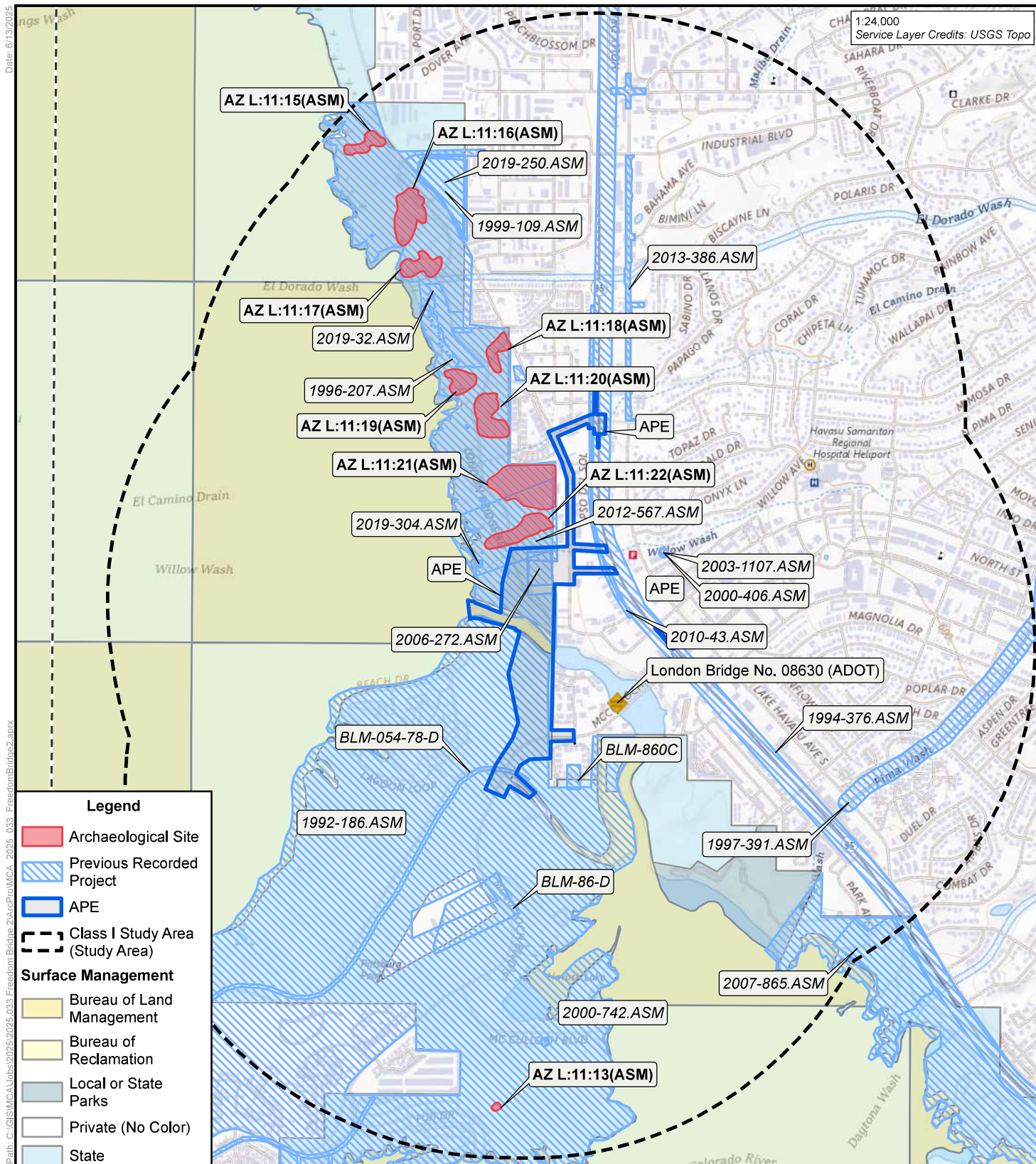


Figure 4. Results of field survey.



T13N, R20W, Portions of Sections 9, 10, 15, and 16,
Mohave County, Arizona
Lake Havasu City South, Arizona, 1:24,000 Quadrangle
Projection: NAD 1983 2011 StatePlane Arizona West FIPS 0203 Ft Intl
Surface Management: BLM SMA Service accessed 6/13/2025

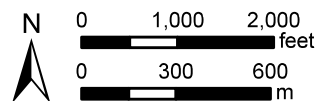
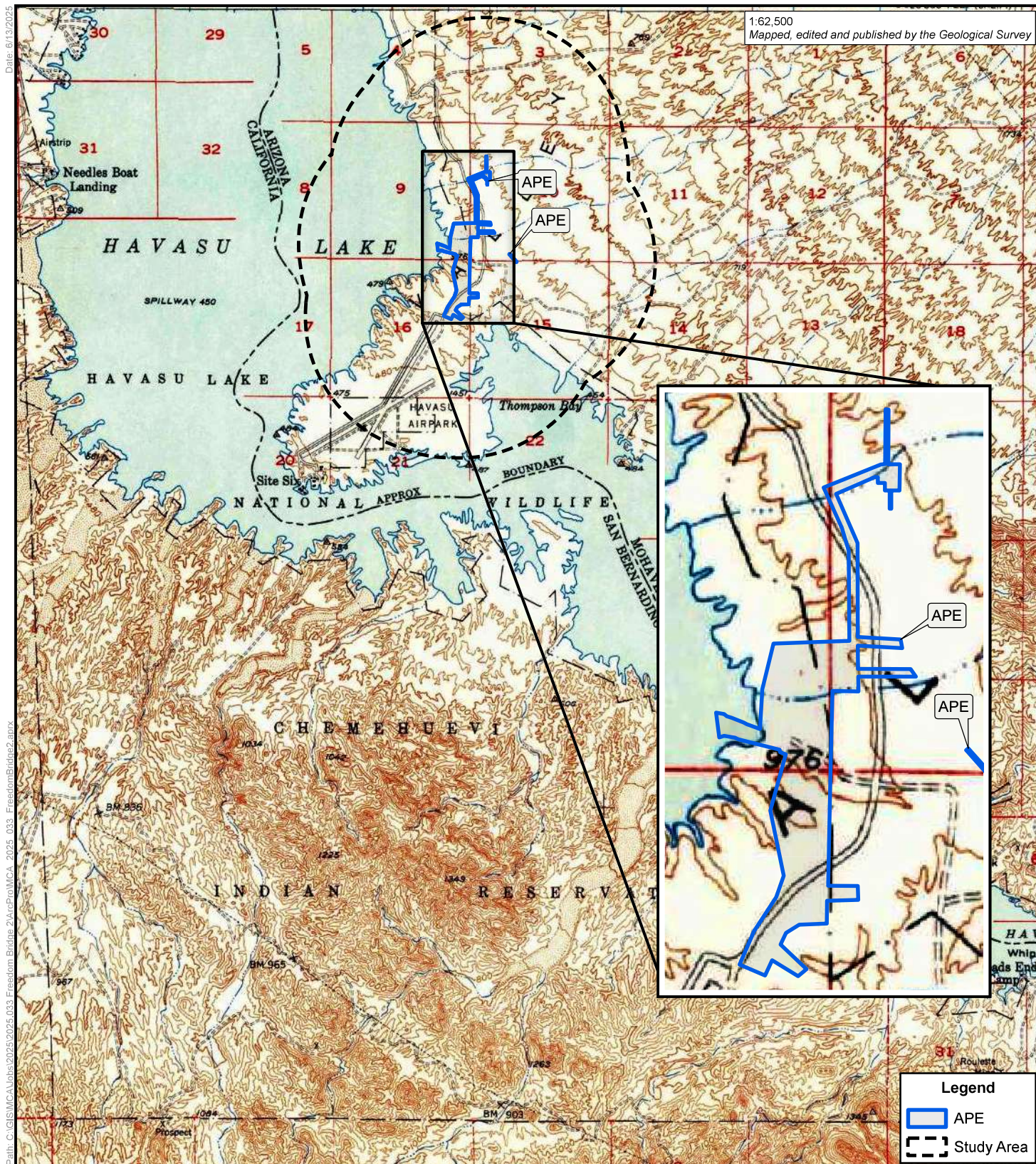


Figure 5. Background research map.





T13N, R20W, Portions of Sections 9, 10, 15, and 16,
Mohave County, Arizona
Whipple Mts, California 1:62,500 Quadrangle (1958)
Projection: NAD 1983 2011 StatePlane Arizona West FIPS 0203 Ft Intl
Area of Detail Scale 1:18,000 (1-in=1,500-ft)

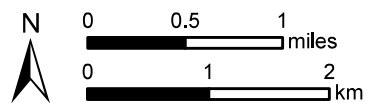


Figure 7. 1950 *Whipple Mts, California* 1:62,500 USGS Quadrangle (1958 edition).

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T13N, R20W, Portions of Sections 9, 10, 15, and 16,
Mohave County, Arizona
Lake Havasu City South, Arizona 1:24,000 Quadrangle (1973)
Projection: NAD 1983 2011 StatePlane Arizona West FIPS 0203 Ft Intl



Figure 8. 1970 *Lake Havasu City South, Arizona* 1:24,000 USGS Quadrangle (1973 edition).

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<https://mrdata.usgs.gov/mrds/map-graded.html>, accessed June 1, 2025.

From: [Hausner, Carl T CIV USCG D11 \(USA\)](#)
To: azshpo@azstateparks.gov
Cc: [Robinson, William A III CIV USCG \(USA\)](#); [Jill Himes](#); wmack@blm.gov; [Rice, Jesse M CIV USARMY CESPL \(USA\)](#); apinnell@usbr.gov; [D11-SMB-SectorLALB-WWM](#); atroidl@azland.gov
Subject: Initiate Section 106 Consultation - Proposed Freedom Bridge - Colorado River
Date: Wednesday, August 20, 2025 10:50:00 AM
Attachments: [2025-08-20 CG AZSHPO-InitiateConsult_FreedomBRG_ColoRiv_Draft.pdf](#)

Good Morning AZ SHPO,

The U.S. Coast Guard wishes to initiate consultation with Arizona State Historic Preservation Office regarding the proposed new Freedom Bridge across the Colorado River (Bridgewater Channel) at Lake Havasu City, Mohave County, AZ. See attached letter.

Thank you,

v/r,

Carl Hausner
Chief, Bridge Section
USCG Southwest District
Waterways Management Branch

510-219-4366 Primary
571-607-2207 Secondary

From: tcano@azstateparks.gov on behalf of [AZSHPO - AZPARKS](#)
To: [Hausner, Carl T CIV USCG D11 \(USA\)](#)
Cc: [Robinson, William A III CIV USCG \(USA\)](#); [Jill Himes](#); wmack@blm.gov; [Rice, Jesse M CIV USARMY CESPL \(USA\)](#); apinnell@usbr.gov; [D11-SMB-SectorLALB-WWM](#); atroidl@azland.gov
Subject: [Non-DoD Source] Re: Initiate Section 106 Consultation - Proposed Freedom Bridge - Colorado River
Date: Wednesday, August 20, 2025 3:21:27 PM

Received...Thank You.

Please note that we work in order of receipt of each project (as received in the azshpo inbox). Unless an existing agreement says otherwise, SHPO is mandated a 30 calendar-day review for federal projects, and a 30 business-day review for state projects. Please do not reach out asking for an update prior to the close of review time.

Arizona State Historic Preservation Office

On Wed, Aug 20, 2025 at 10:51 AM Hausner, Carl T CIV USCG D11 (USA)
<Carl.T.Hausner@uscg.mil> wrote:

Good Morning AZ SHPO,

The U.S. Coast Guard wishes to initiate consultation with Arizona State Historic Preservation Office regarding the proposed new Freedom Bridge across the Colorado River (Bridgewater Channel) at Lake Havasu City, Mohave County, AZ. See attached letter.

Thank you,

v/r,

Carl Hausner

Chief, Bridge Section

USCG Southwest District

Waterways Management Branch

510-219-4366 Primary

571-607-2207 Secondary

Appendix F. Noise Impact Assessment

**Second Bridge
Lake Havasu City
Noise Impact Assessment**
October 16, 2025

Prepared For:

**United States Coast Guard, Lead Agency
US Bureau of Land Management, Cooperating Agency
US Bureau of Reclamation, Cooperating Agency
US Army Corps of Engineers, Cooperating Agency**

N|V|5

**3777 Long Beach Blvd
Annex Building
Long Beach, CA 90807**

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1.0 GENERAL

1.1 INTRODUCTION

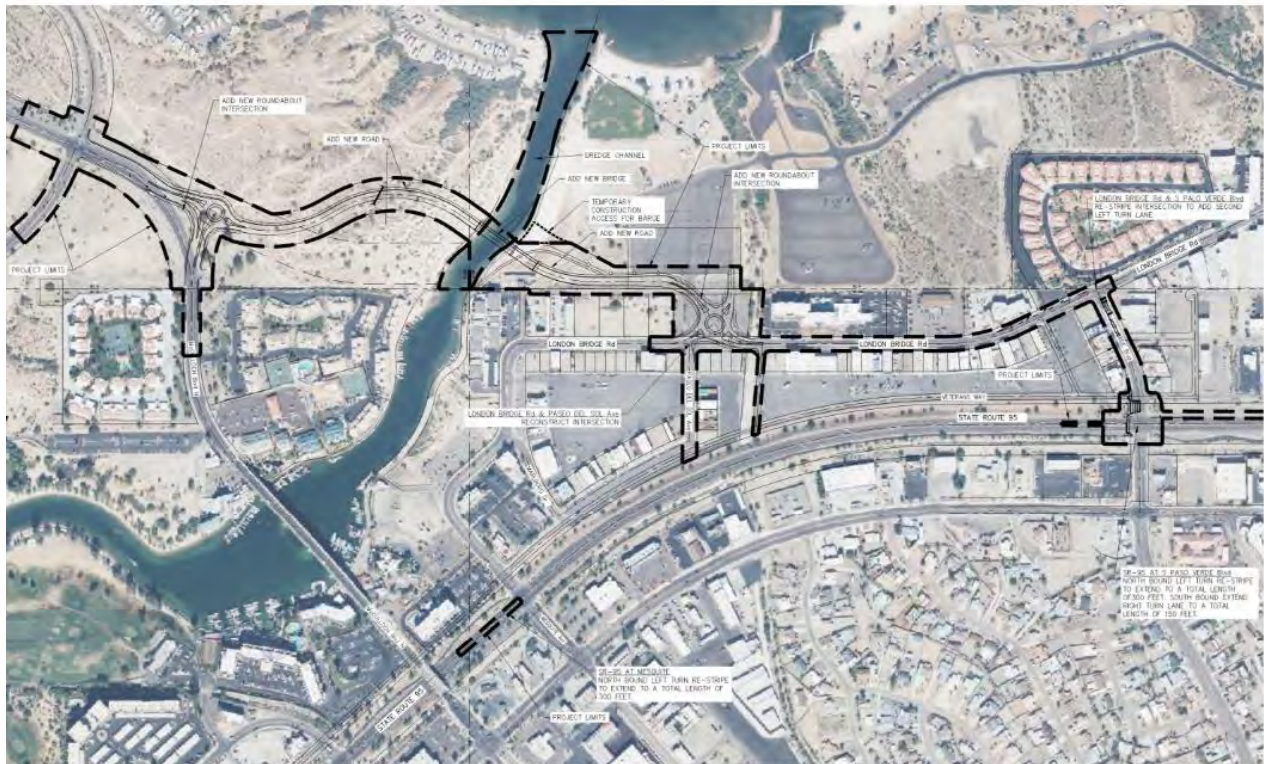
Lake Havasu City has proposed to build a 2-lane bridge road, called Second Bridge, that will connect McCulloch Blvd N and London Bridge Rd over the Bridgewater Channel. The proposed project will include development and improvement of approximately 1.7 miles of existing and proposed new roadway. Land ownership for this project consists of federal lands managed by the U.S. Bureau of Land Management (BLM) within Lake Havasu State Park, State Trust land managed by the Arizona State Land Department (ASLD), city-owned property, and existing city streets and State Route (SR) 95 right of way. The proposed project location and plans are shown in **Figure 1**.

The purpose of the proposed project is to provide a second bridge emergency evacuation and access route from the island to the mainland for visitors and residents of Lake Havasu City, Arizona. The City entered into an Intergovernmental Agreement with the State of Arizona to accept the state-appropriated funding for this stated purpose only. A second bridge would also improve existing traffic circulation, especially during existing peak seasonal travel. Existing London Bridge traffic congestion is a public safety issue due to emergency response times, high intersection crash rates, and backups onto State Route (SR) 95 (Lake Havasu Metropolitan Planning Organization 2022).

This study evaluates the noise impacts from the proposed new roadway and increased traffic on nearby roadways on nearby sensitive receivers. To complete this evaluation, this study includes an analysis of the following:

- The existing ambient noise environment
- Existing Traffic (2024) peak hour traffic noise levels
- Future – No Build (2045) peak hour traffic noise levels
- Future – Build (2045) peak hour traffic noise levels

Figure 1: Second Bridge Concept Plan



1.2 NEPA BACKGROUND

The National Environmental Policy Act (NEPA) of 1969 provides broad authority and responsibility to Federal agencies for evaluating and mitigating adverse environmental effects, including highway traffic and construction noise. NEPA directs the Federal government to use all practical means and measures to promote the general welfare and foster a healthy environment. The Federal-Aid Highway Act of 1970 specifically addresses the abatement of highway traffic noise. This law mandates Federal Highway Administration (FHWA) to develop highway traffic noise standards. New highway construction noise is evaluated according to the FHWA standards set in 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. This project is not a highway project however, the FHWA traffic noise standard will be used to evaluate the traffic noise significance as it is recognized as the main roadway noise standard. Under the FHWA, this project would be considered a Type I project, as it is the construction of a new roadway.

2.0 FUNDAMENTALS OF NOISE

2.1 SOUND, NOISE AND ACOUSTICS

Sound is a mechanical radiant energy that is transmitted by longitudinal pressure waves in a material medium, such as air in the case of traffic and stationary noise and is the objective cause for human hearing. Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. Noise is defined as an unwanted sound.

2.2 FREQUENCY

When sound travels through air, the atmospheric pressure varies periodically. The number of pressure variations per second is called the frequency of sound and is measured in Hertz (Hz) which is defined as cycles per second. Our hearing systems are not equally sensitive to all sound frequencies. Thus, not all frequencies are perceived as being equally loud at the same sound pressure level, and when calculating overall environmental noise ratings it is necessary to consider sounds at some frequencies as more impactful than those at other frequencies. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). The human ear can hear from a bass pitch starting at 20 Hz all the way to the high pitch of 20,000 Hz.

2.3 SOUND PRESSURE LEVELS AND DECIBELS

Sound pressure level (SPL or Lp) is a logarithmic measure of the effective pressure of a sound relative to a reference value. The sound pressure levels are measured in decibels abbreviated dB. The human ear is not equally sensitive to sound at all frequencies. The “A-weighted scale,” abbreviated dBA, reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 to 140 dBA. **Figure 2** provides examples of A-weighted noise levels from common sounds.

Figure 2: A-Weighted Noise Levels of Common Sounds

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet flyover at 1,000 feet	110	Rock band
Gas lawnmower at 3 feet	100	
Diesel truck at 50 feet at 50 mph	90	Food blender at 3 feet
Noisy urban area, daytime	80	Garbage disposal at 3 feet
Gas lawnmower, 100 feet	70	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
Quiet urban daytime	50	Large business office
Quiet urban nighttime	40	Dishwasher in next room
Quiet suburban nighttime	30	Theater, large conference room (background)
Quiet rural nighttime	20	Library
	10	Bedroom at night, concert hall (background)
	0	Broadcast/recording studio

Source: California Department of Transportation; Technical Noise Supplement. September 2013.

Notes:

dBA = A-weighted decibels; mph = miles per hour

2.4 ADDITION OF DECIBELS

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. To add two or more noise levels, if the difference between the highest and next highest noise level is: 0–1 dB then add 3 dB to the higher level to give the total noise level, 2–3 dB then add 2 dB to the higher level to give the total noise level, 4–9 dB then add 1 dB to the higher level to give the total noise level, 10 dB and over, then the noise level is unchanged (i.e. the higher level is the total level).

2.5 HUMAN RESPONSE TO CHANGES IN NOISE LEVELS

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, overall sound levels are determined by applying frequency weighted adjustments to spectral sound levels. The A-scale weighting scale is used to mimic human hearing response, so sound is reported in terms of A-weighted decibels (dBA). Typically, the human ear can barely perceive a change in noise level of 3 dB. A change in noise level of 5 dB is readily perceptible, and a change of 10 dB is perceived as being twice or half as loud.

2.6 SOUND PROPAGATION

Sound is transmitted in air by pressure variations from its source to the surroundings. Sound levels will decrease as the distance between the source and the receiver increases. While absorption by air is one of the factors attributing to the weakening of a sound during transmission, distance plays a more important role in noise reduction during transmission. Depending on the source of the sound for every doubling of distance the level will be reduced between 3 and 6 dB. The reduction of a sound is called attenuation.

Other factors for noise attenuation are ground absorption and shielding. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of an additional 1.5 dB per doubling of distance.

In order to break the line of sight, walls between a noise source and a receiver are often used for noise attenuation to reduce the noise levels at the receiver. Additional barriers such as buildings, hills and heavy vegetations can also reduce the noise levels. Typically, walls will reduce noise levels by 5-10 dB. The higher the wall is, the higher the noise reduction will be.

2.7 MEASUREMENT OF SOUND

There are many ways to evaluate noise measured over periods of time. Equivalent continuous sound level (L_{eq}) is the total sound energy measured over a stated period of time. L_{max} is the maximum level with A-weighted frequency response and slow time constant. The Day-Night noise level (L_{dn}) is the LA_{eq} (equivalent noise level) over a 24-hour period with a penalty of 10 dB for noises occurring from 10:00 p.m. to 7:00 a.m. The noise penalty is added to the noise events during nighttime hours when individuals are more sensitive to noise.

3.0 REGULATORY FRAMEWORK

3.1 FHWA TRAFFIC NOISE IMPACT AND ABATEMENT CRITERIA

As described above, this project is not a highway project however, the FHWA traffic noise standard will be used to evaluate the traffic noise significance as it is recognized as the main roadway noise standard. In response to highway traffic noise issues, the United States Code of Federal Regulations Part 772 (23 CFR 772), *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, establishes standards for abatement of highway traffic noise. The regulations establish traffic noise-level criteria for various land use activities, which represent the upper limit of acceptable highway traffic noise exposure levels for different types of land uses and human activities.

The traffic noise levels in this report are given in Leq (h), which is an hourly equivalent sound level (L) over an A-weighted frequency range and the units are given in dBA. **Table 1** lists the FHWA's Noise Abatement Criteria (NAC) for different land use activities. The noise level is considered to approach NAC when the predicted noise level is within 1 dBA of the NAC for the activity category. For example, the residential land use activity category (Category B) the NAC is 67 dBA, and the noise level is considered to approach the NAC at 66 dBA.

Traffic noise impact occurs when either of two conditions occurs:

1. Future noise levels approach the NAC by 1 dBA, are equal to, or exceed the NAC: or
2. Future noise levels result in a substantial increase over the existing noise environment. A substantial increase is determined to be a 5 dBA to 15 dBA increase over existing ambient noise levels.

Table 1: Noise Abatement Criteria

Activity Category	Activity Leq (h)	Evaluation location	Activity description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ¹	67	Exterior	Residential
C ¹	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E ¹	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.
Notes: ¹ Includes undeveloped lands permitted for this Activity Category Source: Federal Highway Administration Code of Federal Regulations 23 CFR 772 Table 1			

3.2 FHWA CONSTRUCTION NOISE

The United States Code of Federal Regulations Part 772 (23 CFR 772), *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, also establishes standards regarding noise impacts from construction on nearby receivers. This section establishes that measures shall be determined in the plans and specifications of the project to minimize or eliminate adverse construction noise impacts to the community and, if needed, incorporate abatement measures. The FHWA does not provide a numerical limit for construction noise impacts, therefore this report will use the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment Model for a good faith assessment of construction (Center, 2018). The FTA establishes the following noise criteria for a general assessment of construction noise, presented in **Table 2**.

Table 2: General Assessment Construction Noise Criteria

Land Use	Leq, equip (1hr), DBA	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

3.3 LAKE HAVASU CITY NOISE ORDINANCES

Lake Havasu City has established ordinances for noise emanating from construction projects in the city ordinances under Chapter 9.30: Noise, which are described below.

9.30.070 Construction of Buildings and Projects

- A. General provisions. It shall be unlawful for any person to pour concrete or perform construction work in the city, except within the time periods specified herein unless a permit has been obtained beforehand from the Development Services Department.
 1. As used in this section, "**CONSTRUCTION WORK**" shall include:
 - a. Operating construction-related equipment;
 - b. Performing outside construction work;
 - c. Performing outside repair work on buildings, structures or projects; and
 - d. Operating a pile driver, power shovel, pneumatic hammer, derrick, power hoist or other construction-type device.
 2. "**CONSTRUCTION WORK**" shall not include:
 - a. Operation of stereos, "boom boxes", or other sound amplification devices.
 - b. Arbitrary yelling, other than in response to a safety issue.
- B. Start/stop times.
 1. Concrete. Concrete may be poured and concrete mixing trucks may be idled, between the hours of 4:00 a.m. and 10:00 p.m. each day from May 1 to October 15 and 5:00 a.m. and 10:00 p.m. each day from October 16 to April 30 or at such other times as authorized by permit. Permits may be requested by either the concrete vendor or jobsite contractor/finisher. Activities associated with the manufacturing, loading or pouring of concrete that are conducted within manufacturing or industrial zones are exempted from this chapter.
 2. All other construction; residential zones in or within 500 feet. All other construction work shall not begin prior to 5:00 a.m. and must stop by 10:00 p.m. each day from May 1 to October 15 and 6:00 a.m. and 10:00 p.m. each day from October 16 to April 30 in or within 500 feet of a residential zone or at such other times as authorized by permit.
 3. Commercial and industrial zones. Construction work in commercial and industrial zones not within 500 feet of a residential zone shall not begin prior to 5:00 a.m. and must stop by 10:00 p.m. or it may be conducted at such times as authorized by permit.
 4. Delivery and drop off of construction equipment/supplies. Equipment and materials may be delivered to a job site outside the listed start/stop times only when care is exercised to ensure noise levels generated by such activities are reasonable and necessary.
- C. Weekends and holidays excluded. Notwithstanding the foregoing, construction work shall not begin prior to 7:00 a.m. and must stop by 7:00 p.m. and concrete pouring shall not begin prior to 6:00 a.m. and must stop by 7:00 p.m. on any Saturday, Sunday or holiday, unless such other times are authorized by permit.
- D. Permit. Construction work may be conducted at different times than otherwise permitted herein if, upon application, a permit is obtained from the Development Services Department. The owner of the property or contractor or entity to whom the original building permit was issued is responsible for obtaining this permit. In granting such permit, the director of the Development Services Department shall consider whether construction noise in the vicinity of the proposed work site would be less objectionable at night than during the daytime because of the different population levels or different neighborhood activities; whether

obstruction and interference with traffic, particularly on streets of major importance, would be less objectionable at night than during the daytime; whether the kind of work to be performed emits noises at such a low level as to not cause significant disturbance of the reasonable peaceful enjoyment of the surrounding neighbors in the vicinity of the work site; whether the neighborhood of the proposed work site is primarily residential in character wherein sleep would be disturbed; whether great economic hardship would occur if the work were spread over a longer time; whether the work will abate or prevent hazard to life or property; whether the proposed early morning or night work is in the general public interest. The Director shall prescribe such conditions, working times, types of construction equipment to be used and permissible noise emissions as the director deems appropriate in the public interest. No permit shall be required to perform emergency work necessary to restore property to a safe condition following a public calamity, work required to protect the health, safety or welfare of persons or property or work by private or public utilities when restoring utility service.

- E. Revocation of permits; appeal. The director may revoke any permit granted hereunder upon complaints based upon substantial evidence that the construction work causes significant disturbance of the reasonable peaceful enjoyment of the surrounding neighbors in the vicinity of the work site. Any person aggrieved by the granting of a permit or the refusal to grant a permit by the director may appeal the decision to the city manager. The city manager will issue a final decision within 30 days of the appeal.
- F. Stop orders. Whenever any work on a construction project is in violation of the provisions of this section, the Development Services Department may issue a Red Tag, which is a written request to stop construction until the necessary corrections are made and/or permits are obtained.

3.4 PROJECT SIGNIFICANT THRESHOLDS

3.4.1 Traffic Noise

As described above, FHWA has established in 23 CFR 772 that noise impacts from Type I projects occur when either of two conditions occurs:

1. Future noise levels approach the NAC by 1 dBA, are equal to, or exceed the NAC: or
2. Future noise levels result in a substantial increase over the existing noise environment. A substantial increase is determined to be a 5 dBA to 15 dBA increase over existing ambient noise levels.

3.4.2 Construction Noise

As described above, the FHWA does not establish numerical criteria on nearby sensitive receivers. Therefore, this study will evaluate noise impacts of construction activities according to the FTA criteria for residential land uses, which are 90 dBA during the day and 80 dBA during the night. The Lake Havasu City ordinances provide start/stop times for all construction activities. Any construction within 500 feet of residential zones must be conducted between 5:00am to 10:00pm from May 1st to October 15th, and between 6:00am and 10:00pm from October 16th to April 30th. Any construction within 500 feet of commercial and industrial zones must be conducted between 5:00am and 10:00pm. Construction work on the weekend and holidays is restricted to 7:00am to 7:00pm.

4.0 AFFECTED ENVIRONMENT

4.1 SENSITIVE RECEIVERS

A sensitive receiver is a representative location of a noise sensitive area that may be impacted by operational and construction noise from the proposed project. Along the proposed job site several sensitive receivers were identified for evaluation. These receivers are presented in **Table 3** with their corresponding FHWA land use description and Lake Havasu City zoning designation (Lake Havasu City - Zoning & General Plan Map, 2025). A map of the receiver locations is presented in **Figure 3**. Note: NV5 did not include the Hospice of Havasu as a sensitive receiver as this location does not provide onsite medical or care services and is primarily an office location.

Table 3: Sensitive Receivers

ID	Sensitive Receiver	Address	FHWA Land Use Description ¹	LHC Zoning ²
R1	Studio 6 Hotel	1300 McCulloch Blvd N	E	MU-CRW
R2	Isleside Condos	1402 McCulloch Blvd N	B	R-M
R3	The Isles Condos	1401 McCulloch Blvd N	B	R-M
R4	Crazy Horse Campgrounds	1534 Beachcomber Blvd	C	I-B
R5	Kings View Condos	96 London Bridge Rd	B	R-M/PD
R6	Sway Hotel	101 London Bridge Rd	E	C-1
R7	Motel 6	111 London Bridge Rd	E	C-1
R8	Hampton Inn	245 London Bridge Rd	E	C-2
R9	Super 8	305 London Bridge Rd	E	C-2
R10	Rodeway Inn & Suites	335 London Bridge Rd	E	C-2
R11	Windsor Beach Condos	375 London Bridge Rd	B	R-M
Notes: ¹ Land use as defined by the United States Code of Federal Regulations Part 772 (23 CFR 772), <i>Procedures for Abatement of Highway Traffic Noise and Construction Noise</i> ² Lake Havasu City Zoning defined as: MU-CRW: Channel Riverwalk R-M: Multiple-Family R-M/PD: Multiple-Family/ PD Overlay C-1: Limited Commercial C-2: General Commercial I-B: Island – Body Beach				

Figure 3: Sensitive Receiver Map



4.2 AMBIENT NOISE ENVIRONMENT

Ambient Noise or background levels are the all-encompassing noises associated with a given environment at a specific time, usually a composite of sound from many sources from many directions, near and far without any dominant sound. The primary existing noise sources are traffic noises from surrounding roads, boats on waterways, residential activity, and animal noises.

NV5 took ambient noise level measurements at locations along the proposed road and bridge as indicated in **Figure 4**. Short-term 15-minute measurements were made during the daytime hours on May 16th and 17th, 2025. Each measurement was placed near sensitive receivers along the path of the proposed road and bridge as indicated in **Table 4** below.

Table 4: Measurement Locations

ID	Location	Sensitive Receivers Represented
ML1	Kings View Condo - 96 London Bridge Rd, Lake Havasu City, AZ 86403	Receivers R5 – R7
ML2	Crazy Horse Campgrounds - 1534 Beachcomber Blvd, Lake Havasu City, AZ 86403	Receiver R4
ML3	The Isle Condos (By Chanel) - 1401 McCulloch Blvd N, Lake Havasu City, AZ 86403	Receiver R3

ML4	Hampton Inn - 245 London Bridge Rd, Lake Havasu City, AZ 86403	Receivers R8 – R12
ML5	The Isle Condos (By Road) - 1401 McCulloch Blvd N, Lake Havasu City, AZ 86403	Receivers R1 and R2

Figure 4: Measurement Locations



All measurements were conducted using a Quest SoundPro DL-2 Sound Level Meter (SLM). The SLM was calibrated before measurements were taken and post-calibrated after measurements were completed. The measurements were made using the A-weighting scale, the SLM was placed 5 feet off the ground. A total of ten 15-minute samples were taken and analyzed with L₉₀, L_{eq} and L_{max}. The results from the ambient noise measurements are presented in **Table 5**. The full noise measurement reports can be found in Appendix A.

Table 5: Ambient Noise Measurements

ID	Sampling Location	Sample Date	Sample Time	Description	L _{eq} (dBA)	L ₉₀ (dBA)	L _{Smax} (dBA)
ML 1	King View Condo - 96 London Bridge Rd, Lake Havasu City, AZ 86403	5/16/2025	3:53pm - 4:08pm	Stationary boats playing music, one boat across the channel playing loud music, and boats driving by.	69.4	65.3	78.1
		5/17/2025	1:53pm - 2:08pm	Stationary boats playing music and boats driving by.	68.7	62.7	81.3
ML 2	Crazy Horse Campgrounds - 1534 Beachcomber Blvd, Lake Havasu City, AZ 86403	5/16/2025	5:11pm - 5:26pm	Boats driving by and dogs parking at campground	60.6	53.9	72.1
		5/17/2025	3:44pm - 3:59pm	Boats driving by.	57.5	50.7	69.6
ML 3	The Isle Condos (By Chanel) - 1401 McCulloch Blvd N, Lake Havasu City, AZ 86403	5/16/2025	4:45pm - 5:00pm	Boats driving by, boats in channel playing music, and a boat honking.	64.8	56.5	80.1
		5/17/2025	3:21pm - 3:36pm	Boats driving by and boats in channel playing music.	58.5	55	71.8
ML 4	Hampton Inn - 245 London Bridge Rd, Lake Havasu City, AZ 86403	5/16/2025	2:58pm - 3:13pm	Road traffic from passenger vehicles and box trucks, and traffic in parking lot	58.6	56.1	70.3
		5/17/2025	1:14pm - 1:29pm	Road traffic from passenger vehicles, and box trucks, and traffic in parking lot	59.5	56	70.8
ML 5	The Isle Condos (By Road) - 1401 McCulloch Blvd N, Lake Havasu City, AZ 86403	5/16/2025	6:03pm - 6:18pm	Road traffic from passenger vehicles, off-road vehicles, and helicopter.	64.5	51.4	78.2
		5/17/2025	2:45pm - 3:00pm	Road traffic from passenger vehicles, off-road vehicles, a very loud honk.	64	54.4	81.2

Notes:

dBA = A-weighted decibels

L_{eq} = Equivalent continuous level over a period of 15 minutes

L_{Smax} = The maximum Sound Level with Slow Time weighting during the measurement period

L₉₀ = A-weighted sound level of all sound associated with a given environment, exceeded 90 percent of the time. L90 refers to ambient noise level in this report.

5.0 IMPACT ANALYSIS

5.1 TRAFFIC NOISE IMPACTS

5.1.1 Traffic Noise Model (TNM)

This project is not a highway project, however as described previously, the FHWA standard will be used. The FHWA requires the use of the traffic noise model (TNM), referenced in 23 CFR 772.9(a), to predict traffic noise impacts. TNM Version 3.2 is the latest version of the noise model and was used in this study to predict traffic noise levels during peak (busiest) traffic hours for this project.

The traffic noise impact of a proposed project is determined by comparing the existing noise levels during peak hour traffic with the future noise levels at specific locations called receivers. If there is no existing traffic, ambient noise levels are measured close to impacted receivers. The TNM input data includes road centerline location and elevation (X, Y, Z), vehicle counts, vehicle speed, vehicle types, existing walls, and receiver locations. TNM uses five vehicle types for the model input: 1) light vehicles such as automobiles and light trucks, 2) medium trucks (including delivery trucks), 3) heavy trucks, 4) buses, and 5) motorcycles.

5.1.2 Methodology and Model Inputs

To evaluate noise impacts on nearby sensitive receivers, traffic noise impacts were modeled for Existing Traffic (2024), Future – No Build (2045), and Future – Build (2045). The Existing Traffic (2024), Future – No Build (2045), Future – Build (2045), and vehicle distribution were provided by GHD and are presented in **Table 6**. The traffic counts were conducted by GHD on November 21st, 2024 from 7:00 am to 9:00 am for the AM Peak Hour, from 4:00 pm to 6:00 pm for the PM Peak Hour, and on November 23rd from 11:00 am to 1:00 pm for the Saturday Peak Hour (GHD, October, 2025). The GHD technical memorandum for traffic vehicle classification concluded that 10% of vehicles on the new roadway would be heavy trucks (GHD, April, 2025). Based on this information, a split of 10% heavy trucks and 90% autos was used in the model. Vehicle speeds were based on the posted speed limits on the current roadways.

Table 6: Traffic Model Inputs

Street	Location	Direction	Existing Traffic (2024)			Future – No Build (2045)			Future – Build (2045)		
			Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
SR 95	North of Palo Verde Blvd	NB	805	755	897	862	808	960	943	872	1,066
		SB	632	953	867	676	1,020	928	753	1,116	1,034
SR 95	Palo Verde Blvd - Mesquite Ave/London Bridge Rd	NB	850	723	843	910	774	902	995	859	1,017
		SB	686	1,102	978	734	1,179	1,047	802	1,347	1,161
SR 95	South of Mesquite Ave/London Bridge Rd	NB	812	738	906	865	786	965	955	884	1,078
		SB	629	923	868	670	983	924	757	1,121	1,039
London Bridge Rd	North of Palo Verde Blvd	NB	152	220	266	271	393	475	176	265	306
		SB	199	242	241	355	432	430	224	276	275
London Bridge Rd	Palo Verde Blvd - New Roadway	NB	-	-	-	-	-	-	324	604	556
		SB	-	-	-	-	-	-	342	486	464
London Bridge Rd	New Roadway - Paseo Del Sol Ave	NB	-	-	-	-	-	-	148	305	308
		SB	-	-	-	-	-	-	167	280	289
London Bridge Rd	Palo Verde Blvd - Paseo Del Sol Ave	NB	111	189	209	130	221	244	-	-	-
		SB	146	201	193	170	235	225	-	-	-
London Bridge Rd	Paseo Del Sol Ave - Marlboro Drive	NB	99	154	174	123	191	215	170	256	292
		SB	145	246	259	179	304	321	237	410	422
London Bridge Rd	Marlboro Drive - SR 95	NB	238	391	439	295	484	543	258	428	465
		SB	208	381	409	257	472	506	219	405	434
McCullouch Blvd	SR 95 - Isleside Dr	NB	239	361	309	362	545	466	213	313	304
		SB	269	365	428	406	552	647	206	276	324

McCullouch Blvd	Isleside Dr - New Roadway	NB	-	-	-	-	-	-	139	204	198
		SB	-	-	-	-	-	-	134	180	211
McCullouch Blvd	New Roadway - Beachcomber Blvd	NB	-	-	-	-	-	-	318	476	410
		SB	-	-	-	-	-	-	354	484	566
McCullouch Blvd	Isleside Dr - Beachcomber Blvd	NB	156	235	201	236	355	303	-	-	-
		SB	175	238	279	264	359	421	-	-	-
McCullouch Blvd	South of Beachcomber Blvd	NB	117	168	145	162	233	201	239	342	297
		SB	142	180	216	197	250	300	287	367	439
Palo Verde Blvd	East of SR 95	EB	140	278	228	195	388	318	389	769	634
		WB	196	294	264	273	410	368	465	691	630
Palo Verde Blvd	SR 95 - London Bridge Rd	EB	375	454	488	435	526	566	389	492	510
		WB	293	474	522	340	549	605	308	494	544
Mesquite Ave	East of SR 95	EB	375	454	488	435	526	566	389	492	510
		WB	293	474	522	340	549	605	308	494	544
Beachcomber Blvd	West of McCullouch Blvd	EB	46	69	60	80	120	105	92	139	121
		WB	33	53	62	58	92	108	68	108	125
New Roadway	London Bridge Rd - McCulloch Blvd	NB	-	-	-	-	-	-	247	461	405
		SB	-	-	-	-	-	-	313	430	502

Eleven (11) total receivers were modeled to represent nearby sensitive receivers. Nine (9) total models were created to analyze the noise impacts during the AM Peak Hour, PM Peak Hour, and Saturday Peak Hour for the Existing Traffic (2024), Future – No Build (2045), Future – Build (2045). Results were compared between Future – No Build (2045) and Future – Build (2045) to evaluate the impact of the project related traffic on nearby receiver. Typically, the human ear can perceive an increase of 3 dBA or more, so a difference in excess of 3 dBA between the Future – No Build (2045) and Future – Build (2045) noise impacts would be considered a perceivable increase. Results were compared between future – Build (2045) and the FHWA Noise Abatement Criteria (NAC) to determine if a traffic noise impact will occur.

5.1.3 Results – Weekday AM Peak Hour

The Second Bridge project is a Type I project since it is the development of a new roadway. As such, noise levels cannot approach the NAC by 1 dBA, or meets or exceed the NAC. The predicted noise levels are presented and compared against these requirements in **Table 7** below for the AM Peak Hour. The TNM results can be found in Appendix B.

Table 7: Model Results – AM Peak Hour

Receiver	Activity Category	NAC	Existing Traffic (2024)	Future – No Build (2045)	Future – Build (2045)	Difference Future No Build Vs Build (2045)	Difference Build (2045) vs NAC	Exceeds Threshold?
R1 - Studio 6 Hotel	E	72	51.5	53.3	54.3	1.0	-17.7	No
R2 - Isleside Condos	B	67	54.2	55.8	55.6	-0.2	-11.4	No
R3 - The Isles Condos	B	67	53.1	54.4	56.7	2.3	-10.3	No
R4 - Crazy Horse Campgrounds	C	67	48.3	49.2	52.6	3.4	-14.4	No
R5 - Kings View Condos	B	67	53.8	54.7	58.6	3.9	-8.4	No
R6 - Sway Hotel	E	72	55.2	56.0	62.0	6.0	-10.0	No
R7 - Motel 6	E	72	55.8	56.5	62.4	5.9	-9.6	No
R8 - Hampton Inn	E	72	58.8	59.3	62.1	2.8	-9.9	No
R9 - Super 8	E	72	58.5	59.1	61.1	2.0	-10.9	No
R10 - Rodeway Inn & Suites	E	72	61.6	62.2	64.8	2.6	-7.2	No
R11 - Windsor Beach Condos	B	67	60.3	61.2	63.3	2.1	-3.7	No

Eleven (11) receivers analyzed for the Future – Build (2045) traffic conditions and the predicted noise levels did not approach the NAC by 1 dBA or meet or exceed the NAC.

Out of the eleven (11) receivers analyzed for the Future – Build (2045), receivers 04, 05, 06, and 07 exceeded the predicted Future – No Build (2045) by 3 dBA or more. These four receivers are along the channel and due to boat traffic and recreational activities, the ambient noise environment is significantly louder than the predicted Future – Build (2045) traffic noise due to noise sources such as loud music, boats on the channel and water noise. To further evaluate the impacts of the Future – Build (2045) traffic noise, NV5 calculated the combined noise levels of the ambient noise environment and the Future – Build (2045) traffic conditions to compare against the existing ambient noise levels. These results are presented in **Table 8**. The combined noise levels do not exceed the existing ambient noise environment by more than 3 dBA, therefore, it is not anticipated that the traffic noise will cause a perceivable increase in noise for these receivers.

Table 8: Existing Ambient vs Combined Noise Levels - AM Peak Hour

Receiver	Ambient Noise ¹	Future – Build (2045)	Combined Ambient and Future Build (2045) ²	Difference Combined vs Ambient
R4 - Crazy Horse Campgrounds	60.6	52.6	61.2	0.6
R5 - Kings View Condos	69.4	58.6	69.7	0.3
R6 - Sway Hotel	69.4	62.0	70.1	0.7
R7 - Motel 6	69.4	62.4	70.2	0.8
Notes: ¹ Ambient noise measurements taken by NV5 on May 16 th , 2025 ² Combined noise levels calculated using the following formula: $10\log_{10}(10^{(L1/10)}+10^{(L2/10)})$				

5.1.4 Results – Weekday PM Peak Hour

The Second Bridge project is a Type I project since it is the development of a new roadway. As such, noise levels shouldn't approach the NAC by 1 dBA, or meet or exceed the NAC. The predicted noise levels are presented and compared against these requirements in **Table 9** below for the PM Peak Hour. The TNM results can be found in Appendix B.

Table 9: Model Results – PM Peak Hour

Receiver	Activity Category	NAC	Existing Traffic (2024)	Future – No Build (2045)	Future – Build (2045)	Difference Future No Build Vs Build (2045)	Difference Build (2045) vs NAC	Exceeds Threshold?
R1 - Studio 6 Hotel	E	72	53.0	54.8	55.8	1.0	-16.2	No
R2 - Isleside Condos	B	67	55.7	57.4	57.2	-0.2	-9.8	No
R3 - The Isles Condos	B	67	54.5	55.9	58.5	2.6	-8.5	No
R4 - Crazy Horse Campgrounds	C	67	49.6	50.6	54.4	3.8	-12.6	No
R5 - Kings View Condos	B	67	55.4	56.3	60.5	4.2	-6.5	No
R6 - Sway Hotel	E	72	56.8	57.7	63.9	6.2	-8.1	No
R7 - Motel 6	E	72	57.4	58.2	64.4	6.2	-7.6	No
R8 - Hampton Inn	E	72	60.2	60.7	63.9	3.2	-8.1	No
R9 - Super 8	E	72	59.8	60.4	62.8	2.4	-9.2	No
R10 - Rodeway Inn & Suites	E	72	63.1	63.8	66.8	3.0	-5.2	No
R11 - Windsor Beach Condos	B	67	61.8	62.7	65.2	2.5	-1.8	No

Eleven (11) receivers analyzed for the Future – Build (2045) traffic conditions and the predicted noise levels did not approached the NAC by 1 dBA or meet or exceed the NAC.

Out of the eleven (11) receivers analyzed for the Future – Build (2045), receivers 04, 05, 06, and 07 exceeded the predicted Future – No Build (2045) by 3 dBA or more. These four receivers are along the channel and due to boat traffic and recreational activities, the ambient noise environment is significantly louder than the predicted Future – Build (2045) traffic noise due to noise sources such as loud music, boats on the channel and water noise. To further evaluate the impacts of the Future – Build (2045) traffic noise, NV5 calculated the combined noise levels of the ambient noise environment and the Future – Build (2045) traffic conditions to compare against the existing ambient noise levels. These results are presented in **Table 10**. The combined noise levels do not exceed the existing ambient noise environment by more than 3 dBA, therefore, it is not anticipated that the traffic noise will cause a perceivable increase in noise for these receivers.

Table 10: Existing Ambient vs Combined Noise Levels - PM Peak Hour

Receiver	Ambient Noise	Future – Build (2045)	Combined Ambient and Future Build (2045)	Difference Combined vs Ambient
R4 - Crazy Horse Campgrounds	60.6	54.4	61.5	0.9
R5 - Kings View Condos	69.4	60.5	69.9	0.5
R6 - Sway Hotel	69.4	63.9	70.5	1.1
R7 - Motel 6	69.4	64.4	70.6	1.2
Notes: ¹ Ambient noise measurements taken by NV5 on May 16 th , 2025 ² Combined noise levels calculated using the following formula: $10\text{Log}_{10}(10^{(L1/10)} + 10^{(L2/10)})$				

5.1.5 Results – Saturday Peak Hour

The Second Bridge project is a Type I project since it is the development of a new roadway. As such, noise levels cannot approach the NAC by 1 dBA, or meets or exceed the NAC. The predicted noise levels are presented and compared against these requirements in **Table 11** below for the PM Peak Hour. The TNM results can be found in Appendix B.

Table 11: Model Results – PM Peak Hour

Receiver	Activity Category	NAC	Existing Traffic (2024)	Future – No Build (2045)	Future – Build (2045)	Difference Future No Build Vs Build (2045)	Difference Build (2045) vs NAC	Exceeds Threshold?
R1 - Studio 6 Hotel	E	72	53.1	54.9	55.9	1.0	-16.1	No
R2 - Isleside Condos	B	67	55.8	57.4	57.3	-0.1	-9.7	No
R3 - The Isles Condos	B	67	54.6	56.0	58.6	2.6	-8.4	No
R4 - Crazy Horse Campgrounds	C	67	49.7	50.7	54.5	3.8	-12.5	No
R5 - Kings View Condos	B	67	55.6	56.5	60.6	4.1	-6.4	No
R6 - Sway Hotel	E	72	57.1	57.9	64.0	6.1	-8.0	No
R7 - Motel 6	E	72	57.6	58.4	64.4	6.0	-7.6	No
R8 - Hampton Inn	E	72	60.2	60.8	63.8	3.0	-8.2	No
R9 - Super 8	E	72	59.9	60.4	62.6	2.2	-9.4	No
R10 - Rodeway Inn & Suites	E	72	63.2	63.8	66.5	2.7	-5.5	No
R11 - Windsor Beach Condos	B	67	61.8	62.8	64.9	2.1	-2.1	No

Eleven (11) receivers analyzed for the Future – Build (2045) traffic conditions, none approached the NAC by 1 dBA or meet or exceed the NAC.

Out of the eleven (11) receivers analyzed for the Future – Build (2045), receivers 04, 05, 06, and 07 exceeded the predicted Future – No Build (2045) by 3 dBA or more. These four receivers are along the channel and due to boat traffic and recreational activities, the ambient noise environment is significantly louder than the predicted Future – Build (2045) traffic noise due to noise sources such as loud music, boats on the channel and water noise. To further evaluate the impacts of the Future – Build (2045) traffic noise, NV5 calculated the combined noise levels of the ambient noise environment and the Future – Build (2045) traffic conditions to compare against the existing ambient noise levels. These results are presented in **Table 12**. The combined noise levels do not exceed the existing ambient noise environment by more than 3 dBA, therefore, it is not anticipated that the traffic noise will cause a perceivable increase in noise for these receivers.

Table 12: Existing Ambient vs Combined Noise Levels - Saturday Peak Hour

Receiver	Ambient Noise	Future – Build (2045)	Combined Ambient and Future Build (2045)	Difference Combined vs Ambient
R4 - Crazy Horse Campgrounds	57.5	54.5	59.3	1.8
R5 - Kings View Condos	68.7	60.6	69.3	0.6
R6 - Sway Hotel	68.7	64.0	70.0	1.3
R7 - Motel 6	68.7	64.4	70.1	1.4
Notes: ¹ Ambient noise measurements taken by NV5 on May 17 th , 2025 ² Combined noise levels calculated using the following formula: $10\log_{10}(10^{(L1/10)}+10^{(L2/10)})$				

5.1.6 Traffic Noise Results Analysis

The predicted noise levels for Future Traffic – Build do not approach the Noise Abatement Criteria set by the FHWA for any of the sensitive receivers along the project site.

Future noise levels associated with the project are expected to increase by less than 5 dB for all receivers not located along the channel. For receivers situated along the channel, the bridge is anticipated to increase traffic-related noise by more than 5 dB. However, ambient noise measurements conducted by NV5 indicate that existing noise levels in these areas—primarily from boats, loud music, water movement, and public activity—already significantly exceed current traffic noise levels.

When combined with future traffic noise, the overall increase in noise levels is projected to be below 5 dB relative to existing ambient conditions. Therefore, the anticipated traffic noise increase for sensitive receivers along the project site is considered **less than significant**.

5.2 CONSTRUCTION NOISE IMPACTS

Generally, nearby receivers will perceive noise at construction sites within 250 feet of the activity. Noise impacts from construction may vary greatly depending on the duration and complexity of the project. This analysis relies on the reasonable criteria provided by the FTA for assessing construction noise impacts based on the potential for adverse community reaction in its Transit and Noise Vibration Impact Assessment Manual (Center, 2018).

Construction activities will add to the ambient noise levels during the construction phase and are anticipated to occur during the daytime hours. Construction activities on the new roadway would have a short-term noise effect on nearby receivers. Noise impacts would occur from the use of construction equipment and increase heavy vehicle traffic. The level of this effect will depend on the construction schedule, distance work is from receivers, type of equipment in use, and if equipment is used simultaneously.

Typical construction equipment described below may be used for the proposed project presented in **Table 13**. Each type of construction equipment produces maximum noise levels ($L_{\max}$) at a reference distance of 50 feet from the noise source.

Table 13. Maximum Noise Levels of Typical Construction Equipment

Type of Equipment	$L_{\max}$ at 50 feet (dBA)
Air Compressor	80
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Mobile	83
Dozer	85
Generator	82
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	80
Paver	85
Pneumatic Tool	85
Pump	77
Rail Saw	90
Scarifier	83
Scraper	85
Truck	84
$L_{\max}$: maximum sound level during a measurement period	
Source: Federal Transit Agency - Transit and Noise Vibration Impact Assessment Manual (Center, 2018)	

Noise levels for typical construction equipment for this project range from 76 dBA for concrete vibrator to 90 dBA for rail saw. Noise levels generated by construction equipment (or by any point source) decrease at a rate of approximately 6 dB per doubling of distance from the source. The Federal Transit Administration's Transit Noise and Vibration Impact Assessment Model (Center, 2018) recommends that construction noise impacts for residential land uses do not exceed 90 dBA during the daytime and 80 dBA during the nighttime. Nearby sensitive receivers may be as close as 50 feet to construction activities, therefore it is necessary to implement abatement measures to reduce noise impacts. Construction equipment that generates high levels of noise impacts, such as rail saw (90 dBA) and dozers (85 dBA) should not be operated closer than 50 feet to nearby sensitive receivers.

5.3 CONSTRUCTION NOISE MITIGATIONS MEASURES

Although increases in the noise levels due to the construction of the project are temporary, measures should be taken to minimize noise impacts. The mitigation measures presented in **Table 14** should be implemented.

Table 14: Mitigation Measures

Reference ID	Mitigation Measure
MM-NOI-1	Start/Stop Times for Construction Activities: All construction activities should occur between 5:00am – 10:00pm from May 1 st to October 15 th and 6:00am – 10:00pm from October 16 th to April 30 th when within 500 feet of a residential zone, unless otherwise granted permission by the City.
MM-NOI-2	Stationary Construction Equipment Limitations: All stationary construction equipment, such as generators and compressors, should be placed as reasonably practical from residential receivers but no closer than 50 feet to maintain noise impacts on residential sensitive receivers below 90dBA during the daytime.
MN-NOI-3	Mobile Construction Equipment Limitations: All mobile construction equipment, such as dozers and loaders, should be individually evaluated for potential impacts on nearby sensitive receivers and used at such a distance that noise impacts on residential sensitive receivers are maintained below 90 dBA during the daytime.

6.0 CONCLUSION AND RECOMMENDATIONS

The TNM predicted noise levels for the Future – Build (2045) traffic conditions during the AM, PM, and Saturday Peak Hours do not exceed the limits set forth by the FHWA. Therefore, noise mitigation is not warranted, and the traffic noise impact will be **less than significant**.

Construction activities may cause an impact on nearby receivers. It is recommended to implement the mitigation measures presented in **Table 14** to minimize impacts during the project's construction.

7.0 REFERENCES

Center, J. A. (2018). *Transit Noise and Vibration Impact Assessment Manual*. Federal Transit Administration.

GHD. (April, 2025). *Technical Memorandum*.

GHD. (October, 2025). *Intersection Volume Counts and Forecasts Technical Memorandum - Final*.

Lake Havasu City - Zoning & General Plan Map. (2025). Retrieved from <https://experience.arcgis.com/experience/3f59ecc824c04a0c9257d13db730deee/>

Lake Havasu Metropolitan Planning Organization. 2022. 2045 Regional Transportation Plan. Final Report. February. Adopted by LHMPPO Executive Board on February 8.

23 Code of Federal Regulation 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*

Lake Havasu City – Code of Ordinances 9.30.070 *Construction of Buildings and Projects*

APPENDIX A – AMBIENT NOISE MEASUREMENTS

Session Report

5/19/2025

Information Panel

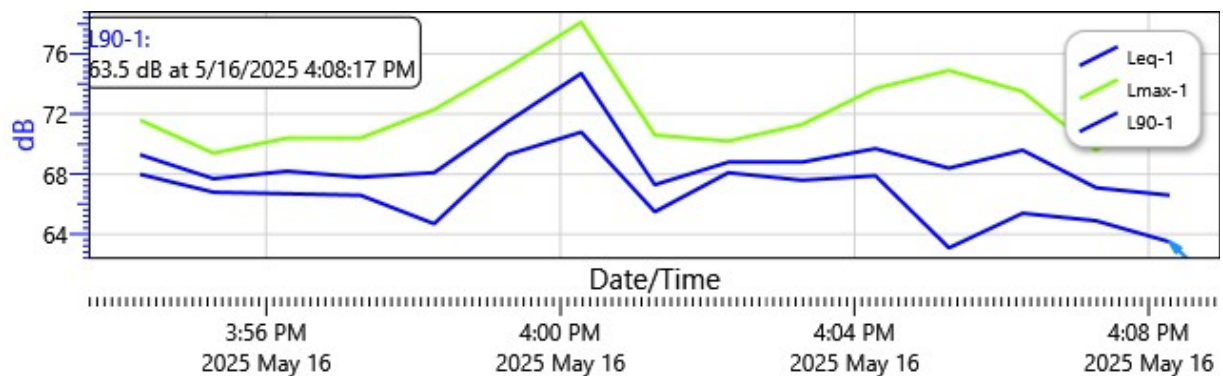
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Start Time 5/16/2025 3:53:17 PM
Stop Time 5/16/2025 4:08:17 PM
Device Name BGH020005
Model Type SoundPro DL
Device Firmware Rev R.13J
Comments ML1 - Friday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	69.4 dB	L90	1	65.3 dB
Lmax	1	78.1 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Criterion Level	1	85 dB
Criterion Time	1	8 hrs.			

Logged Data Chart

S037_BGH020005_19052025_114313: Logged Data Chart



Session Report

5/19/2025

Information Panel

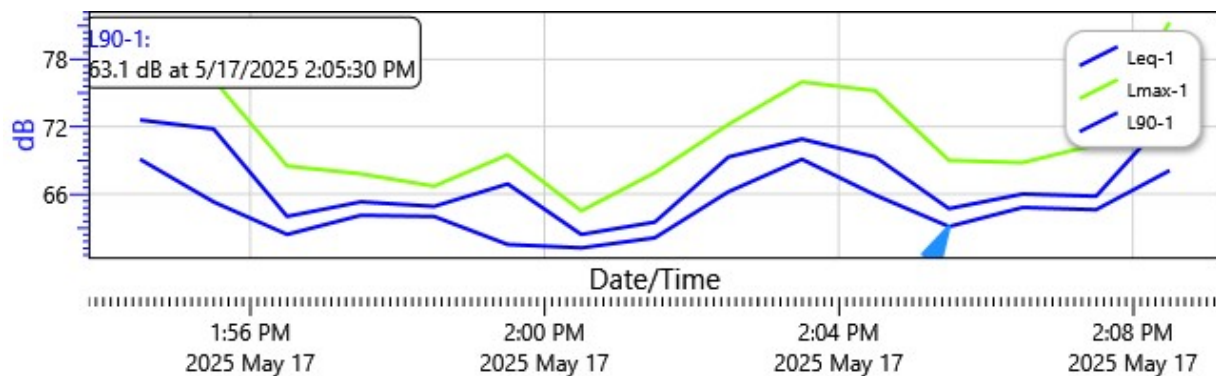
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Start Time 5/17/2025 1:53:30 PM
Stop Time 5/17/2025 2:08:30 PM
Device Name BGH020005
Model Type SoundPro DL
Device Firmware Rev R.13J
Comments ML1 - Saturday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	68.7 dB	L90	1	62.7 dB
Lmax	1	81.3 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Criterion Level	1	85 dB
Criterion Time	1	8 hrs.			

Logged Data Chart

S043_BGH020005_19052025_091219: Logged Data Chart



Session Report

5/19/2025

Information Panel

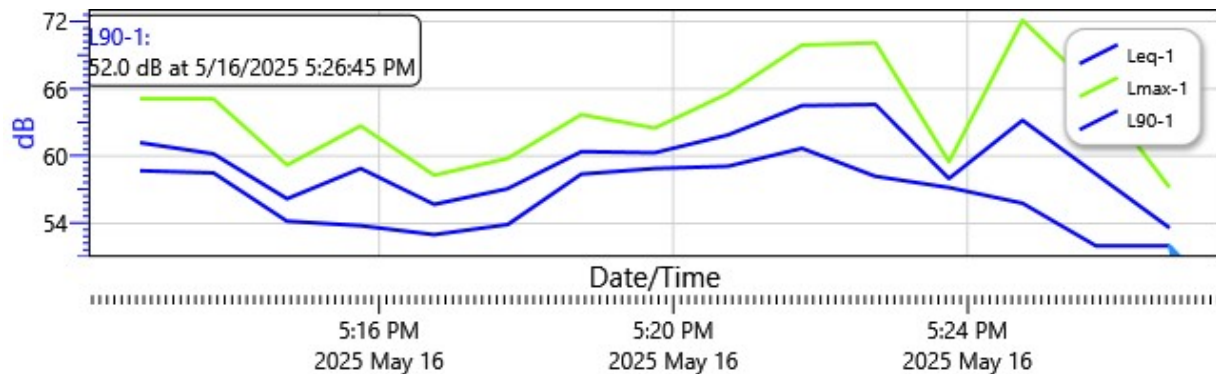
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Start Time 5/16/2025 5:11:45 PM
Stop Time 5/16/2025 5:26:45 PM
Device Name BGH020005
Model Type SoundPro DL
Device Firmware Rev R.13J
Comments ML2 - Friday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	60.6 dB	L90	1	53.9 dB
Lmax	1	72.1 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Criterion Level	1	85 dB
Criterion Time	1	8 hrs.			

Logged Data Chart

S040_BGH020005_19052025_114315: Logged Data Chart



Session Report

5/19/2025

Information Panel

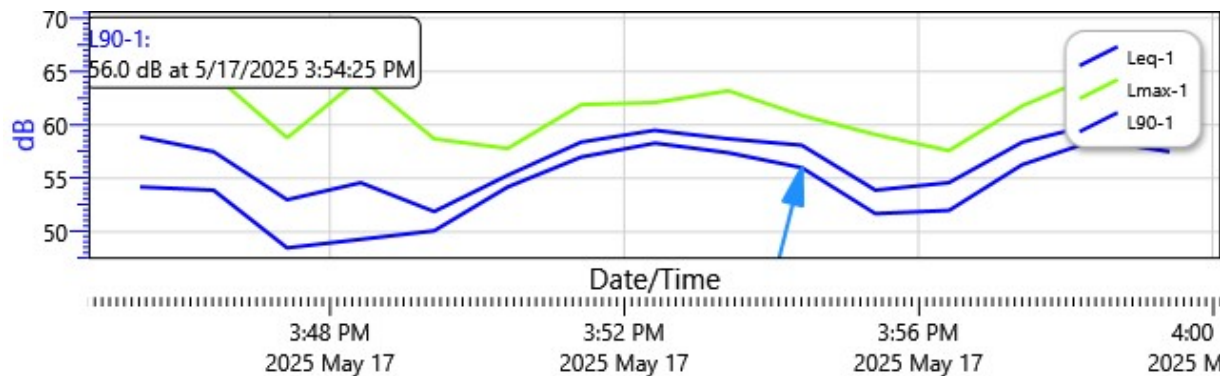
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Start Time 5/17/2025 3:44:25 PM
Stop Time 5/17/2025 3:59:25 PM
Device Name BGH020005
Model Type SoundPro DL
Device Firmware Rev R.13J
Comments ML2 - Saturday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	57.5 dB	Lmax	1	69.6 dB
L90	1	50.7 dB			
Criterion Level	1	85 dB	Exchange Rate	1	3 dB
Response	1	SLOW	Weighting	1	A
Criterion Time	1	8 hrs.			

Logged Data Chart

S046_BGH020005_19052025_091220: Logged Data Chart



Session Report

5/19/2025

Information Panel

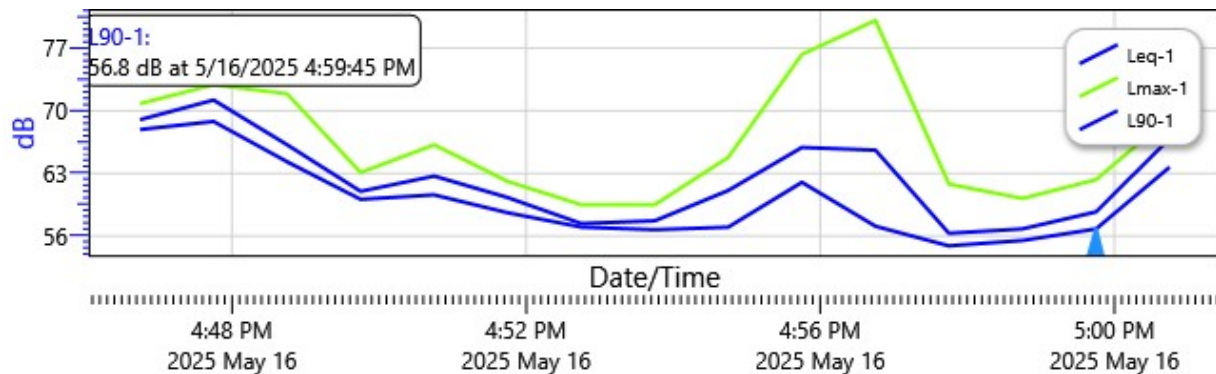
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Start Time 5/16/2025 4:45:45 PM
Stop Time 5/16/2025 5:00:45 PM
Device Name BGH020005
Model Type SoundPro DL
Device Firmware Rev R.13J
Comments ML3 - Friday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	64.8 dB	L90	1	56.5 dB
Lmax	1	80.1 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Criterion Level	1	85 dB
Criterion Time	1	8 hrs.			

Logged Data Chart

S038_BGH020005_19052025_114314: Logged Data Chart



Session Report

5/19/2025

Information Panel

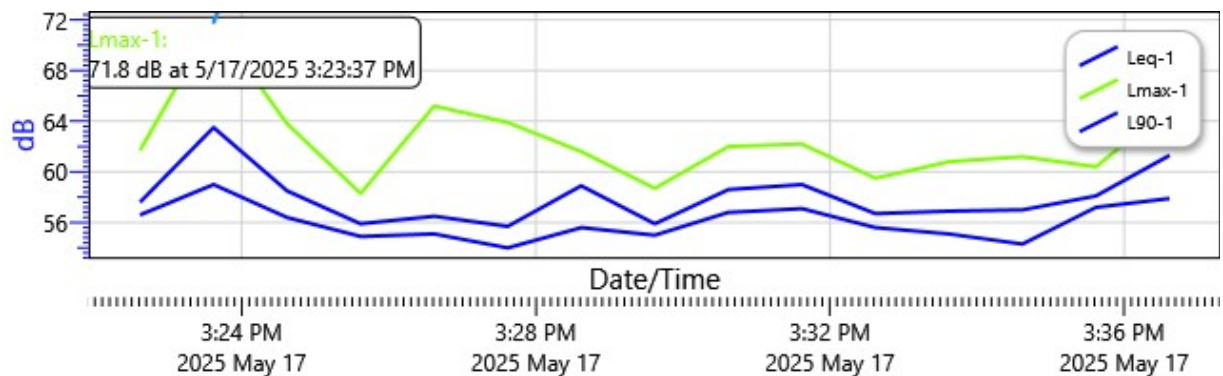
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Start Time 5/17/2025 3:21:37 PM
Stop Time 5/17/2025 3:36:37 PM
Device Name BGH020005
Model Type SoundPro DL
Device Firmware Rev R.13J
Comments ML 3 - Saturday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	58.5 dB	L90	1	55 dB
Lmax	1	71.8 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Criterion Level	1	85 dB
Criterion Time	1	8 hrs.			

Logged Data Chart

S045_BGH020005_19052025_091220: Logged Data Chart



Session Report

5/19/2025

Information Panel

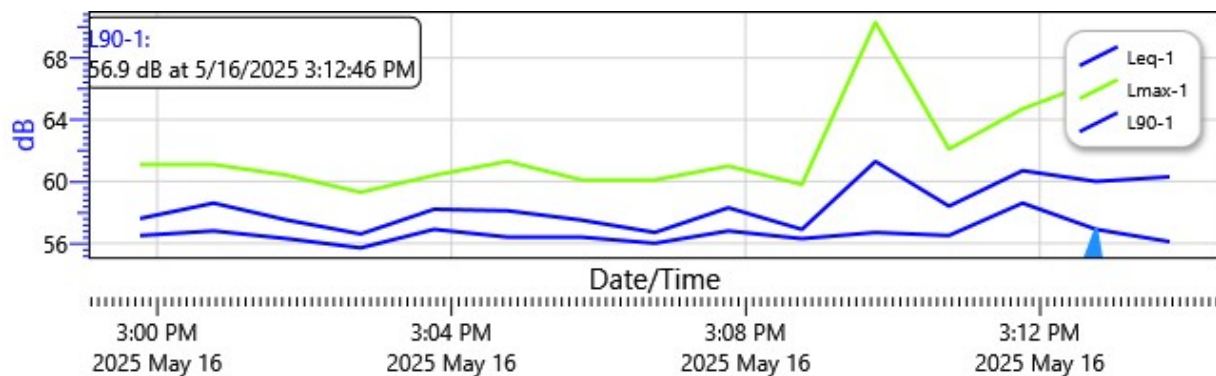
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Start Time 5/16/2025 2:58:46 PM
Stop Time 5/16/2025 3:13:46 PM
Device Name BGH020005
Model Type SoundPro DL
Device Firmware Rev R.13J
Comments ML4 - Friday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	58.6 dB	L90	1	56.1 dB
Lmax	1	70.3 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Criterion Level	1	85 dB
Criterion Time	1	8 hrs.			

Logged Data Chart

S036_BGH020005_19052025_114312: Logged Data Chart



Session Report

5/19/2025

Information Panel

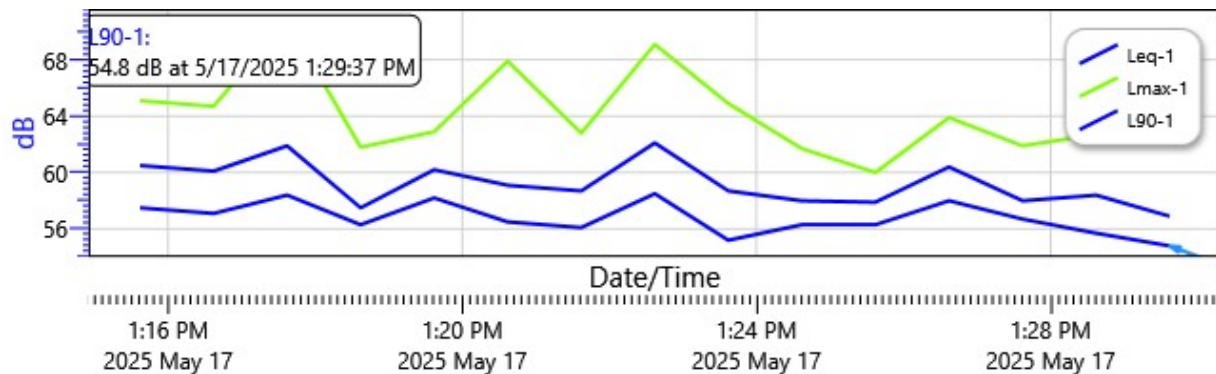
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Start Time	5/17/2025 1:14:37 PM
Stop Time	5/17/2025 1:29:37 PM
Device Name	BGH020005
Model Type	SoundPro DL
Device Firmware Rev	R.13J
Comments	ML4 - Saturday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	59.5 dB	L90	1	56 dB
Lmax	1	70.8 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Criterion Level	1	85 dB
Criterion Time	1	8 hrs.			

Logged Data Chart

S042_BGH020005_19052025_091219: Logged Data Chart



Session Report

5/19/2025

Information Panel

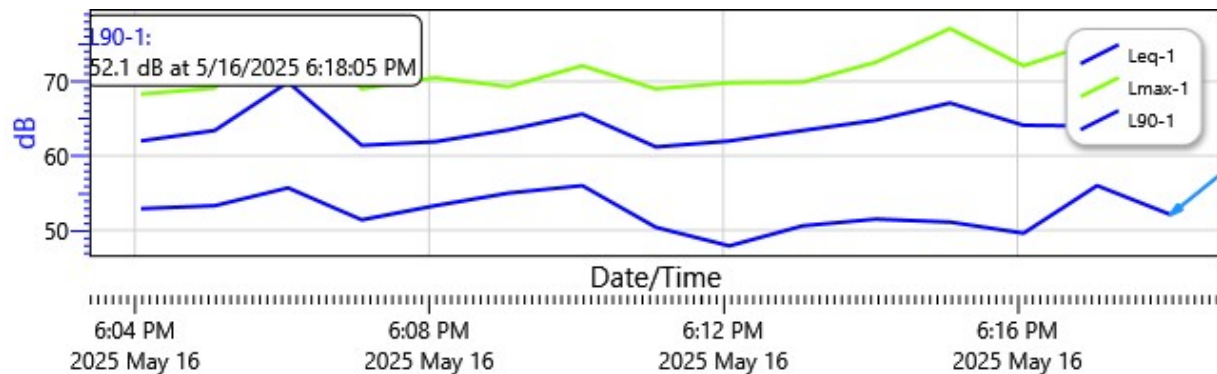
Name S041_BGH020005_19052025_114316
Start Time 5/16/2025 6:03:05 PM
Stop Time 5/16/2025 6:18:05 PM
Device Name BGH020005
Model Type SoundPro DL
Device Firmware Rev R.13J
Comments NLS - Friday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	64.5 dB	Lmax	1	78.2 dB
L90	1	51.4 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Criterion Time	1	8 hrs.
Criterion Level	1	85 dB			

Logged Data Chart

S041_BGH020005_19052025_114316: Logged Data Chart



Session Report

5/19/2025

Information Panel

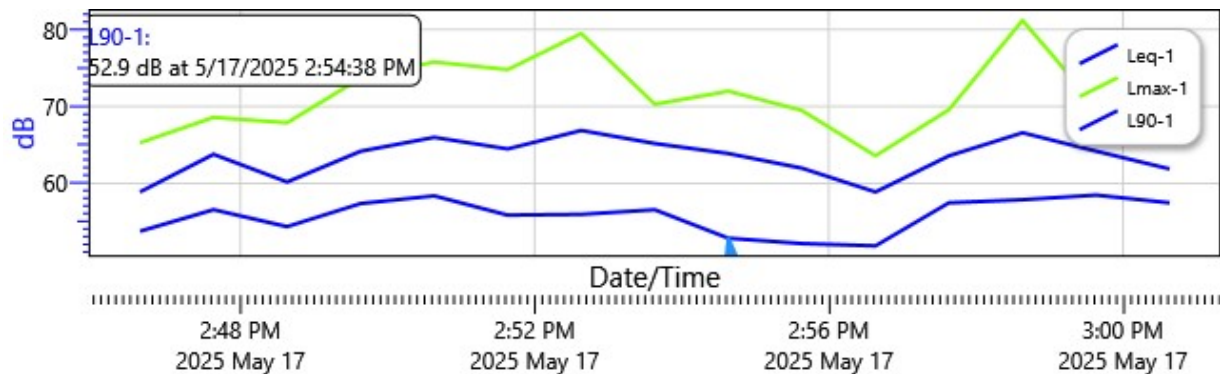
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Start Time	5/17/2025 2:45:38 PM
Stop Time	5/17/2025 3:00:38 PM
Device Name	BGH020005
Model Type	SoundPro DL
Device Firmware Rev	R.13J
Comments	MLS - Saturday

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	64 dB	L90	1	54.4 dB
Lmax	1	81.2 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Criterion Time	1	8 hrs.
Criterion Level	1	85 dB			

Logged Data Chart

S044_BGH020005_19052025_091220: Logged Data Chart



APPENDIX B – TNM MODEL RESULTS

REPORT:

Results: Sound Levels - No Barrier Objects

TNM VERSION

3.2.8741.34338

REPORT DATE:

6 October 2025

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

10/6/2025 3:26:17 PM

CASE:

Lake Havasu 2nd Bridge:
Existing Traffic (2024) -
Weekday AM

ORGANIZATION:

NV5

UNITS:

Metric

ANALYSIS BY:

Courtney.Hansen

DEFAULT GROUND TYPE:

HardSoil

PROJECT/CONTRACT

ATMOSPHERICS:

20°C, 50%

Average pavement type shall be used unless a state

PAVEMENT TYPE(S) USED:

Average

highway agency substantiates the use of a different
type with approval FHWA.

Receiver				Modeled Traffic Noise Levels				
Name	No.	Nb. R.R.	Existing LAeq					Type of Impact
				LAeq		Increase over Existing		
				Calc.	Absolute Criterion	Calc.	Relative Criterion	
			dBA	dBA	dBA	dBA		
R1 - Studio 6 Hotel	7	1	---	51.5	0.0	---	---	Sound Level
R2 - Isleside Condos	8	1	---	54.2	0.0	---	---	Sound Level
R3 - The Isles Condos	9	1	---	53.1	0.0	---	---	Sound Level
R4 - Crazy Horse Campgrounds	17	1	---	48.3	0.0	---	---	Sound Level
R5 - Kings View Condos	10	1	---	53.8	0.0	---	---	Sound Level
R6 - Sway Hotel	11	1	---	55.2	0.0	---	---	Sound Level
R7 - Motel 6	12	1	---	55.8	0.0	---	---	Sound Level
R8 - Hampton Inn	13	1	---	58.8	0.0	---	---	Sound Level
R9 - Super 8	15	1	---	58.5	0.0	---	---	Sound Level
R10 - Rodeway Inn & Suites	16	1	---	61.6	0.0	---	---	Sound Level
R11 - Windsor Beach Condos	6	1	---	60.3	0.0	---	---	Sound Level

REPORT:

Results: Sound Levels - No Barrier Objects

TNM VERSION

3.2.8741.34338

REPORT DATE:

6 October 2025

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

10/3/2025 8:54:25 AM

CASE:

Lake Havasu 2nd Bridge:
Future - No Build (2045) -
Weekday AM

ORGANIZATION:

NV5

UNITS:

Metric

ANALYSIS BY:

Courtney.Hansen

DEFAULT GROUND TYPE:

HardSoil

PROJECT/CONTRACT

ATMOSPHERICS:

20°C, 50%

Average pavement type shall be used unless a state

PAVEMENT TYPE(S) USED:

Average

highway agency substantiates the use of a different
type with approval FHWA.

Receiver				Modeled Traffic Noise Levels				
Name	No.	Nb. R.R.	Existing LAeq	LAeq		Increase over Existing		Type of Impact
				Calc.	Absolute Criterion	Calc.	Relative Criterion	
			dBA	dBA	dBA	dBA	dBA	
R1 - Studio 6 Hotel	0	0	---	53.3	0.0	---	---	Sound Level
R2 - Isleside Condos	0	0	---	55.8	0.0	---	---	Sound Level
R3 - The Isles Condos	0	0	---	54.4	0.0	---	---	Sound Level
R4 - Crazy Horse Campgrounds	0	0	---	49.2	0.0	---	---	Sound Level
R5 - Kings View Condos	0	0	---	54.7	0.0	---	---	Sound Level
R6 - Sway Hotel	0	0	---	56.0	0.0	---	---	Sound Level
R7 - Motel 6	0	0	---	56.5	0.0	---	---	Sound Level
R8 - Hampton Inn	0	0	---	59.3	0.0	---	---	Sound Level
R9 - Super 8	0	0	---	59.1	0.0	---	---	Sound Level
R10 - Rodeway Inn & Suites	0	0	---	62.2	0.0	---	---	Sound Level
R11 - Windsor Beach Condos	0	0	---	61.2	0.0	---	---	Sound Level

REPORT:

Results: Sound Levels - No Barrier Objects

TNM VERSION

3.2.8741.34338

REPORT DATE:

3 October 2025

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

10/3/2025 4:50:56 PM

CASE:

Lake Havasu 2nd Bridge:
Future - Build (2045) -
Weekday AM

ORGANIZATION:

NV5

UNITS:

Metric

ANALYSIS BY:

Courtney.Hansen

DEFAULT GROUND TYPE:

HardSoil

PROJECT/CONTRACT

ATMOSPHERICS:

20°C, 50%

Average pavement type shall be used unless a state

PAVEMENT TYPE(S) USED:

Average

highway agency substantiates the use of a different
type with approval FHWA.

Receiver				Modeled Traffic Noise Levels				
Name	No.	Nb. R.R.	Existing LAeq	LAeq		Increase over Existing		Type of Impact
				Calc.	Absolute Criterion	Calc.	Relative Criterion	
			dBA	dBA	dBA	dBA	dBA	
R1 - Studio 6 Hotel	7	1	---	54.3	0.0	---	---	Sound Level
R2 - Isleside Condos	8	1	---	55.6	0.0	---	---	Sound Level
R3 - The Isles Condos	9	1	---	56.7	0.0	---	---	Sound Level
R4 - Crazy Horse Campgrounds	17	1	---	52.6	0.0	---	---	Sound Level
R5 - Kings View Condos	10	1	---	58.6	0.0	---	---	Sound Level
R6 - Sway Hotel	11	1	---	62.0	0.0	---	---	Sound Level
R7 - Motel 6	12	1	---	62.4	0.0	---	---	Sound Level
R8 - Hampton Inn	13	1	---	62.1	0.0	---	---	Sound Level
R9 - Super 8	15	1	---	61.1	0.0	---	---	Sound Level
R10 - Rodeway Inn & Suites	16	1	---	64.8	0.0	---	---	Sound Level
R11 - Windsor Beach Condos	6	1	---	63.3	0.0	---	---	Sound Level

REPORT:

Results: Sound Levels - No Barrier Objects

TNM VERSION

3.2.8741.34338

REPORT DATE:

6 October 2025

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

10/2/2025 8:22:52 PM

CASE:

Lake Havasu 2nd Bridge:
Existing Traffic (2024) -
Weekday PM

ORGANIZATION:

NV5

UNITS:

Metric

ANALYSIS BY:

Courtney.Hansen

DEFAULT GROUND TYPE:

HardSoil

PROJECT/CONTRACT

ATMOSPHERICS:

20°C, 50%

Average pavement type shall be used unless a state

PAVEMENT TYPE(S) USED:

Average

highway agency substantiates the use of a different
type with approval FHWA.

Receiver				Modeled Traffic Noise Levels				
Name	No.	Nb. R.R.	Existing LAeq					Type of Impact
				LAeq		Increase over Existing		
				Calc.	Absolute Criterion	Calc.	Relative Criterion	
			dBA	dBA	dBA	dBA		
R1 - Studio 6 Hotel	0	0	---	53.0	0.0	---	---	Sound Level
R2 - Isleside Condos	0	0	---	55.7	0.0	---	---	Sound Level
R3 - The Isles Condos	0	0	---	54.5	0.0	---	---	Sound Level
R4 - Crazy Horse Campgrounds	0	0	---	49.6	0.0	---	---	Sound Level
R5 - Kings View Condos	0	0	---	55.4	0.0	---	---	Sound Level
R6 - Sway Hotel	0	0	---	56.8	0.0	---	---	Sound Level
R7 - Motel 6	0	0	---	57.4	0.0	---	---	Sound Level
R8 - Hampton Inn	0	0	---	60.2	0.0	---	---	Sound Level
R9 - Super 8	0	0	---	59.8	0.0	---	---	Sound Level
R10 - Rodeway Inn & Suites	0	0	---	63.1	0.0	---	---	Sound Level
R11 - Windsor Beach Condos	0	0	---	61.8	0.0	---	---	Sound Level

REPORT:

Results: Sound Levels - No Barrier Objects

TNM VERSION

3.2.8741.34338

REPORT DATE:

6 October 2025

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

10/3/2025 11:18:21 AM

CASE:

Lake Havasu 2nd Bridge:
Future - No Build (2045) -
Weekday PM

ORGANIZATION:

NV5

UNITS:

Metric

ANALYSIS BY:

Courtney.Hansen

DEFAULT GROUND TYPE:

HardSoil

PROJECT/CONTRACT

ATMOSPHERICS:

20°C, 50%

Average pavement type shall be used unless a state

PAVEMENT TYPE(S) USED:

Average

highway agency substantiates the use of a different
type with approval FHWA.

Receiver				Modeled Traffic Noise Levels				
Name	No.	Nb. R.R.	Existing LAeq	LAeq		Increase over Existing		Type of Impact
				Calc.	Absolute Criterion	Calc.	Relative Criterion	
			dBA	dBA	dBA	dBA	dBA	
R1 - Studio 6 Hotel	0	0	---	54.8	0.0	---	---	Sound Level
R2 - Isleside Condos	0	0	---	57.4	0.0	---	---	Sound Level
R3 - The Isles Condos	0	0	---	55.9	0.0	---	---	Sound Level
R4 - Crazy Horse Campgrounds	0	0	---	50.6	0.0	---	---	Sound Level
R5 - Kings View Condos	0	0	---	56.3	0.0	---	---	Sound Level
R6 - Sway Hotel	0	0	---	57.7	0.0	---	---	Sound Level
R7 - Motel 6	0	0	---	58.2	0.0	---	---	Sound Level
R8 - Hampton Inn	0	0	---	60.7	0.0	---	---	Sound Level
R9 - Super 8	0	0	---	60.4	0.0	---	---	Sound Level
R10 - Rodeway Inn & Suites	0	0	---	63.8	0.0	---	---	Sound Level
R11 - Windsor Beach Condos	0	0	---	62.7	0.0	---	---	Sound Level

REPORT:

Results: Sound Levels - No Barrier Objects

TNM VERSION

3.2.8741.34338

REPORT DATE:

6 October 2025

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

10/3/2025 2:37:59 PM

CASE:

Lake Havasu 2nd Bridge:
Future- Build (2045) -
Weekday PM

ORGANIZATION:

NV5

UNITS:

Metric

ANALYSIS BY:

Courtney.Hansen

DEFAULT GROUND TYPE:

HardSoil

PROJECT/CONTRACT

ATMOSPHERICS:

20°C, 50%

Average pavement type shall be used unless a state

PAVEMENT TYPE(S) USED:

Average

highway agency substantiates the use of a different
type with approval FHWA.

Receiver				Modeled Traffic Noise Levels				
Name	No.	Nb. R.R.	Existing LAeq	LAeq		Increase over Existing		Type of Impact
				Calc.	Absolute Criterion	Calc.	Relative Criterion	
			dBA	dBA	dBA	dBA	dBA	
R1 - Studio 6 Hotel	0	0	---	55.8	0.0	---	---	Sound Level
R2 - Isleside Condos	0	0	---	57.2	0.0	---	---	Sound Level
R3 - The Isles Condos	0	0	---	58.5	0.0	---	---	Sound Level
R4 - Crazy Horse Campgrounds	0	0	---	54.4	0.0	---	---	Sound Level
R5 - Kings View Condos	0	0	---	60.5	0.0	---	---	Sound Level
R6 - Sway Hotel	0	0	---	63.9	0.0	---	---	Sound Level
R7 - Motel 6	0	0	---	64.4	0.0	---	---	Sound Level
R8 - Hampton Inn	0	0	---	63.9	0.0	---	---	Sound Level
R9 - Super 8	0	0	---	62.8	0.0	---	---	Sound Level
R10 - Rodeway Inn & Suites	0	0	---	66.8	0.0	---	---	Sound Level
R11 - Windsor Beach Condos	0	0	---	65.2	0.0	---	---	Sound Level

REPORT:

Results: Sound Levels - No Barrier Objects

TNM VERSION

3.2.8741.34338

REPORT DATE:

6 October 2025

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

10/2/2025 8:52:13 PM

CASE:

Lake Havasu 2nd Bridge:
Existing Traffic (2024) -
Saturday

ORGANIZATION:

NV5

UNITS:

Metric

ANALYSIS BY:

Courtney.Hansen

DEFAULT GROUND TYPE:

HardSoil

PROJECT/CONTRACT

ATMOSPHERICS:

20°C, 50%

Average pavement type shall be used unless a state

PAVEMENT TYPE(S) USED:

Average

highway agency substantiates the use of a different
type with approval FHWA.

Receiver				Modeled Traffic Noise Levels				
Name	No.	Nb. R.R.	Existing LAeq	LAeq		Increase over Existing		Type of Impact
				Calc.	Absolute Criterion	Calc.	Relative Criterion	
			dBA	dBA	dBA	dBA	dBA	
R1 - Studio 6 Hotel	0	0	---	53.1	0.0	---	---	Sound Level
R2 - Isleside Condos	0	0	---	55.8	0.0	---	---	Sound Level
R3 - The Isles Condos	0	0	---	54.6	0.0	---	---	Sound Level
R4 - Crazy Horse Campgrounds	0	0	---	49.7	0.0	---	---	Sound Level
R5 - Kings View Condos	0	0	---	55.6	0.0	---	---	Sound Level
R6 - Sway Hotel	0	0	---	57.1	0.0	---	---	Sound Level
R7 - Motel 6	0	0	---	57.6	0.0	---	---	Sound Level
R8 - Hampton Inn	0	0	---	60.2	0.0	---	---	Sound Level
R9 - Super 8	0	0	---	59.9	0.0	---	---	Sound Level
R10 - Rodeway Inn & Suites	0	0	---	63.2	0.0	---	---	Sound Level
R11 - Windsor Beach Condos	0	0	---	61.8	0.0	---	---	Sound Level

REPORT:

Results: Sound Levels - No Barrier Objects

TNM VERSION

3.2.8741.34338

REPORT DATE:

6 October 2025

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

10/3/2025 11:46:17 AM

CASE:

Lake Havasu 2nd Bridge:
Future - No Build (2045) -
Saturday

ORGANIZATION:

NV5

UNITS:

Metric

ANALYSIS BY:

Courtney.Hansen

DEFAULT GROUND TYPE:

HardSoil

PROJECT/CONTRACT

ATMOSPHERICS:

20°C, 50%

Average pavement type shall be used unless a state
highway agency substantiates the use of a different
type with approval FHWA.

PAVEMENT TYPE(S) USED:

Average

Receiver				Modeled Traffic Noise Levels				
Name	No.	Nb. R.R.	Existing LAeq	LAeq		Increase over Existing		Type of Impact
				Calc.	Absolute Criterion	Calc.	Relative Criterion	
			dBA	dBA	dBA	dBA	dBA	
R1 - Studio 6 Hotel	0	0	---	54.9	0.0	---	---	Sound Level
R2 - Isleside Condos	0	0	---	57.4	0.0	---	---	Sound Level
R3 - The Isles Condos	0	0	---	56.0	0.0	---	---	Sound Level
R4 - Crazy Horse Campgrounds	0	0	---	50.7	0.0	---	---	Sound Level
R5 - Kings View Condos	0	0	---	56.5	0.0	---	---	Sound Level
R6 - Sway Hotel	0	0	---	57.9	0.0	---	---	Sound Level
R7 - Motel 6	0	0	---	58.4	0.0	---	---	Sound Level
R8 - Hampton Inn	0	0	---	60.8	0.0	---	---	Sound Level
R9 - Super 8	0	0	---	60.4	0.0	---	---	Sound Level
R10 - Rodeway Inn & Suites	0	0	---	63.8	0.0	---	---	Sound Level
R11 - Windsor Beach Condos	0	0	---	62.8	0.0	---	---	Sound Level

REPORT:

Results: Sound Levels - No Barrier Objects

TNM VERSION

3.2.8741.34338

REPORT DATE:

6 October 2025

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

10/3/2025 4:18:17 PM

CASE:

Lake Havasu 2nd Bridge:
Future - Build (2045) -
Saturday

ORGANIZATION:

NV5

UNITS:

Metric

ANALYSIS BY:

Courtney.Hansen

DEFAULT GROUND TYPE:

HardSoil

PROJECT/CONTRACT

ATMOSPHERICS:

20°C, 50%

Average pavement type shall be used unless a state

PAVEMENT TYPE(S) USED:

Average

highway agency substantiates the use of a different
type with approval FHWA.

Receiver				Modeled Traffic Noise Levels				
Name	No.	Nb. R.R.	Existing LAeq	LAeq		Increase over Existing		Type of Impact
				Calc.	Absolute Criterion	Calc.	Relative Criterion	
			dBA	dBA	dBA	dBA	dBA	
R1 - Studio 6 Hotel	0	0	---	55.9	0.0	---	---	Sound Level
R2 - Isleside Condos	0	0	---	57.3	0.0	---	---	Sound Level
R3 - The Isles Condos	0	0	---	58.6	0.0	---	---	Sound Level
R4 - Crazy Horse Campgrounds	0	0	---	54.5	0.0	---	---	Sound Level
R5 - Kings View Condos	0	0	---	60.6	0.0	---	---	Sound Level
R6 - Sway Hotel	0	0	---	64.0	0.0	---	---	Sound Level
R7 - Motel 6	0	0	---	64.4	0.0	---	---	Sound Level
R8 - Hampton Inn	0	0	---	63.8	0.0	---	---	Sound Level
R9 - Super 8	0	0	---	62.6	0.0	---	---	Sound Level
R10 - Rodeway Inn & Suites	0	0	---	66.5	0.0	---	---	Sound Level
R11 - Windsor Beach Condos	0	0	---	64.9	0.0	---	---	Sound Level

Appendix G. Visual Contrast Rating Worksheets



Location of Key Observation Points

SECTION D. (Continued)

Comments from item 2.

The vantage point from KOP 1 will generally be briefly observed by most of the traveling public. However, it is acknowledged that this view creates the most prominent observation of the new construction, and the new bridge. The existing character of the landscape is largely retained given the presence of the existing bridge roadway over the Bridgewater Channel crossing. While the elevation of the new roadway and bridge and the overall form of the roadway approaches and intersections contrast with the form and line of the existing landscape, proposed modifications should not attract the attention of the casual observer over time once the disturbance areas are stabilized with final landscape design features. With BLM visual resource BMPs in place, proposed modifications are in keeping with the character of the existing roadway and will ultimately provide an overall weak-to-moderate contrast with the existing landscape.

Additional Best Management Practices

1. Materials and surface treatments shall repeat and/or blend with the existing form, line, color, and texture of the landscape.
2. Native seed mix shall be incorporated into the landscape design of fill slopes as possible to minimize contrast with existing landscape.
3. Visual impact BMPs, mitigation objectives, and activities shall be discussed with equipment operators before construction activities begin to ensure compliance with the establishment of vegetation.
4. Signage and markers should be minimized. Markers shall be only as tall as necessary to be seen and those along roads should be installed parallel to travel.



KOP 1: Photorealistic Simulation

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 10/20/2025

District Office: Colorado River

Field Office: Lake Havasu

Land Use Planning Area: Lake Havasu Field Office RMP

SECTION A. PROJECT INFORMATION

1. Project Name Second Bridge Lake Havasu City EA	4. KOP Location (T.R.S) T13N R20W S15	5. Location Sketch See EA
2. Key Observation Point (KOP) Name: KOP 2 (Viewpoint 2) - View to Northwest		
3. VRM Class at Project Location: Unknown. VRI Class: IV. Scenic Quality Rating: C. Sensitivity Value: Moderate.	(Lat. Long) 34 28 21.86 / 114 20 55.29	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Land: Flat to rolling, transitioning to prominent mountain range with rounded transitions. Water: navigable canal.	Rounded forms of creosote bush and mesquites, vertical form (columnar) of palms.	Vertical, geometric buildings and residences, vertical utility poles, flat roads.
LINE	Land: Undulating to broken and intersecting as landforms meet. Water: linear canal with mild meander.	Some broken areas due to off-road paths, some linear striations along drainages, the canal, and formal roads & walkways.	Sinuous as canal, roadways, and walkways move through the landscape.
COLOR	Land: Overall light brown to khaki and cream, with areas of reddish-brown in foreground. Water: Blue-green.	Olive green to dark green, patches of light green in foreground.	Gray of paved surface road with white pavement of walking paths, khaki of road shoulders and bridge facade.
TEXTURE	Land: Generally smooth with abrupt changes at canal and mountains. Water: smooth to rippled.	Stippled to patchy in foreground, more dense closer to canal.	Angular; intermittent to continuous.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Geometric	NA	Vertical, lightly curved, geometric, low stature.
LINE	Distinctive edges.	Defined edge near roadway.	Angular to horizontal and vertical.
COLOR	Light brown to khaki.	NA	Gray to near white of road and pavement, light brown, khaki, desert earth tones on bridge facade.
TEXTURE	Soft and smooth.	NA	Smooth

SECTION D. CONTRAST RATING SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST		FEATURES												2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverses side)
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	
ELEMENTS	FORM			☒				☒				☒		3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverses side)
	LINE			☒				☒				☒		
	COLOR			☒				☒				☒		
	TEXTURE			☒				☒				☒		
														Evaluator's Names : R. Stolpe Date 10/20/2025

SECTION D. (Continued)

Comments from item 2.

The vantage point from KOP 2 will generally be viewed by boaters and users of the pedestrian path alongside Bridgewater Channel. The existing character of the landscape is generally retained with the exception of the new bridge and roadways. The road surfaces will be less visible from the channel and pedestrian path than from KOP 1. The view from KOP 2 will mimic the view from a location on the channel or pedestrian path just southeast of London Bridge but and also looking northwest. The design of the Second Bridge, approaches, and roadways maintain the character of the existing bridge and roadways.

Additional Best Management Practices

1. Materials and surface treatments shall repeat and/or blend with the existing form, line, color, and texture of the landscape.
2. Native seed mix shall be incorporated into the landscape design of fill slopes as possible to minimize contrast with existing landscape.
3. Visual impact BMPs, mitigation objectives, and activities shall be discussed with equipment operators before construction activities begin to ensure compliance with the establishment of vegetation.
4. Signage and markers should be minimized. Markers shall be only as tall as necessary to be seen and those along roads should be installed parallel to travel.



KOP 2: Photorealistic Simulation

SECTION D. (Continued)

Comments from item 2.

The vantage point from KOP 3 will generally be viewed by boaters and users of the pedestrian path alongside Bridgewater Channel. The existing character of the landscape is generally retained with the exception of the new bridge and roadways. The road surfaces will be less visible from the channel and pedestrian path than from KOP 1. The view from KOP 3 will mimic the view from a location on the channel or pedestrian path just northwest of London Bridge but and also looking southeast. The design of the Second Bridge, approaches, and roadways maintain the character of the existing bridge and roadways.

Additional Best Management Practices

1. Materials and surface treatments shall repeat and/or blend with the existing form, line, color, and texture of the landscape.
2. Native seed mix shall be incorporated into the landscape design of fill slopes as possible to minimize contrast with existing landscape.
3. Visual impact BMPs, mitigation objectives, and activities shall be discussed with equipment operators before construction activities begin to ensure compliance with the establishment of vegetation.
4. Signage and markers should be minimized. Markers shall be only as tall as necessary to be seen and those along roads should be installed parallel to travel.



KOP 3: Roadway Improvements Not Visible