

Executive Summary

Introduction

This proposed project involves traffic improvements to United States Highway 93 (U.S. 93) in the Boulder City, Nevada, area. The proposed project limits are between a western boundary at the end of Interstate 515 (I-515) on U.S. 93/95 in Henderson near the Foothills grade separation approximately 1.6 kilometers (km) (1 mile) north of the Railroad Pass Hotel and Casino, and an eastern boundary on U.S. 93, approximately 7.5 km (4.7 miles) east of downtown Boulder City. The eastern boundary is coincident with the western end of the U.S. 93 Hoover Dam Bypass project. The Boulder City/U.S. 93 Corridor Study covers a total distance of approximately 16.7 km (10.4 miles) on U.S. 93 (Figure 1-1).

U.S. 93 is a major regional commercial corridor for interstate and international commerce and is the single route through Boulder City, functioning as a major urban arterial. It is a direct north-south link between Phoenix and Las Vegas, which are two of the fastest-growing areas in the United States (U.S.); and carries 32,000 vehicles per day (average annual daily traffic [AADT]) of east-west traffic from Interstate 40 (I-40) to Las Vegas and Interstate 15 (I-15). U.S. 93, in combination with I-19 (Nogales to Tucson) and I-10 (Tucson to Phoenix), create a continuous Canada-to-Mexico (CANAMEX) corridor. In Nevada, U.S. 93/U.S. Highway 95 (U.S. 95) is a four-lane divided facility from Las Vegas to the west study limits. Within the study corridor, U.S. 93 varies from a four-lane divided roadway to a two-lane roadway with numerous business driveways and cross streets.

The Federal Highway Administration (FHWA), in cooperation with the Nevada Department of Transportation (NDOT) and the Project Management Team (PMT), which includes the City of Boulder City, the City of Henderson, Bureau of Reclamation (Reclamation), the Regional Transportation Commission of Southern Nevada (RTC), Clark County Department of Public Works, National Park Service (NPS), Western Area Power Administration (WAPA), and Bureau of Land Management (BLM), is studying the Boulder City/U.S. 93 corridor and has prepared this Environmental Impact Statement (EIS) for a proposed project to improve this transportation corridor, located in Clark County, Nevada. The highway project would provide overall transportation improvements to reduce traffic congestion and crashes and enhance regional mobility, while maintaining or improving local circulation and access within Boulder City. This could be accomplished by either-widening and upgrading existing U.S. 93, or by realigning U.S. 93 as a new highway north or a new highway south of the present highway.

Scoping and Public Involvement

Following publication of a Notice of Intent (NOI), which appeared in the *Federal Register* on February 2, 2000, FHWA and NDOT initiated the NEPA process and began the scoping for the proposed project. An agency scoping meeting was held on February 22, 2000, in Las Vegas. Attendees were given an overview of the proposed project and asked to

present their agency's concerns, special requirements, and information pertinent to the corridor study. Agencies were also encouraged to prepare written responses to FHWA. Subsequent interviews with other community members and meetings with interested members of the public, the Boulder City Chamber of Commerce, members of the Boulder City and City of Henderson City Councils, and other organizations also occurred during this scoping period.

FHWA and NDOT completed and approved the Draft Environmental Impact Statement (DEIS) for public review on March 4, 2002. The DEIS was circulated to the public on March 15, 2002, with publication of the Notice of Availability in the *Federal Register*. A public hearing to formally introduce the Boulder City/U.S. 93 Corridor Study DEIS was held on April 4, 2002, at the Boulder City Parks and Recreation Center in Boulder City, with 278 in attendance. Written comments, plus court reporter transcripts of oral comments received at the hearing, are included in Volume II of this final EIS (FEIS). The entire DEIS was also accessible on the project web site. The initial 45-day public comment period was extended by 12 days, and the public comment period closed on May 10, 2002 (see Volume II for a full description of the DEIS public input process, the comments received, and the responses to comments).

Public outreach and agency consultations have been ongoing and have taken numerous forms, depending on the circumstances. The public outreach process will continue through completion and approval of the Record of Decision (ROD) by FHWA. Statements on the FEIS will be accepted by FHWA and considered in the decision on this proposed action. The FEIS is being distributed for a minimum 30-day review and comment period.

The following is a list of some of the public outreach activities and processes undertaken for this corridor study through the various stages of the project:

- Public Meetings/Open House Forums
- Public and Agency Chartering Meeting
- Presentations at City Council and County Commission Meetings
- Presentations to Stakeholder Groups
- Boulder City Cable Television Programs
- Community Working Group Meetings
- Project Web Page
- Project Newsletters
- Project E-Mail Box
- Project Hot-line

The Project Web Page can be accessed at <http://www.bouldercitystudy.com>.

Summary of Alternatives Considered

Corridor alternatives were developed based on the problems and potential solutions identified by the residents of Boulder City and the City of Henderson at two public meetings in January and April 2000 in Boulder City, as well as an agency scoping meeting and monthly PMT meetings. A combination of public involvement input, engineering, and environmental baseline analysis efforts was used to identify 35 alignment segments,

totaling over 640 km (400 miles). These initial alignments were described by segment so that different logical segment combinations yielded over 40 potential build alternatives. These alternatives were then screened with the goal of identifying routes that addressed the issues developed through the NEPA scoping process, as well as avoided or minimized a large proportion of potential environmental impacts. The screening included a comparative evaluation of social, environmental, and engineering considerations raised during the initial scoping process. This process reduced the number of reasonable and feasible alternatives to 16.

The remaining 16 alternative corridors were grouped into three categories. The alternatives aligned through the River Mountains were designated as the Northern Alternative (NA). The alternatives aligned through the developed areas of Boulder City were designated as Through-Town Alternatives (TAs); these included both a transportation systems management (TSM) alternative and a U.S. 93 improved alternative that provides grade separations at key intersections and an overall widening of the roadway. The alternatives aligned south of the Boulder City Airport and wastewater treatment facility were designated as the Southern Alternatives (SA).

Preliminary horizontal and vertical alignments for each of the corridor alternatives were prepared, based on minimizing cuts and fills along the roadway. The alignments conformed to the corridor topography, existing drainage patterns, local traffic circulation, and utilized American Association of State Highway and Transportation Officials (AASHTO) design guidelines. The PMT developed a set of 30 criteria against which to evaluate these 16 alignments. These criteria addressed accessibility, operations, safety/design, environmental impacts, socioeconomic impacts, and implementation.

Description of Proposed Alternatives

Based on a comprehensive review of the evaluation results, the PMT eliminated all but four alternatives (three build plus a “no-build” alternative) from further consideration during several workshop meetings of the PMT in June and July 2000. After eliminating corridor alternatives based on the criteria screening, the PMT concurred upon the following four alternatives (Figure ES-1) from the 16 evaluated as the most reasonable and feasible to carry into detailed evaluation in the EIS:

- Alternative A – No Build
- Alternative B – Existing U.S. 93 Expressway (with arterial and freeway segments)
- Alternative C – Through-Town Freeway Alignment
- Alternative D – Southern Freeway Alignment

The four alternatives subjected to detailed study (including the No Build Alternative) were developed to a comparable level of detail in the DEIS to analyze their comparative merits and impacts. The identification of a preferred alternative was not made until the impacts of the alternatives, along with comments on the DEIS and from the public hearings, were fully evaluated.

Alternative A (No Build)

This alternative assumes that no geometric improvements are made to the present-day roadway network within the study limits, except for expansion of U.S. 93 to a three-lane roadway section with a new westbound lane between the Hoover Dam Bypass tie-in and Lakeshore Road. All intersections are assumed to remain unsignalized except for the signalized intersections at Railroad Pass, Veterans Memorial Drive, and Buchanan Boulevard.

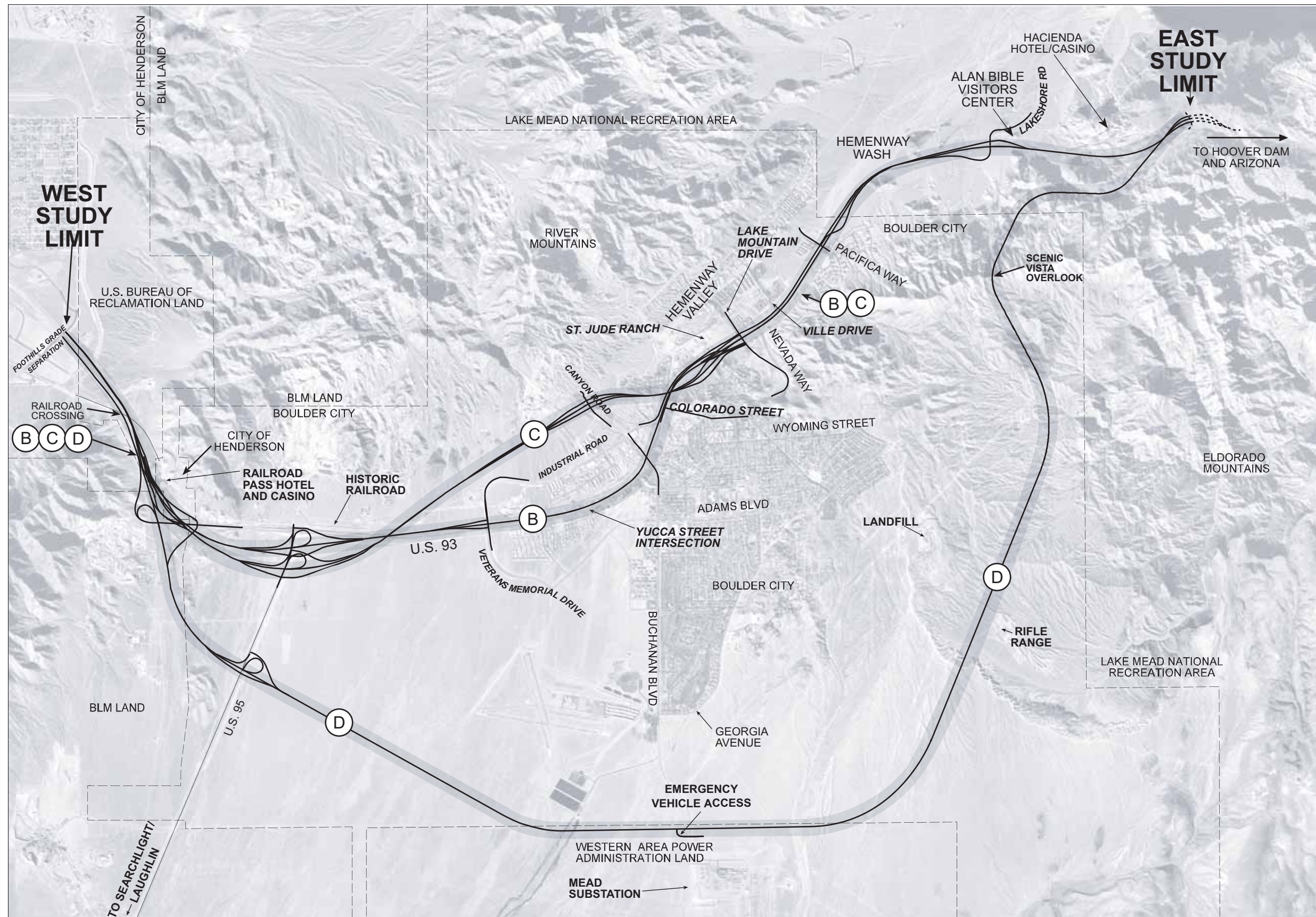
Alternative B

This build alternative is proposed as a freeway and arterial improvement combination that includes a general widening of U.S. 93 and other roadway improvements within the study limits (Figure ES-2). The goal of the alternative is to make improvements to the present 17.7 km (11 miles) of roadway, mostly within the U.S. 93 corridor. The proposed improvements consist primarily of a new four-lane divided freeway beginning from the Foothills grade separation, crossing under the Boulder City Branch Railroad, and continuing just south of the existing highway to a new diamond interchange near the Railroad Pass Hotel and Casino. From there, the freeway continues to just east of a half-diamond interchange at Veterans Memorial Drive. The U.S. 93/95 interchange would be replaced by a new, higher-capacity interchange. A six-lane principal urban arterial would extend from east of the new half-diamond interchange at Veterans Memorial Drive to Colorado Street, with a new traffic signal at an improved Buchanan Boulevard/U.S. 93 intersection. There would be a four-lane median barrier divided freeway through Hemenway Valley to the eastern project limit, with existing U.S. 93 converted to a frontage road and interchanges at Lake Mountain Drive, Pacifica Way, and Lakeshore Road. The freeway would tie in to the U.S. 93 Hoover Dam Bypass Nevada Interchange.

The total estimated cost of this alternative is \$220 million (in year 2002 dollars). The cost elements include construction, right-of-way, utilities, engineering, construction administration, and contingencies.

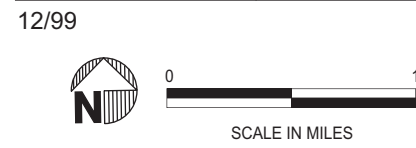
Alternative C

Alternative C would be a new through-town freeway connecting the western and eastern study limits of the project (Figure ES-3). It would consist of a continuous four-lane, controlled-access freeway parallel to existing U.S. 93. Alternative C would be a divided freeway from the Foothills grade separation to the west end of Hemenway Valley, and from there it would be a barrier-median freeway to the eastern project limit. The alignment begins at the Foothills grade separation, crosses under the existing railroad, and continues just south of the existing highway to a new interchange near the Railroad Pass Hotel and Casino. From there, the freeway continues to the east to approximately 0.8-km (0.5-mile) south of the U.S. 93/95 interchange. The existing U.S. 93/95 interchange would be replaced by a new, higher-capacity interchange. After the alignment turns north, crossing underneath U.S. 93, it runs parallel to and north of Industrial Road along the transmission line corridor. A new interchange would be provided at Canyon Road. This alternative meets existing U.S. 93 at the west end of Hemenway Wash and, from there, generally follows the Alternative B alignment in the Hemenway Valley area with interchanges at Lake Mountain Drive, Pacifica Way, and Lakeshore Road. The freeway would tie in to the U.S. 93 Hoover Dam Bypass Nevada Interchange.



LEGEND

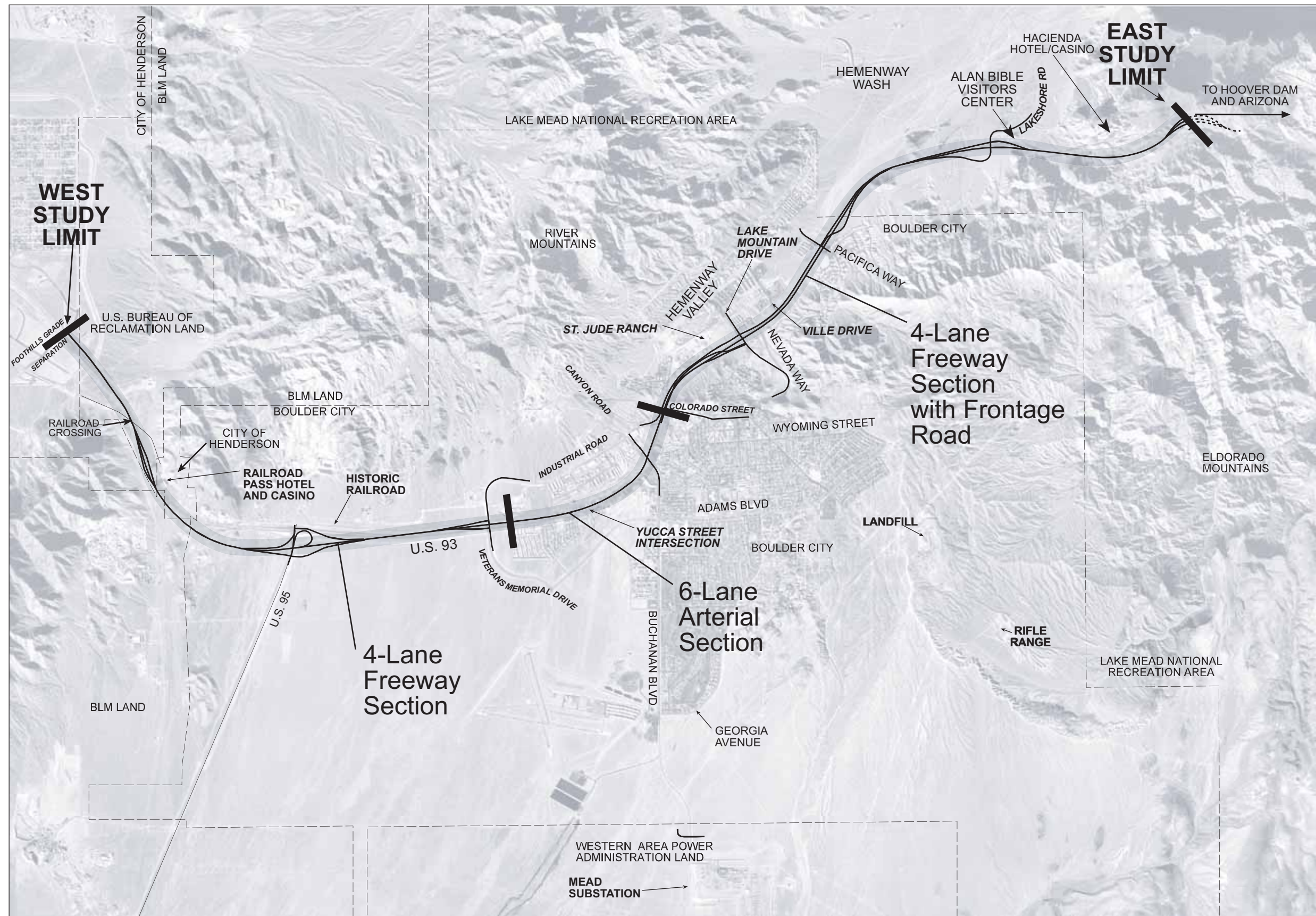
- (A)** EXISTING U.S. 93 (NO BUILD ALTERNATIVE)
- (B)** ALTERNATIVE B - IMPROVEMENTS TO THE EXISTING U.S. 93 ALIGNMENT
- (C)** ALTERNATIVE C - THROUGH TOWN ALIGNMENT
- (D)** ALTERNATIVE D - SOUTHERN ALIGNMENT



(A) NO IMPROVEMENTS TO EXISTING U.S. 93

**FIGURE ES-1
ALTERNATIVES UNDER
CONSIDERATION**
BOULDER CITY/U.S. 93 CORRIDOR STUDY
ENVIRONMENTAL IMPACT STATEMENT

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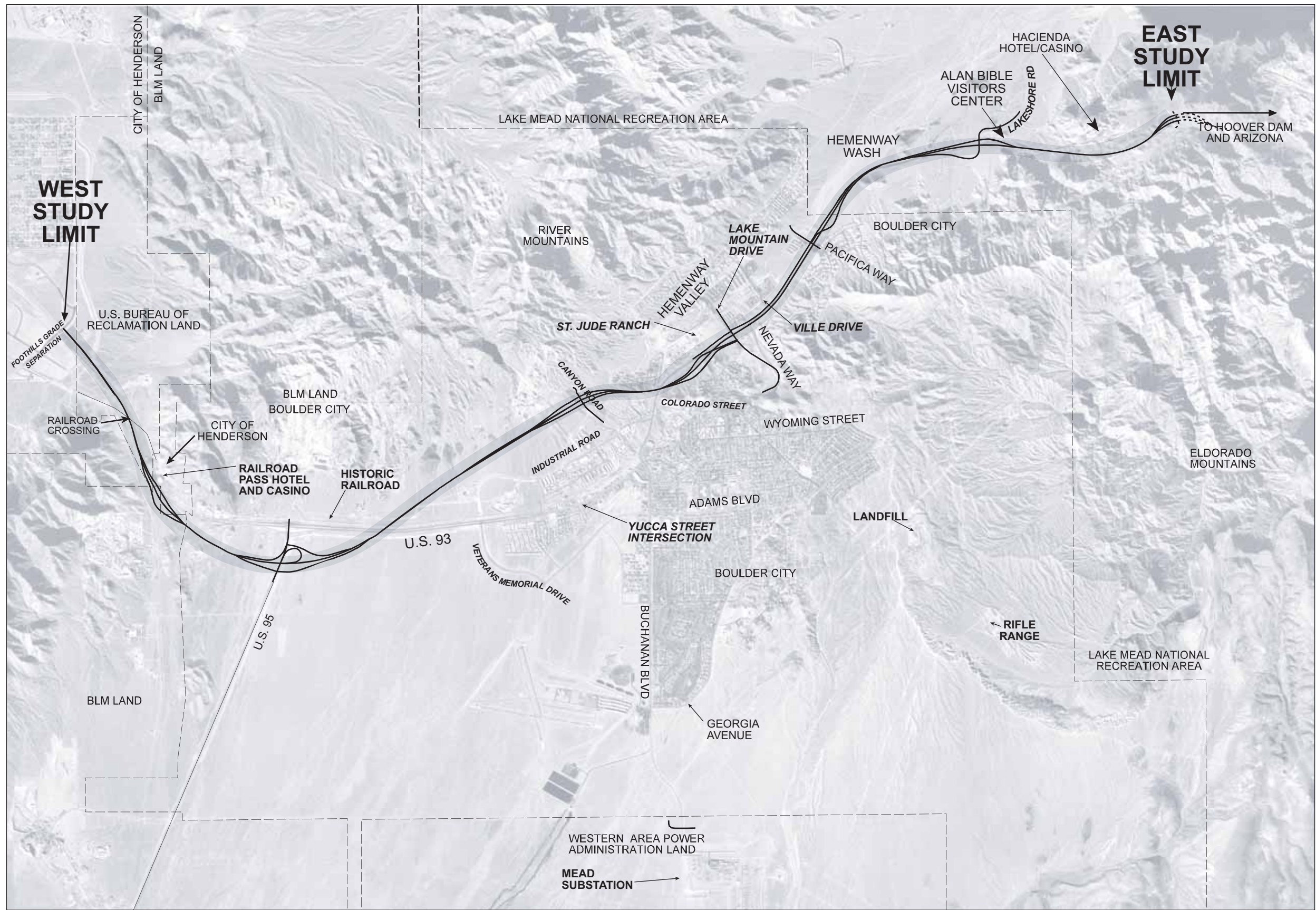


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**FIGURE ES-2
ALTERNATIVE B**
BOULDER CITY/U.S. 93 CORRIDOR STUDY
ENVIRONMENTAL IMPACT STATEMENT

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**FIGURE ES-3
ALTERNATIVE C**
BOULDER CITY/U.S. 93 CORRIDOR STUDY
ENVIRONMENTAL IMPACT STATEMENT

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The proposed freeway would be approximately 17.7 km (11 miles) in length.

The total estimated cost of this alternative is \$220 million (in year 2002 dollars). The cost elements include construction, right-of-way, utilities, engineering, construction administration, and contingencies.

Alternative D (Preferred Alternative)

The preferred Alternative D is proposed as a southern bypass of Boulder City connecting the western and eastern study limits of the project (Figure ES-4). Upon completion, it would consist of a continuous four-lane, controlled-access divided freeway and highway bypassing the developed area of Boulder City to the south. The alignment begins at the Foothills grade separation, crosses under the Boulder City Branch Railroad, and continues just south of the highway to a new interchange near the Railroad Pass Hotel and Casino. From there, the freeway continues south and east to U.S. 95 with a new interchange approximately 1.9 km (1.2 miles) south of the present U.S. 93/95 interchange. The highway alignment then continues south and east toward the WAPA Mead Substation. The alignment runs approximately 1.4 km (0.85-mile) south of Georgia Avenue, just north of the Mead Substation, and then turns to run parallel to the transmission corridor between the landfill and the Boulder City Rifle and Pistol Club range prior to crossing a ridge representing an western extension of the Eldorado Mountains, called here the Eldorado Ridge, east of Boulder City (Figure ES-4). The highway will be developed as a limited access undivided highway from Georgia Avenue to the Hoover Dam Bypass Nevada Interchange. The highway would tie in to the U.S. 93 Hoover Dam Bypass Nevada Interchange.

There would be no public access to or from the highway near the Mead Substation. At Buchanan Boulevard, an emergency access ramp for fire, police, and other emergency vehicles would be constructed. Its use would be controlled by NDOT, and it would not be available to the public. It will be approximately 205 m (670 ft) long, and 15 m (50 ft) wide, and have locked gates at the entrance and at the connection to the highway. This facility would also accommodate special large-equipment deliveries to the Mead Substation, alleviating the need for these shipments to be transported through Boulder City to reach the substation. Alternative D would be approximately 24 km (15 miles) in length.

The total estimated cost of this alternative is approximately \$345 million (in year 2002 dollars). The cost elements include construction, right-of-way, utilities, engineering, construction administration, and contingencies.

A detailed discussion of the screening and evaluation criteria used to identify Alternative D as the preferred alternative is found in Section 2.6 of this FEIS. Compared to the other build alternatives, it would (1) result in fewer noise, air quality, visual, and social impacts to Boulder City; (2) result in less impacts to cultural resources; (3) cause less disruption of the existing corridor during construction; and (4) more effectively provide for flexible staging of construction. Alternative D also best meets the Purpose and Need compared to the other alternatives. Compared to the other build alternatives, Alternative D would result in more impacts to biological resources, to jurisdictional waters of the U.S., and to the LMNRA.

Environmental Impacts and Mitigation Measures

Table ES-1 summarizes the potential environmental and socioeconomic impacts of the four project alternatives. Where applicable, the impacts are categorized by either the construction or operational phases of project implementation. Appropriate mitigation measures to avoid or minimize adverse impacts are also summarized.

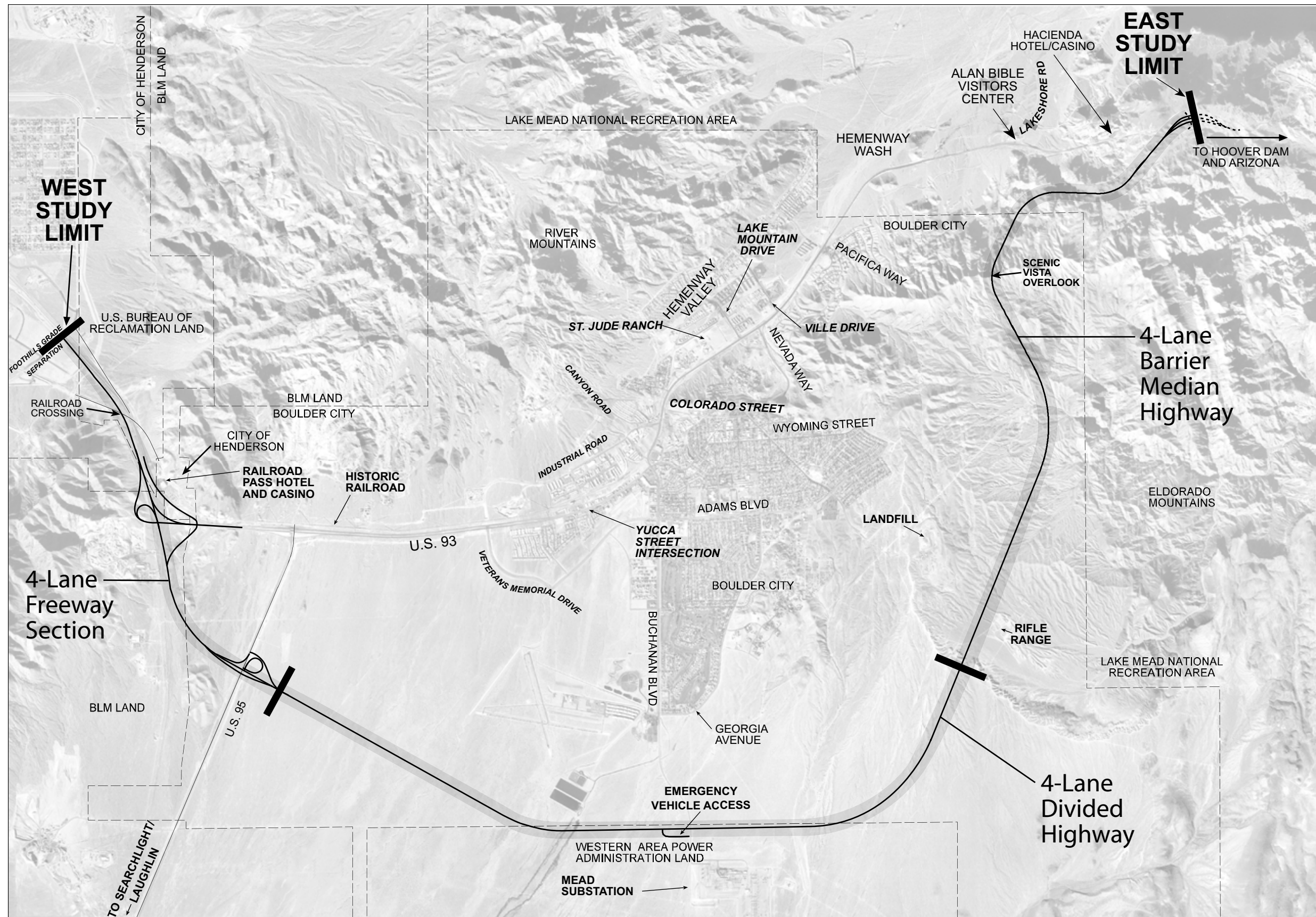
This FEIS is updated to reflect changes in impact evaluations since the release of the DEIS resulting from continued refinement of plans, as well as continued agency consultations. Correspondence related to these consultations is included in Appendix A. The following are among the developments that have resulted in updates to impact evaluations of the build alternatives:

- 1) Update of the historic structures inventory report and completion of the final report
- 2) Completion of initial State Historic Preservation Office (SHPO) consultation, and receipt of SHPO concurrence on determinations of eligibility
- 3) Receipt of concurrence from the U.S. Army Corps of Engineers (USACE) regarding which drainages are jurisdictional Waters of the U.S.
- 4) Consultations between NDOT and FHWA regarding which impacts constitute use under Section 4(f) of the U.S. Department of Transportation (U.S. DOT) Act of 1966 (49 U.S.C. § 303)
- 5) Refinement of alignment positions, their impacts to historic structures (including the Boulder City Branch Railroad), and cut and fill limits of the alternatives
- 6) Consultation between NDOT, FHWA, Nevada Department of Wildlife (NDOW), and the Environmental Protection Agency (EPA) regarding impacts to wildlife and Waters of the U.S. that would result from implementation of the build alternatives, particularly from Alternative D

To address safety concerns that could arise from sight-seers stopping along the roadway to take advantage of the expansive views at the crest of the Eldorado Ridge, a scenic vista point with pull-outs would be constructed here (Figure ES-4).

To further address impacts to wildlife and jurisdictional waters of the U.S., additional avoidance, minimization, and mitigation measures are identified in this FEIS. These include bridges by which the roadway corridor will avoid operational impacts to waters of the U.S. while providing crossings to wildlife, other bridges and appropriately-engineered culverts that will serve as wildlife crossings, and the use of appropriate fencing design to direct wildlife to those crossings. Design and placement of these structures will take place in consultation with the agencies having jurisdiction over these resources, such as NPS and NDOW.

Since release of the DEIS, additional data and consultations indicated the need to address cumulative impacts to desert bighorn sheep from enactment of any of the build alternatives, when combined with other development in the Railroad Pass to Hoover Dam area.



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**FIGURE ES-4
ALTERNATIVE D**
BOULDER CITY/U.S. 93 CORRIDOR STUDY
ENVIRONMENTAL IMPACT STATEMENT

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Therefore, commitments have been made by FHWA and NDOT to coordinate with and, when concurrent with the current project, support NPS and NDOW monitoring of bighorn sheep use of the area. FHWA and NDOT will also participate with NPS and NDOW in the development and implementation of a bighorn sheep management plan for existing U.S. 93, and in the further refinement of mitigation measures for this project. The City of Boulder City has also initiated the process to create a wildlife preserve in the western Eldorado Mountains to minimize further fragmentation of bighorn sheep habitat should the preferred Alternative D be constructed.

Areas of Controversy

Some Boulder City business owners are concerned about the perceived negative economic impacts related to removing drive-by traffic from the existing U.S. 93 business corridor, primarily impacting fast-food restaurants and motels. Because many of these businesses employ city residents, this loss in revenue would have an effect on the local economy if these perceived negative economic impacts were realized.

Conversely, the Boulder City residential community, primarily that of Hemenway Valley, is concerned about quality of life, specifically air quality, noise, accessibility to Boulder City, and safety along the corridor. The residential community generally prefers to move trucks off the present U.S. 93 corridor through Boulder City to reduce overall environmental risk, and this was part of the motivation behind the June 1999 initiative by the City of Boulder City recommending a southern bypass.

In briefings with the city councils and numerous public stakeholder meetings, support emerged to give consideration to an alternative alignment south of the Mead Substation. Reasons cited include air quality, traffic noise, visual impacts, and proximity of the freeway to residential areas. Such an alternative alignment was considered to address the concern of some people about the potential for a Buchanan Boulevard interchange with a new southerly U.S. 93 highway sometime in the future. After further review with the City, the PMT and public, an alignment south of the Mead substation was not supported due to the additional length of the highway and environmental impacts. The development of the highway north of the Mead Substation was acceptable as long as there is no public access including through traffic and large trucks on Buchanan Boulevard that would adversely impact quality of life primarily in the neighborhoods surrounding the municipal golf course. The City, PMT and public did agree that an access ramp could be built and used for emergency access and equipment access for WAPA to the substation.

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TABLE ES-1
Summary of Impacts and Mitigation

Air Quality (see Section 4.2)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	<p>Carbon monoxide (CO) concentrations are predicted to remain well below the federal standard. Ozone (O₃) emissions will be greatest for this alternative.</p> <p>Impacts to air quality within Boulder City would be greatest under this alternative.</p>	Not applicable.
B	Construction would cause an increase in localized airborne dust and microscopic particulate matter (PM).	<p>Construction activities would be regulated under applicable Clark County Department of Air Quality and Environmental Management (DAQEM) air pollution permit requirements. Control measures, such as a dust mitigation plan, shall be used as appropriate; and the project will follow the DAQEM Best Management Practice (BMP) manual.</p> <p>With mitigation, construction emissions will be minimal.</p>	<p>Impacts to air quality within Boulder City would be greatest of the build alternatives. However, CO concentrations are predicted to be well below the federal standard. The concentrations for Alternative B would be lower than for the No Build Alternative.</p> <p>In comparing PM₁₀ levels for existing like roads with Alternative B, there has been no exceedance of the federal standard for PM₁₀.</p> <p>O₃ emissions would be less than for Alternative A.</p>	Impacts would not exceed federal standards; therefore, no mitigation measures are required.
C	Same as for Alternative B.	Same as for Alternative B.	Impacts would be similar to those from Alternative B.	Same as for Alternative B.
D	Same as for Alternative B.	Same as for Alternative B.	Impacts to air quality within Boulder City would be the least of the alternatives.	Same as for Alternative B.

TABLE ES-1
Summary of Impacts and Mitigation

Noise (see Section 4.3)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Traffic noise levels would eventually approach or exceed the NDOT noise abatement criterion (NAC) at some residential locations with the No Build Alternative.	Not applicable.
B	Short-term noise impacts would occur during construction.	<p>Although construction noise impacts would be temporary, standard noise mitigation measures will be implemented. For instance, all equipment will comply with applicable equipment noise standards and will be maintained according to manufacturers' specifications.</p> <p>Temporary or portable acoustic barriers will be installed around stationary construction noise sources in noise-sensitive areas (i.e., residential), as needed.</p> <p>NDOT will develop and implement a plan for controlling noise in sensitive areas, if needed.</p>	There would be mixed effects on residential noise with Alternative B; some areas would have decreased noise levels, while others would have increased noise levels, exceeding the NAC.	<p>NDOT will develop and implement a plan for controlling noise in sensitive areas, if needed.</p> <p>Noise barriers will be constructed to mitigate noise impacts that exceed the NAC.</p>
C	Same as for Alternative B.	Same as for Alternative B.	Some residential areas would experience an increase in noise levels.	Same as for Alternative B.
D	Same as for Alternative B.	No sensitive receptors would be present; therefore, no mitigation measures would be required during the construction of this alternative.	Traffic noise levels through developed areas of Boulder City would decrease with the implementation of Alternative D. However, the new highway would cause an increase in noise levels in portions of the Lake Mead National Recreation Area (LMNRA).	No mitigation measures are required due to the lack of sensitive receptors (i.e., population concentrations) in the vicinity of the right-of-way.

TABLE ES-1
Summary of Impacts and Mitigation

Biology/Threatened Species (see Section 4.4)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Continued and anticipated increased use of the existing roadway corridor would result in a corresponding increase in the barrier that exists impeding bighorn sheep movement between the River Mountains and Eldorado Mountains bighorn herds.	Not applicable.
B	This alternative would cross desert tortoise, gila monster, and bighorn sheep habitat. However, it would impose the least disturbance on wildlife and vegetation of all build alternatives (327 acres of habitat). Habitat disruption would be minimal because construction would occur along existing highway right-of-way.	<p>Protected or sensitive plants will be removed from the project site prior to construction. The plants will then be replanted within the project area.</p> <p>Fencing and other barriers that will prevent wildlife from entering the construction right-of-way will be in place prior to commencement of construction. Artificial lighting will be used to the least extent possible.</p> <p>Construction will be scheduled to occur outside the nesting seasons of bird species protected by the Migratory Bird Treaty Act. If such scheduling cannot be employed, then obvious nest sites will be avoided.</p> <p>Burrows or other potential nesting cavities will be collapsed prior to the nesting season to prevent encounters with burrowing owls. If owl-occupied burrows are found during the nesting or brooding season, they will be avoided.</p>	Operation of this alternative would result primarily in an increase in wildlife mortalities associated with vehicle/wildlife collisions. It would enhance the tendency of this roadway to impede bighorn sheep movement between the River Mountains and the Eldorado Mountains.	<p>Fencing to prevent wildlife from entering the roadway will be installed and properly maintained, as deemed appropriate by state and federal wildlife agencies.</p> <p>Earth-floored box culverts would be installed to serve as wildlife crossings at appropriate locations with fencing designed to direct animals to these crossings. The design and placement of these measures will be developed in consultation with NPS, USFWS, and NDOW.</p> <p>Additional mitigation measures may be identified, and existing ones will be refined, in further resource agency consultations as part of the development of the BA for implementation of the project.</p> <p>Adherence to NDOT's commitments contained in the Clark County Multiple Species Habitat Conservation Plan will further mitigate the operational impacts of this roadway.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Biology/Threatened Species (see Section 4.4)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
		<p>Specific measures mitigating impacts to the desert tortoise will be developed and implemented in cooperation with the United States Fish and Wildlife Service (USFWS). These measures will be developed in the course of preparing the Biological Assessment (BA) for implementation of project.</p> <p>These measures may include the use of biological monitors during construction as stipulated in the construction documents.</p> <p>Gila monster and chuckwalla will be removed by a qualified specialist prior to construction.</p> <p>If species of concern are present, other appropriate mitigation, as determined by state and federal regulatory agencies and the Clark County Multi-Species Habitat Conservation Plan (MSHCP), will be implemented.</p>		<p>To the greatest extent possible, the highway will be kept free of attractants such as trash and unnatural lighting. Signs warning drivers of the presence of wildlife will be utilized where warranted.</p>
C	<p>This alternative would cross desert tortoise, gila monster, and bighorn sheep habitat. In total, this alternative would cause 460 acres of habitat disturbance.</p>	<p>In addition to the measures listed under Alternative B, data specific to bighorn sheep populations, including field data and observations, will be evaluated and utilized in the selection of crossing sites to mitigate potential impacts to bighorn sheep.</p>	<p>Same as for Alternative B.</p>	<p>Same as for Alternative B.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Biology/Threatened Species (see Section 4.4)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
D	<p>Alternative D would traverse desert tortoise, gila monster, and bighorn sheep habitat. It results in a total of 679 acres of disturbance. Impacts would include the reduction and fragmentation of desert bighorn sheep habitat on Eldorado Ridge, an area currently heavily utilized by these sheep.</p> <p>Bat roosting areas may be disturbed.</p>	<p>Same as for Alternative C. Bat roosting sites will be identified and avoided when possible.</p>	<p>Same as for Alternative B. In addition, Alternative D would have a greater contribution to the cumulative impact to bighorn sheep created by development impeding the migration of bighorn sheep between mountain ranges, and result in fragmentation of bighorn habitat on Eldorado Ridge.</p>	<p>Same as for Alternative B. In addition, three bridges to be constructed north of the Eldorado Ridge area will serve a dual use as wildlife crossings and be equipped with ungulate proof fencing to direct wildlife to those crossings.</p> <p>NDOT also commits to supporting the NPS and NDOW bighorn sheep monitoring program, and to coordinating with these and other affected agencies in efforts to develop a bighorn sheep management plan for the current U.S. 93 corridor.</p> <p>In cooperation with Boulder City, a wildlife preserve will be established in the Eldorado Ridge area to prevent further fragmentation of this habitat area.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Water Quality (see Section 4.5)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Increased traffic may contribute to the deterioration of water quality.	Not applicable.
B	<p>Water quality in desert washes that drain the project area may degrade from stormwater runoff.</p> <p>Erosion impacts would result from activities such as the construction of new and temporary channels and access roads around the new facility, as well as modifications to the landscape and grading of the soil in the vicinity of the new facility. However, erosion impacts would not be as great as they would be for Alternative C or D.</p> <p>Long-term impacts to water quality of Lake Mead are expected to be minimal during construction.</p>	<p>A National Pollutant Discharge Elimination System (NPDES) permit will be implemented and enforced throughout construction.</p> <p>A site-specific Stormwater Pollution Prevention Plan (SWPPP) will also be implemented.</p> <p>The State of Nevada's Handbook of BMPs will be utilized as guidance in implementing BMPs. The South Valley Area 208 Water Quality Management Plan will also be consulted.</p> <p>Conformance with Sections 401 and 404 of the Clean Water Act will be maintained through the permitting process with the USACE.</p>	Water quality in desert washes that drain the project area may degrade from stormwater runoff and erosion.	<p>Soil along the banks of drainage channels at roadway crossings will be stabilized using erosion-control blankets or other approved methods to prevent erosion and sediment deposition.</p> <p>Offsite water quality controls, using BMPs such as sediment basins, will also be employed to treat runoff before discharge.</p> <p>Conformance with Sections 401 and 404 of the Clean Water Act will be maintained through the permitting process with the USACE.</p>
C	<p>Water quality in desert washes that drain the project area may degrade from stormwater runoff.</p> <p>Erosion impacts would be greater than for Alternative B, but not as great as they would be for Alternative D.</p> <p>Impacts to water quality of Lake Mead are expected to be minimal during construction.</p>	Same as for Alternative B.	Same as for Alternative B.	Same as for Alternative B.

TABLE ES-1
Summary of Impacts and Mitigation

Water Quality (see Section 4.5)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
D	<p>Water quality in desert washes that drain the project area may degrade from stormwater runoff; implementation of Alternative D would have a greater effect than Alternative B or C.</p> <p>Steeper grades in the construction area of Alternative D would have greater erosion impacts than would Alternative B or C.</p> <p>Impacts to water quality of the Colorado River are expected to be minimal during construction.</p>	Same as for Alternative B.	Water quality in desert washes that drain the project area may degrade from stormwater runoff and erosion. Alternative D would have a greater impact than Alternatives B or C.	Same as for Alternative B.

TABLE ES-1
Summary of Impacts and Mitigation

Wetlands/Waters of the U.S. (see Section 4.6)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Not applicable.	Not applicable.
B	<p>No impacts to wetlands.</p> <p>Waters of the U.S. crossed by the project may be impacted by discarded materials, waste by-products, and sediment from construction. A total of 3.58 acres of desert wash drainage that constitutes jurisdictional Waters of the U.S. would be affected.</p>	<p>No wetland mitigation measures would be required.</p> <p>Construction access, material stockpiling, and construction staging areas will be designated outside the limits of Waters of the U.S.</p> <p>Temporary barriers shall be installed to restrict debris from entering adjacent washes. Construction activities will be restricted during rainfall.</p> <p>BMPs established by NDOT will be implemented.</p> <p>Conformance with Sections 401 and 404 of the Clean Water Act will be maintained through the permitting process with the USACE.</p>	<p>No impacts to wetlands.</p> <p>A total of 1.70 acres of Waters of the U.S. would be impacted from fill material.</p>	<p>No wetland mitigation measures would be required.</p> <p>Bridge designs will minimize the effects of the structures on the washes. Piers and retaining walls shall be protected to prevent erosion and sedimentation. Energy dissipaters may be installed to reduce the energy of floodwaters and minimize natural deposition at the crossings.</p> <p>Conformance with Sections 401 and 404 of the Clean Water Act will be maintained through the permitting process with the USACE.</p>
C	<p>No impacts to wetlands.</p> <p>Waters of the U.S. crossed by the project may be impacted by discarded materials, waste by-products and sediment from construction. Alternative C would impact the same washes as Alternative B; however, it would affect a total of 3.82 acres of jurisdictional Waters.</p>	Same as for Alternative B.	<p>No impacts to wetlands.</p> <p>A total of 1.72 acres of Waters of the U.S. would be impacted from fill material.</p>	Same as for Alternative B; Bridges, culverts, and other engineered features will be designed, to minimize impacts to Waters of the U.S.

TABLE ES-1
Summary of Impacts and Mitigation

Wetlands/Waters of the U.S. (see Section 4.6)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
D	<p>An artificially supported wetland area below the Boulder City sewage treatment plant would be affected; however, USACE jurisdictional authority is not applicable to this wetland because it is not self-sustaining. No impacts to USACE jurisdictional wetlands would occur.</p> <p>Waters of the U.S. crossed by the project may be impacted by discarded materials, waste by-products, and sediment from construction. Alternative D would cover a larger area and pass through steeper terrain, thereby having a greater overall impact than the other build alternatives. A total of 5.68 acres of Waters of the U.S. would be affected.</p>	Same as for Alternative B.	<p>No impacts to jurisdictional wetlands would occur.</p> <p>A total of 3.12 acres of waters of the U.S. would be impacted. Additional waters to the north of Eldorado Ridge would be avoided by spanning these with bridge structures.</p>	Same as for Alternative B; bridges, culverts, and other engineered features will be designed, to minimize impacts to waters of the U.S.

TABLE ES-1
Summary of Impacts and Mitigation

Floodplains (see Section 4.7)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Not applicable.	Not applicable.
B	Construction impacts would total 21.7 acres, including the Hemenway Wash flood zone, Wash "B" at U.S. 93 near Veterans Memorial Drive, and other individual flood zones. The regulatory floodway in the Hemenway Wash area would also be impacted.	The State of Nevada's Handbook of BMPs would be utilized for implementing appropriate BMPs.	Operational impacts would total 10 acres, including the Hemenway Wash flood zone, Wash "B" at U.S. 93 near Veterans Memorial Drive, and other individual flood zones. The regulatory floodway in the Hemenway Wash area would also be impacted.	The Hemenway Wash channel will be relocated beyond the shoulder of the new roadway. Retaining walls along the north side of the alignment through Hemenway Wash would avoid operational impacts.
C	Construction impacts would total 18.8 acres, including the Hemenway Wash flood zone and other individual flood zones. The regulatory floodway in the Hemenway Wash area would also be impacted.	Same as for Alternative B.	Operational impacts would total 5.9 acres, including the Hemenway Wash flood zone and other individual flood zones. The regulatory floodway in the Hemenway Wash area would also be impacted.	The Hemenway Wash channel will be relocated beyond the shoulder of the new roadway. Because limits of cut and fill are narrower than with Alternative B, redrawing of the flood zone will be reduced. Retaining walls along the north side of the alignment through Hemenway Wash would avoid operational impacts.
D	A theoretical flood zone was drawn for washes impacted by Alternative D. Based on this, it is estimated that 6.3 acres would be impacted.	Same as for Alternative B.	Using the theoretical flood zone continuation line, operational impacts would total 4.1 acres. There would be no impacts to any regulatory floodways.	The least mitigation is needed for Alternative D. Improvements to drainage channels would be incorporated into the alternative design, and bridge structures or culverts under the new roadway will be incorporated into the hydraulic modeling.

TABLE ES-1
Summary of Impacts and Mitigation

Cultural Resources (see Section 4.8)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	None.	Not applicable.	None.	Not applicable.
B	<p>Effects to three archaeological sites eligible for the National Register of Historic Places (NRHP).</p> <p>Effects to 26 historic structures or groups of structures listed on or eligible for the NRHP.</p>	<p>Specific measures will be developed subsequent to an effects assessment, which will be prepared after the completion of detailed engineering design, in consultation with the SHPO, interested Native American groups, and other interested parties.</p> <p>Mitigation options include photographic recording, excavation, artifact analysis and curation, and archival research. Documentation of viewshed, structure relocation, interpretive signing, and Historic American Engineering Record (HAER) documentation.</p> <p>Additionally, a Memorandum of Agreement (MOA) has been entered into by FHWA, NDOT, Reclamation, BLM, and SHPO. The purpose of this MOA is to address the mitigation of impacts to one archaeological site on Reclamation and BLM land.</p>	Same as construction impacts.	Same as construction mitigation measures.

TABLE ES-1
Summary of Impacts and Mitigation

Cultural Resources (see Section 4.8)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
C	Effects to five archaeological sites eligible for the NRHP. Effects to 25 historic structures listed on or eligible for the NRHP.	Same as for Alternative B.	Same as construction impacts.	Same as construction mitigation measures.
D	Effects to three archaeological sites eligible for the NRHP. Effects to nine historic structures eligible for NRHP.	Same as for Alternative B. In addition, for the preferred alternative, procedures to develop the effects assessment and subsequent mitigation measures, including further Native American consultation, are stipulated in the Programmatic Agreement executed by agencies managing the affected resources, NDOT, FHWA, and the SHPO.	Same as construction impacts.	Same as construction mitigation measures.

TABLE ES-1
Summary of Impacts and Mitigation

Land Use/Section 4(f) (see Section 4.9)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Not applicable.	Not applicable.
B	<p>Five buildings would be demolished to provide for improvements associated with Alternative B.</p> <p>Commercial land uses adjacent to U.S. 93 may experience temporary access changes or restrictions during construction. Residential areas within Boulder City may be subject to detours due to construction activity.</p> <p>Hotel and casino land uses adjacent to U.S. 93 may experience temporary reroutings and detours during construction.</p> <p>Use of recreation lands noted immediately to the right under "Operational Impacts" would begin during the construction phase of this alternative.</p>	<p>If right-of-way is needed, the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970 will govern the acquisition of any right-of-way necessary for this project. Relocation resources will be made available to all residential (if any) and business relocatees without discrimination. More detailed information on right-of-way acquisition and relocation assistance can be obtained by calling or visiting the Nevada Department of Transportation, Right-of-Way Office, 123 East Washington, Las Vegas, Nevada; telephone (702) 385-6540.</p> <p>A Traffic Control Plan would be prepared prior to commencement of construction activity, with inspection and enforcement during construction.</p>	<p>Proposed median islands would alter ingress and egress to commercial land uses. Some commercial structures would lose some parking and/or frontage and signage. However, better access would be provided to local businesses on existing U.S. 93.</p> <p>Approximately 48 acres of recreational land would be subject to use under Section 4(f), consisting of about 46 acres (or 0.0031%) of the LMNRA and about 2 acres of the River Mountains Loop Trail.</p> <p>This alignment would be inconsistent with several key Guiding Principles of the Boulder City Master Plan and constitute an unmitigatable adverse impact.</p> <p>Electrical utility transmission line impacts are expected at the west and east ends of the project area.</p>	<p>Measures to minimize harm to Section 4(f) lands have been developed and will be implemented in consultation with the affected jurisdictions.</p> <p>Coordination of electrical utility tower and line relocations with WAPA and/or responsible utility companies will be required.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Land Use/Section 4(f) (see Section 4.9)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
C	<p>Commercial land uses adjacent to U.S. 93 may experience temporary access changes or restrictions during construction. Impacts would be less than with Alternative B.</p> <p>Hotel and casino land uses adjacent to U.S. 93 may experience temporary reroutings and detours during construction.</p> <p>Use of recreation lands noted immediately to the right under “Operational Impacts” would begin during the construction phase of this alternative.</p>	Same as for Alternative B.	<p>Approximately 91 acres of recreational land would be subject to use under Section 4(f), consisting of about 41 acres (or 0.0027%) of the LMNRA, about 2 acres of the River Mountains Loop Trail, and about 48 acres of the planned Boulder Ridge Golf Course.</p> <p>Similar to Alternative B, this alignment would be inconsistent with several key Guiding Principles of the Boulder City Master Plan. This would constitute an adverse impact although not as severe as that occurring from Alternative B.</p> <p>Approximately 37 acres of land designated for Public and Public/Quasi-Public uses would be unusable for that purpose under Alternative C. Impacts to land designated for medium-density residential development in Hemenway Wash would occur. However, Alternative C provides increased support for the promotion of bicycle routes.</p> <p>Residential uses located south of the existing alignment would benefit from improved local vehicle circulation.</p> <p>Electrical utility transmission line impacts are expected at the west and east ends of the project area, and in the vicinity of upper Hemenway Wash.</p>	<p>Right-of-way mitigation same as for Alternative B.</p> <p>Measures to minimize harm to Section 4(f) lands have been developed and would be implemented in consultation with the appropriate jurisdictions.</p> <p>Electrical utility tower and line relocations will be coordinated with WAPA and/or responsible utility companies.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Land Use/Section 4(f) (see Section 4.9)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
D	<p>Hotel and casino users adjacent to U.S. 93 may experience temporary reroutings and detours during construction.</p> <p>Use of recreation lands within the LMNRA, noted immediately to the right under "Operational Impacts," would begin during the construction phase of this alternative.</p>	Same as for Alternative B.	<p>Interchanges near the hotel/casino developments would change existing access.</p> <p>Alternative D would require the use of approximately 59 acres (0.0039%) of LMNRA land, which would be subject to Section 4(f) provisions.</p> <p>Operation of this proposed alignment would bypass the majority of land uses within Boulder City. Therefore, implementation of Alternative D would not create substantive conflicts with land use plans as articulated in the Boulder City Master Plan. Diversion of traffic away from developed land uses would benefit residential development within Boulder City.</p> <p>Electrical transmission line impacts are expected at the west end of the project area, in the vicinity of Mead Substation, north of the rifle range, and in the LMNRA (south of the Hacienda Hotel and Casino).</p>	<p>Right-of-way mitigation same as for Alternative B.</p> <p>Measures to minimize harm to Section 4(f) lands have been developed and would be implemented in consultation with the affected jurisdictions.</p> <p>Electrical utility tower and line relocations will be coordinated with WAPA and responsible utility companies.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Visual Impacts (see Section 4.10)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Future traffic increases would make it more difficult for drivers to enjoy views.	Not applicable.
B	Temporary changes to the visual environment in the Boulder City area would result from construction activities. Fugitive dust, the presence of construction equipment, and light emitted during nighttime construction would impact views. Less dust would be generated along Alternative B than Alternatives C and D.	<p>Visual impacts due to dust would be minimal with implementation of dust suppression techniques, a dust mitigation plan, and the intermittent construction schedule.</p> <p>If nighttime construction occurs, lights will be shielded and directed away from residences.</p>	<p>Would alter views from several residential areas, resulting in unavoidable adverse impacts on views of Lake Mead from the Laguna Lane residences.</p> <p>Patrons' views from the Railroad Pass Hotel and Casino and Hacienda Hotel and Casino would be altered, but minimally.</p> <p>Permanent highway lighting at major street crossings in Hemenway Valley would result in nighttime glare in some residential areas.</p> <p>The viewscape in the Boulder City area would be directly impacted. However, Alternative B would result in the least amount of viewscape alteration.</p>	<p>Impacts to viewsheds of historic structures will be mitigated according to the stipulations of the PA.</p> <p>Noise barriers, retaining walls, and cut and fill slopes will be designed to be aesthetically pleasing; and their color will blend with the surrounding environment.</p> <p>Bridge embankments will be treated to minimize erosion and planted with xeriscape vegetation.</p> <p>A trash collection program will be implemented along the highway under NDOT maintenance or the Adopt-A-Highway Program.</p> <p>Highway lighting will be shielded away from residences.</p> <p>As part of the design process, corridor landscaping will be addressed; and the desires of the stakeholders will be considered. NDOT's landscape policy will describe a landscaping minimum. The local agency (city, county, or RTC) may enhance the landscape design at any time, while staying within the policy guidelines, including the plant list and safety standards. The local entity will be expected to fund and maintain any enhancements.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Visual Resources (see Section 4.10)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
C	<p>Fugitive dust, the presence of construction equipment, and light emitted during nighttime construction would impact views. Alternative C would generate more dust than Alternative B, but less than Alternative D.</p> <p>Temporary changes to the visual environment in the Boulder City area would result from construction activities.</p>	Same as for Alternative B.	<p>Would alter views from several residential areas, resulting in unavoidable adverse impacts on views of Lake Mead from the Laguna Lane residences.</p> <p>Major visual impacts to two historic structures.</p> <p>Patrons' views from the Railroad Pass Hotel and Casino and Hacienda Hotel and Casino would be altered, but minimally.</p> <p>Permanent highway lighting at major street crossings in Hemenway Valley would result in nighttime glare in some residential areas.</p> <p>The viewscape in the Boulder City area would be directly impacted.</p>	<p>Impacts to viewsheds of historic structures will be mitigated according to the stipulations of the PA.</p> <p>Cut and fill slopes and retaining walls will be designed to be aesthetically pleasing, and their color will blend with the surrounding environment.</p> <p>Bridge embankments will be treated to minimize erosion and planted with xeriscape vegetation.</p> <p>A trash collection program will be implemented along the highway under NDOT maintenance or the Adopt-A-Highway Program.</p> <p>Highway lighting will be shielded away from residences.</p> <p>Corridor landscaping will be addressed as part of the design process.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Visual Resources (see Section 4.10)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
D	Fugitive dust and the presence of construction equipment would impact some views. Alternative D would generate the most dust of all the alternatives; however, it would affect the least views.	Visual impacts due to dust would be minimal with implementation of dust suppression techniques, a dust mitigation plan, and the intermittent construction schedule.	<p>Patrons' views from the Railroad Pass Hotel and Casino and Hacienda Hotel and Casino would be altered, but minimally.</p> <p>The viewscape south of the developed portion of Boulder City would be directly altered. Alternative D would result in the most new roadway development through undeveloped area. This would result in the greatest viewscape modification south of the developed portion of Boulder City, but the least alteration from most vantage points within the City itself.</p>	<p>Cut and fill slopes and retaining walls will be designed to be aesthetically pleasing, and their color will blend with the surrounding environment.</p> <p>Bridge embankments will be treated to minimize erosion and planted with xeriscape vegetation.</p> <p>A trash collection program will be implemented along the highway under NDOT maintenance or the Adopt-A-Highway Program.</p> <p>A lookout point of Lake Mead will be developed on Eldorado Ridge.</p> <p>Corridor landscaping will be addressed as part of the design process.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Economic Impacts (see Section 4.11)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Not applicable.	Not applicable.
B	<p>Hiring construction workers, subsequent worker expenditures, and purchasing construction materials would result in positive regional economic benefits from increased sales, employment, and earnings. Negative local business sales impacts may also occur due to the impacts listed below.</p> <p>Congestion, noise, dust, and interrupted or reduced access to businesses could result in reduced revenue. Traffic delays could result in a temporary increase in transportation costs for the delivery of goods and services.</p> <p>Commercial trucks and vehicular traffic may experience delays during construction of the interchanges at the western and eastern project limits. The hotel/casino developments may experience short-term reroutings and detours.</p> <p>Retail businesses would be impacted due to reduced accessibility and visibility.</p>	<p>A Traffic Control Plan will be prepared prior to commencement of construction activity. The use of flaggers, detours, and temporary signage may alleviate these impacts.</p>	<p>Proposed median islands would make access to some businesses more difficult than with Alternative A. This could result in lower revenues to businesses dependent on drive-by traffic.</p> <p>Five businesses would be removed, slightly reducing employment opportunities.</p>	<p>U-turns would be possible at selected locations.</p> <p>Right-of-way mitigation, described under Land Use (Section 4.11), would be applied.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Economic Impacts (see Section 4.11)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
C	<p>Construction would result in positive regional economic benefits from increased sales, employment, and earnings. Negative local business sales impacts may also occur, but would be less than from Alternative B.</p> <p>Intermittent delays to traffic would occur.</p> <p>Commercial trucks and vehicular traffic may experience delays during construction of the interchanges at the western and eastern project limits. The hotel/casino developments may experience short-term reroutings and detours.</p>	<p>Same as for Alternative B.</p>	<p>Lower sales, employment, and tax revenue could be experienced by the retail district along U.S. 93 between Veterans Memorial Drive and Canyon Road.</p>	<p>Highway signs indicating the availability of food, gas, and lodging services may be placed prior to each new interchange.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Economic Impacts (see Section 4.11)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
D	<p>Construction would result in positive regional economic benefits due to increased sales, employment, and earnings. Negative local business sales impacts would occur, but would be less than that resulting from the implementation of Alternative B or C.</p> <p>Commercial trucks and vehicular traffic may experience delays during construction of the interchanges at the western and eastern project limits. Traffic accessing the hotel/casino developments may experience short-term reroutings and detours.</p>	Same as for Alternative B.	Alternative D is likely to result in a noticeable, short-term negative economic impact to the town. In the long-term, it is uncertain if Boulder City would experience more or less economic growth than it would under the other alternatives, but a severe long-term negative impact is unlikely.	Same as for Alternative C.

TABLE ES-1
Summary of Impacts and Mitigation

Social Impacts (see Section 4.12)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	As traffic volumes continue to increase, congestion problems would increase along the existing alignment, as well as indirect impacts to air quality and from noise. The increased traffic volumes would also exacerbate barrier effects, impeding access for pedestrians and bicyclists, as well as local traffic to segments of the community separated by this route. High crash rates along U.S. 93 would remain the same or worsen.	These adverse impacts would not be mitigated without some change to the physical configuration of U.S. 93.
B	Effects from construction that contribute to social impacts from the implementation of this alternative are discussed in the FEIS sections addressing Noise, Economics, Visual, Bicycles/Pedestrians, Land Use/ Section 4(f), and Air Quality. These include impacts to retail businesses due to decreased accessibility and relocation, increased noise, and fugitive dust.	Mitigation of social impacts resulting from construction of this alternative are presented in the FEIS sections addressing Noise, Economics, Visual, Bicycles/ Pedestrians, Land Use/ Section 4(f), and Air Quality for Alternative B. These include implementing a Traffic Control Plan that will include the use of flaggers, detours, and temporary signage to minimize these impacts.	Effects that contribute to social impacts resulting from the operation of this alternative are much the same as for Alternative A (above), and are described in sections addressing Noise, Economics, Visual, Bicycles/ Pedestrians, Land Use/ Section 4(f), and Air Quality for Alternative B. In addition, they would include the removal of five businesses and accessibility impacts resulting from proposed median islands, potentially resulting in some decline in revenues.	Mitigation of social impacts resulting from the effects of the operation of Alternative B would result from the enactment of the measures presented under Noise, Economics, Visual, Bicycles/Pedestrians, Land Use, Section 4(f) Evaluation, and Air Quality in this FEIS. Fair market value would be provided to the property/ business owners of the five businesses to be acquired. NDOT would follow the <i>Federal Highway Administration's Uniform Relocation Act</i> and would be responsible for administering support services to assist these property owners.

TABLE ES-1
Summary of Impacts and Mitigation

Social Impacts (see Section 4.12)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
C	Effects from construction that contribute to social impacts from the implementation of this alternative are discussed in the FEIS sections addressing Noise, Economics, Visual, Bicycles/Pedestrians, Land Use/ Section 4(f), and Air Quality for Alternative C. They would be somewhat less than for Alternative B.	Same as for Alternative B.	Effects from operation of Alternative C that would result in social impacts are presented in the FEIS sections addressing Noise, Economics, Visual, Bicycles/Pedestrians, Land Use/ Section 4(f), and Air Quality impacts. They would be less than those from implementation of Alternative B would, but greater than those resulting from Alternative D.	The mitigation measures described under Noise, Economics, Visual, Bicycles/Pedestrians, Land Use, Section 4(f) Evaluation, and Air Quality for Alternative C in the FEIS would also result in the mitigation of social impacts.
D	Because it lies to the south and east of Boulder City, social impacts resulting from the construction of Alternative D would be less than any other of the alternatives. These are summarized in the sections on Noise, Economics, Visual, Bicycles/Pedestrians, Land Use/Section 4(f), and Air Quality in the FEIS.	Same as for Alternative B.	The diversion of most nonlocal traffic away from developed areas in Boulder City would result in beneficial social effects through substantial alleviation of congestion, noise, and traffic safety impacts. Safety, accessibility, and connectivity would improve for bicyclists and pedestrians. Indirect economic impacts would be similar to, but greater than, Alternative C. However, impacts may be offset over time by an increase in patronage resulting from decreased congestion and consequent enhanced accessibility and attractiveness of the area. Most studies (89 percent) show that the economic effects of highway bypasses are positive over time (Chapter 4, Table 4-30).	Social impacts resulting from the implementation of Alternative D would be largely beneficial. Therefore, no mitigation of social impacts would be required for the implementation of this alternative.

TABLE ES-1
Summary of Impacts and Mitigation

Environmental Justice (see Section 4.13)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Not applicable.	Not applicable.
B	No impacts.	Not applicable.	No impacts.	Not applicable.
C	No impacts.	No mitigation measures would be required.	No impacts.	No mitigation measures would be required.
D	No impacts.	No mitigation measures would be required.	No impacts.	No mitigation measures would be required.

TABLE ES-1
Summary of Impacts and Mitigation

Bicycles/Pedestrians (see Section 4.14)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Current unsafe conditions would be exacerbated in the future.	Not applicable.
B	Bicyclists and pedestrians would be detoured from U.S. 93 during construction.	A traffic control plan would be developed and implemented that will provide for the safety of bicycle and pedestrian movements.	Current unsafe conditions would be exacerbated in the future. The Gold Strike Canyon Trailhead may also be impacted.	Construct or expand sidewalks along U.S. 93. Construct bus turnouts at stops on both sides of U.S. 93 and improve lighting at the bus stops. Install crossing facilities at key intersections and on bridges. Construct or relocate bicycle facilities along the corridor. Provide pedestrian and bicycle route signage. Maintain access to Old Highway 93 and NPS backcountry roads and trails. Relocate and maintain the Hemenway Wash drainage/loop trail.
C	Bicyclists and pedestrians would be detoured from U.S. 93 during construction; however, Alternative C would have less impact than Alternative B.	Same as for Alternative B.	There would be a greater impact to recreational facilities and the trails that lead to in-town bicycle/pedestrian facilities than with Alternative B. The Gold Strike Canyon Trailhead may also be impacted.	Provide for crossing facilities, bus turnouts, pedestrian crossings, and bicycle facilities along the corridor. Maintain access to Old Highway 93 and NPS backcountry roads and trails. Relocate and maintain the Hemenway Wash drainage/loop trail.

TABLE ES-1
Summary of Impacts and Mitigation

Bicycles/Pedestrians (see Section 4.14)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
D	Access points for National Park Service (NPS) backcountry roads and other recreational trails would be temporarily cut off.	Same as for Alternative B.	<p>Alternative D would directly impact recreational trails and NPS backcountry roads through Eldorado Mountains, and other backcountry roads including Canyon Point Road, Boy Scout Canyon Road, and WAPA powerline access roads. The Goldstrike Canyon Trailhead may also be impacted.</p> <p>Traffic at the crest of the Eldorado Ridge may encounter stopped vehicles and pedestrians at this location taking pictures of the expansive view of Lake Mead to the north.</p>	<p>Construct grade separation at Mead Substation.</p> <p>Maintain access to Old Highway 93 and, where possible, NPS backcountry roads and trails.</p> <p>A scenic overlook will be constructed at this location to include vehicle pull-outs and parking to allow visitors to take advantage of the view without creating a roadway safety hazard.</p>

TABLE ES-1
Summary of Impacts and Mitigation

Hazardous Waste (see Section 4.15)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Occasional accidents may occur, resulting in the release of hazardous waste or materials. Cleanup of the release would occur in response to each accident.	Not applicable.
B	No impacts.	No mitigation measures would be required.	In comparison to Alternative A, this alternative would reduce the rate of accidents involving hazardous materials.	No mitigation measures would be required.
C	No impacts.	No mitigation measures would be required.	In comparison to Alternatives A and B, this alternative would further reduce the rate of accidents involving hazardous materials.	No mitigation measures would be required.
D	No impacts.	No mitigation measures would be required.	Same as for Alternative C. In addition, implementation of Alternative D would result in an increased probability that, should a release of hazardous waste or materials occur, it would be further from the developed areas of Boulder City.	No mitigation measures would be required.

TABLE ES-1
Summary of Impacts and Mitigation

Energy Use (see Section 4.16)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Comparatively, a total of 17,555 gallons of gasoline would be used during the peak hour under this alternative.	Not applicable.
B	Fuel usage during construction of this alternative would total 334 gallons per day based on a 10-mile-per-gallon (mpg) usage rate, or 548 gallons per day based on a 5-mpg usage rate.	No mitigation measures would be required.	Comparatively, only 15,700 gallons of gasoline would be used during the 2027 peak hour, resulting in a decrease in energy consumption as compared to Alternative A.	No mitigation measures would be required.
C	Construction of Alternative C would result in the least fuel usage of all the build alternatives, totaling 322 and 523 gallons per day based on a 10-mpg and 5-mpg usage rate, respectively.	No mitigation measures would be required.	Comparatively, this alternative would consume 16,660 gallons of gasoline during the 2027 peak hour, also resulting in a decrease in energy consumption compared to Alternative A.	No mitigation measures would be required.
D	As the longest alternative, Alternative D would result in the most energy consumption during construction. Based on a 10-mpg usage rate, 340 gallons per day would be consumed by construction, support vehicles, and other equipment, while 560 gallons per day would be consumed on a 5-mpg usage rate.	No mitigation measures would be required.	The longer length of this alternative would cause an increase in energy usage, a comparative total of 18,504 gallons consumed during the 2027 peak hour. However, this would be offset by the reduction in delay time and the indirect and circulation benefits it would provide for the entire Boulder City traffic network. The net result would be an overall savings in energy usage relative to Alternative A.	No mitigation measures would be required.

TABLE ES-1
Summary of Impacts and Mitigation

Construction Impacts (see Section 4.17)				
Alt.	Construction Impacts	Mitigation	Operational Impacts	Mitigation
A	Not applicable.	Not applicable.	Not applicable.	Not applicable.
B	Traffic rerouting to allow for the passage of construction traffic would be necessary and most intense for this alternative. Construction activities would minimize access to business along this route and to residences in the Hemenway Wash area. Pedestrian and traffic safety concerns would be greatest for this alternative.	Traffic control and safety devices to warn oncoming motorists of construction activities shall be implemented. The contractor and NDOT will determine if flaggers are required. A traffic detour plan, in accordance with NDOT and FHWA safety procedures, shall be implemented to navigate motorists, bicyclists, and pedestrians around work areas. A Traffic Control Plan shall be implemented to prevent adverse impacts due to temporary access restrictions to commercial areas. Roads damaged by construction activities shall be repaired.	Not applicable.	Not applicable.
C	Traffic rerouting to allow for the passage of construction traffic would be necessary. Traffic routing and access through the Hemenway Wash area would be similar to Alternative B. Pedestrian and traffic safety issues would not be as severe as Alternative B.	Same as for Alternative B.	Not applicable.	Not applicable.
D	Traffic rerouting to allow for the passage of construction traffic would be necessary. Alternative D would cause the least amount of construction-related traffic through town. Pedestrian and traffic safety concerns would be minimal for this alternative.	Same as for Alternative B.	Not applicable.	Not applicable.

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Major Actions Proposed by Other Governmental Agencies

The following are reasonably foreseeable actions proposed by other governmental agencies that would occur near the project area. The actions are roadway improvements proposed in Nevada and Arizona affecting the U.S. 93 corridor.

Hoover Dam Bypass Project

The FHWA Central Federal Lands Highway Division prepared and approved the *U.S. 93 Hoover Dam Bypass EIS* for a new bridge crossing of the Colorado River near the dam. The purpose of this project is to (1) minimize the potential for pedestrian-vehicle accidents on the dam crest and approaches; (2) reduce traffic congestion and accidents on a segment of a major commercial route; (3) replace an inadequate highway river crossing with one that meets current roadway design criteria; (4) reduce travel time in the dam vicinity; and (5) protect Hoover Dam employees, visitors, equipment, power generation capabilities, and Colorado River waters while enhancing the visitors' experience at Hoover Dam.

In March 2001, FHWA released a ROD for the project identifying the Sugarloaf Mountain alignment as the preferred alternative. This alternative will take 5 years to construct, and completion is scheduled for 2007. The new bridge will cross the Colorado River about 460 meters (m) (1,500 feet) downstream of Hoover Dam and includes construction of approximately 3.5 km (2.2 miles) of highway approach in Nevada, a 579-m-long (1,900-ft-long) bridge, and approximately 1.7 km (1.1 miles) of highway approach in Arizona.

On the Nevada side, the new highway will diverge from U.S. 93 east of the Hacienda Hotel and Casino. The highway will run just south of U.S. 93 and cross in the vicinity of the Reclamation warehouse. The highway will then descend southeasterly to a new long-span bridge over the Colorado River. From the east end of the proposed bridge, the highway will traverse the northern base of Sugarloaf Mountain and then turn south, crossing a wide ravine, and reconnect to U.S. 93 in Arizona.

In the summer of 2001, FHWA proceeded with the design and implementation of the Hoover Dam Bypass project. In early 2003, construction began on the Arizona approach portion of the project, starting the first of five construction phases for this project. The entire project is planned for completion in 2008.

U.S. 93 Widening in Arizona

In August 2001, the Arizona Department of Transportation (ADOT) commenced work on an Environmental Assessment (EA) for a U.S. 93 improvement project in the LMNRA. ADOT proposes to widen and improve the present two-lane U.S. 93 to four lanes from the intersection of the new Hoover Dam Bypass highway to the improved four-lane divided section 21 km (13 miles) to the south at the LMNRA boundary. This segment of roadway is the final link for planned improvement of the U.S. 93 corridor between I-40 near Kingman and the Arizona terminus of the Hoover Dam Bypass Project. After the completion of the feasibility study and initial public scoping for this project, it was determined that widening of the present corridor is the most practicable approach. The Finding of No Significant

Impact (FONSI) for this project was signed in September of 2004, and work on the design of its first phase is scheduled to begin in 2006.

U.S. 95 Widening in Nevada

NDOT has a project in the 3-year Statewide Transportation Improvement Program (STIP) to widen the two-lane segment of U.S. 95 from Laughlin Highway (State Route [SR] 163), which is west of Laughlin, to U.S. 93 west of Boulder City. This segment of U.S. 95 will be widened to a four-lane highway. Improvements to U.S. 95 will be a three-phase project. The first phase was from the northern limits of Searchlight to 29 km (18 miles) north. This phase was completed in the fall of 2003. The second phase was from the northern end of the first phase, to the junction with U.S. 93 near Railroad Pass. Phase 2 was developed to be compatible with the preferred alternative (Alternative D), and was completed by late 2004. The third phase is from Searchlight to SR 163, 32 km (20 miles) to the south. Phase 3 is divided into two projects. Phase 3A will extend from SR 163 to the southern town limits of Searchlight, and is scheduled to be complete in summer 2006. Phase 3B will be from the southern to northern town limits, and is scheduled for completion in spring 2007. Phase 3A will be widening of the highway from two to four lanes, while Phase 3B will be widening from two to five lanes through town.

Other Federal Actions Required for This Project

Federal actions, including permit approvals and land transfers, needed for this project include those listed in Table ES-2.

TABLE ES-2

Federal Permits and Approvals Anticipated for the Boulder City/U.S. 93 Corridor Study

Federal Agency	Regulated Activity	Required Permit or Approval
U.S. Army Corps of Engineers	Discharge of dredge or fill material into U.S. waters	Section 404 Permits
State Historic Preservation Office	Potential of adverse effects on Historic Properties	Concurrence required by the Programmatic Agreement between affected agencies, SHPO, and ACHP, including concurrence from SHPO regarding effects to Historic Properties
NPS	Use of right-of-way for roadway	Easement
U.S. Bureau of Land Management	Use of right-of-way for roadway	Easement
Reclamation	Use of right-of-way for roadway	Easement
WAPA	Use of right-of-way for roadway	Easement
U.S. EPA	Stormwater discharges	NPDES Permit
USFWS	Impacts on special-status plant and wildlife species	Section 7 Biological Opinion

Next Steps in Corridor Study Process

The Boulder City/U.S. 93 Corridor Study FEIS will be used to determine and facilitate the various discretionary and stipulated actions required to implement the project (Table ES-2). These decisions will be identified in the ROD. Statements on the FEIS will be accepted and considered in the decision on this proposed action. The FEIS is being distributed for a minimum 30-day review period.

While issuance of the ROD completes the National Environmental Policy Act (NEPA) review process, consultation and other activities to maintain compliance with applicable regulations will continue. As noted above and throughout the FEIS, refined engineering details will be needed to coordinate the development of further mitigation and compliance actions. These details will allow completion of consultations with appropriate resource management and oversight agencies (Table ES-2), such as the SHPO (develop and implement final cultural resources mitigation measures under the PA), NDOW and USFWS (develop and implement final biological resources mitigation measures pursuant to the Endangered Species Act [ESA]), and the USACE and U.S. EPA (measures to mitigate impacts to waters of the U.S. and pollution control and prevention pursuant to the Clean Water Act [CWA]).

In addition to FHWA's approval of the ROD, the Nevada Revised Statutes (NRS) require approval of the board of county commissioners of the county in which freeways are proposed, and approval of the city council of any incorporated city directly affected thereby, before the project can move forward to construction. The ROD will explain the reasons for the project decision, based on information contained in the EIS, and document mitigation measures that will be incorporated in the project. After development of final design plans and specifications and acquisition of needed right-of-way and easements, construction may proceed.

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