

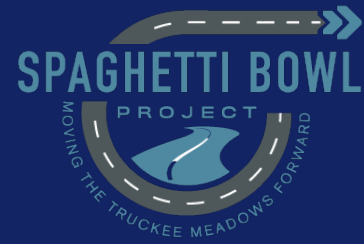


# EXECUTIVE SUMMARY



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# EXECUTIVE SUMMARY

The Nevada Department of Transportation (NDOT) and the Federal Highway Administration (FHWA) studied alternatives to address the obsolete design, improve safety, and reduce travel delay in the Interstate 80 and Interstate 580/U.S. Highway 395 (I-80 and I-580/US 395) corridors and the interchange that connects these freeways, known locally as the “Spaghetti Bowl,” in the cities of Reno and Sparks, Nevada. The study area includes the Spaghetti Bowl, a 5-mile segment of I-80 from Keystone Avenue east to McCarran Boulevard, and a 7.3-mile segment of I-580/US 395 from Meadowood Mall Way north through the Spaghetti Bowl to Parr Boulevard/Dandini Boulevard.

## Preferred Alternative

The Interstate 80/Interstate 580/U.S. Highway 395 Freeway-to-Freeway Interchange and Improvements Draft Environmental *Impact Statement* (EIS) published in 2018 noted that NDOT identified Alternative 2 as its Preferred Alternative. Based on its review of public and agency comments on the Draft EIS, NDOT has confirmed Alternative 2 as its Preferred Alternative, and FHWA has also identified Alternative 2 as its Preferred Alternative.

### Public Involvement

NDOT and FHWA implemented an extensive public involvement program for the project, which is described in [Chapter 4](#) and [Appendix E, Community Involvement and Agency Coordination Prior to Draft EIS Approval](#). More than 200 meetings have been held with neighborhood, community, environmental, business, minority, and other stakeholder groups since early 2017. Open-house public involvement meetings were held in April and September 2017.

The Draft EIS was made available for agency and public review on November 8, 2018. The Notice of Availability was published in the *Federal Register* on November 16, 2018, and the comment period closed on January 15, 2019. NDOT and FHWA held a public hearing on December 12, 2018, at the Reno-Sparks Convention Center. Chapter 4 of the Final EIS provides detailed information on the public involvement and agency coordination process. [Appendix G, Responses to Draft EIS Comments](#), contains comments letters on the Draft EIS from state, local, and federal agencies and responses to those comments. It also contains all public comments (public comments are responded to in Chapter 4).

## Information About the Final EIS

The Final EIS includes information presented in the Draft EIS. It responds to comments on the Draft EIS and summarizes input received during the 60-day comment period, which included a public hearing. The following is a list of substantive revisions and additions since the Draft EIS was approved in November 2018:

- **Executive Summary.** Updated to note that NDOT has confirmed Alternative 2 as its Preferred Alternative and FHWA has also identified Alternative 2 as the Preferred Alternative. This is based on NDOT and FHWA’s review of agency and public comments as well as information on cost, impacts, traffic operations, and safety presented in the Draft EIS. The summary of other state and federal actions has also been updated.
- **Chapter 1 – Why is the Project Needed?** No substantive changes.
- **Chapter 2 – Range of Alternatives Considered and Identification of the Preferred Alternative.** Updated to reflect that the direct-connect ramp from I-580 southbound to Reno-Tahoe International Airport has been added to Alternative 2 and to document that Alternative 2 is NDOT’s and now also FHWA’s Preferred Alternative, and the reasons for that decision.
- **Chapter 3 – Existing Conditions, Impacts, and Mitigation Measures.** Two key areas that have been updated are the mitigation measures in Section 3.3 Environmental Justice and Section 3.4 Traffic Noise:
  - **Section 3.3 Environmental Justice** of the Draft EIS listed several optional measures that NDOT was considering to mitigate residential displacements. Following the Draft EIS approval, NDOT and FHWA have vetted this list and decided which of these additional mitigation measures they will implement. NDOT also met with the Reno Housing Authority, City of Reno, and City of Sparks in December 2018 to discuss impacts of the project on affordable housing, and that meeting is now summarized in Section 3.3.
  - **Section 3.4 Traffic Noise** has been updated to reflect the results of additional noise mitigation analysis for Alternative 2 that took place after the Draft EIS was approved. NDOT conducted a more detailed traffic noise barrier analysis in an effort to refine the locations of traffic noise barriers. The goal was to maximize the number of residents benefitted by a traffic noise barrier.



Four other Chapter 3 sections have less extensive updates. [Section 3.2 Community Resources](#) has been updated to reflect additional mitigation measures for the Reno-Sparks Indian Colony and residential displacements. [Section 3.6 Transportation Services](#) has been updated to reflect the southbound I-580 direct-connect ramp being added to Alternative 2, the Preferred Alternative. [Section 3.5 Air Quality](#) has been updated to reflect FHWA approval of a Regional Transportation Plan amendment. [Section 3.11 Cultural Resources](#) has been updated to reflect additional consultation with the Nevada State Historic Preservation Office (SHPO) regarding cultural resources impacts and mitigation.

- [Chapter 4 – Public and Agency Involvement Summary and List of Recipients to Whom Notice of the Environmental Impact Statement Availability Was Sent.](#) Updated to document the input received during the 60-day public and agency comment period on the Draft EIS, including a description of the December 12, 2018, public hearing.
- [Chapter 5 – List of Preparers.](#) No substantive changes.
- [Chapter 6 – Final Section 4\(f\) Evaluation and Section 6\(f\) Assessment.](#) The Draft Section 4(f) Evaluation was Appendix F in the Draft EIS. The Final Section 4(f) Evaluation has been updated to reflect additional coordination with the SHPO regarding historic properties. The Section 6(f) Assessment has been updated to reflect input from the U.S. Department of the Interior - National Park Service regarding Section 6(f) applicability and mitigation.
- [Appendix A – Existing Freeway Conditions Report.](#) No changes.
- [Appendix B – Development of the Freeway Reconstruction Alternatives.](#) Appendix B.2 Alternatives Design Report was updated with the current design concept.
- [Appendix C – Traffic Analysis.](#) Updated to reflect the airport direct-connect ramp being added to Alternative 2 traffic analysis.
- [Appendix D – Technical reports for community impacts \(\[Appendix D.2\]\(#\)\), environmental justice \(\[Appendix D.4\]\(#\)\), and noise \(\[Appendix D.5A\]\(#\)\)](#) have been updated to reflect the changes in mitigation measures noted above. Technical reports for visual impacts ([Appendix D.7](#)) and indirect and cumulative impacts ([Appendix D.14](#)) had minor updates, mostly to reflect updates to mitigation measures. Air quality ([Appendix D.6](#)) was updated to reflect FHWA approval of a recent Regional Transportation Plan amendment. The cultural resources Assessment of Effects ([Appendix D.13](#)) and Memorandum of Agreement have been finalized.
- [Appendix E – Community Involvement and Agency Coordination Prior to Draft EIS Approval.](#) No changes to the content. The appendix title was changed to make it clear this is a summary of public involvement and agency coordination that occurred prior to the Draft EIS approval in November 2018.
- [Appendix F – Section 4\(f\) Evaluation Supporting Information.](#) This appendix includes exhibits and supporting documentation for the Section 4(f) Evaluation in Chapter 6.
- [Appendix G – Responses to Draft EIS Comments.](#) Contains comment letters on the Draft EIS from state, local, and federal agencies and responses to those comments. It also contains all public comments (public comments are responded to in Chapter 4).
- [Appendix H – Change in Control of Access Report.](#) This report was prepared by NDOT and submitted to FHWA for approval after the Draft EIS was approved. FHWA has the responsibility to approve new or revised access points to the Interstate System. This report was submitted to FHWA for determination of safety, operations, and engineering acceptability of the changes to Interstate access proposed by this project.



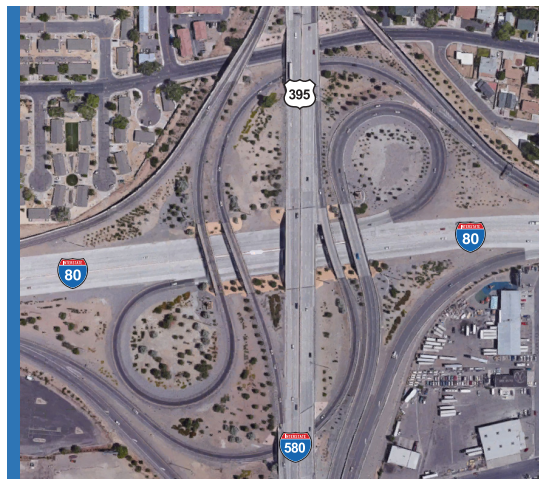
# Description of the Proposed Action

NDOT and FHWA propose to reconstruct I-80, I-580, and US 395 in Reno and Sparks, Nevada. The scope of the project is to reconstruct the freeway and bridges, reconstruct and modify interchange access to improve safety and traffic flow, and reconstruct local streets affected by the freeway reconstruction. The project would accomplish the following:

- Maintain a key link in the local, state, and national transportation network.
- Address the obsolete design of I-80, I-580, and US 395 to improve safety and decrease crashes.
- Replace bridges that are approaching the end of their useful lives.
- Accommodate existing and future traffic volumes at an acceptable level of service.

The project would neither require nor preclude future transportation improvements identified in the regional transportation plan. The project would provide a safer and more efficient transportation system in the study area, while minimizing impacts to the natural, cultural, and built environment to the extent feasible and practicable.

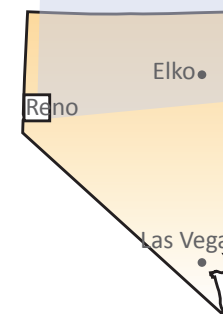
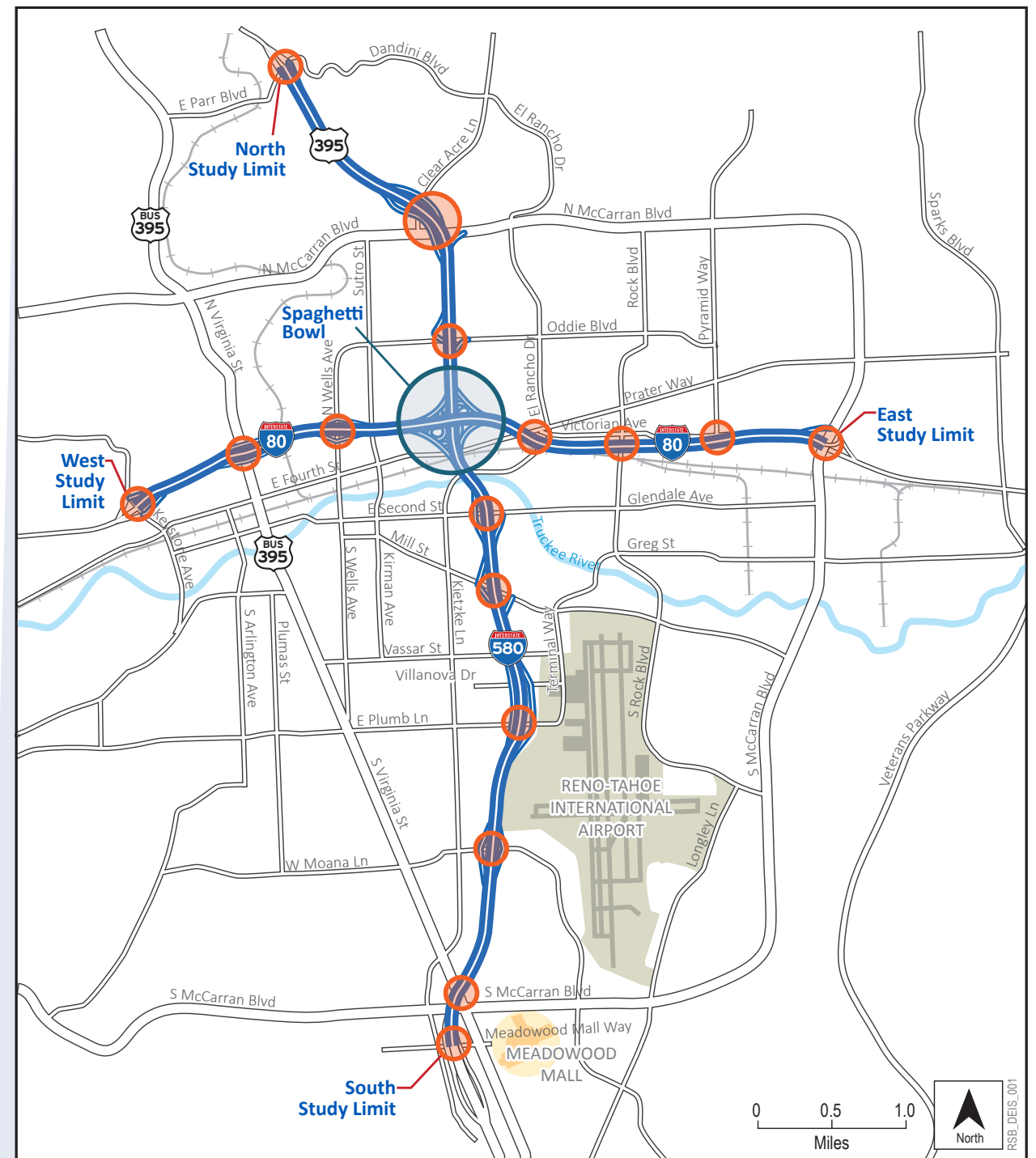
NDOT and FHWA are the lead state and federal agencies, respectively, for the project.



The interchange that connects I-80, I-580, and US 395 is known locally as the Spaghetti Bowl. The project is referred to as the Spaghetti Bowl reconstruction and includes I-80, I-580, and US 395 feeding into and out of the Spaghetti Bowl (Figure ES-1). The project limits are:

- Keystone Avenue on the west
- McCarran Boulevard on the east
- Parr Boulevard/Dandini Boulevard on the north
- Meadowood Mall Way on the south

Figure ES-1. Study Area



- Legend**
- Service Interchange
  - Freeway-to-Freeway Interchange

# PROJECT NEED

## Why is the Project Needed?

The purpose of the Spaghetti Bowl reconstruction is to address the obsolete design of the freeways in and around the Spaghetti Bowl to improve traffic operations and reduce crashes. The project is needed to:

- **Reduce travel delay.** High traffic volumes and an outdated freeway design contribute to congestion and travel delays.
- **Improve safety.** The high crash rates experienced along I-80 and I-580/US 395 in the study area, compared to similar urban freeways in Nevada, make safety improvement a key need.
- **Improve bridges.** Most of the bridges in the study area are at or approaching the end of their planned service lives. Many are not wide enough to meet NDOT standards for traffic lane and shoulder widths.
- **Optimize system connections.** I-80, I-580, and US 395 are part of the National Highway System, providing important local and regional connections.



Chapter 1 discusses the four “project needs” listed above in more detail. The need for the project sets the stage for developing and evaluating possible improvement alternatives.



# Alternatives Considered

[Chapter 2, Range of Alternatives Considered and Identification of the Preferred Alternative](#), describes the range of alternatives developed to address the problems identified in and around the Spaghetti Bowl and describes the basis for retaining alternatives for additional study or eliminating alternatives from consideration. NDOT and FHWA developed and evaluated a range of alternatives to address the deficiencies in the study area. NDOT presented the alternatives to the public and assessed their environmental impacts and the extent to which they would fulfill the purpose of the project (see [Chapter 3](#) for a more detailed presentation of environmental impacts). NDOT considered the following initial alternatives:

- **No Build Alternative** – No safety or capacity improvements would be made. Only maintenance and minor improvements would be performed. This alternative serves as a baseline for comparison to the other alternatives.
- **Transportation Demand Management Alternative** – This transportation management alternative strives to reduce the number of vehicles on the freeway through increased transit ridership, bicycle and pedestrian improvements, and other strategies. The *Regional Transportation Commission 2040 Regional Transportation Plan (2017)* has a strong commitment to transit projects and complete street initiatives.
- **Transportation System Management Alternative** – This transportation management alternative includes measures to maximize the efficiency of the freeway system to help alleviate or postpone the need to expand freeway capacity. Transportation system management measures include:
  - Ramp meters to improve capacity and merging at on-ramps
  - High-occupancy vehicle lanes
  - Reversible lanes
  - Intelligent transportation systems, such as traffic cameras and dynamic message signs

Several transportation system management elements would be included in the Preferred Alternative.
- **Alternative 1** keeps all existing access between the local roads and freeway system while increasing capacity and improving traffic operations in and around the Spaghetti Bowl by using ramp braiding to reduce weaving. This alternative would increase the footprint of the freeway in and around the Spaghetti Bowl compared to the current footprint. This alternative has the highest number of residential and business displacements, including large impacts to downtown Sparks.
- **Alternative 2** eliminates some access between the local streets and the freeway system, increases capacity, and uses ramp braiding to improve safety and traffic operations. Its footprint would be smaller than Alternative 1. **NDOT and FHWA identified Alternative 2 as the Preferred Alternative.** Alternative 2 strikes the best balance between satisfying the project needs while maintaining freeway access and minimizing impacts. **Alternative 2 was identified in the Draft EIS as NDOT’s Preferred Alternative. NDOT has confirmed Alternative 2 as its Preferred Alternative, and FHWA has also identified Alternative 2 as the Preferred Alternative.**
- **Alternative 3** eliminates more freeway access than Alternative 2, increases capacity, and reduces weaving by eliminating more on- and off-ramps to improve interchange spacing. This minimizes the project footprint compared to Alternatives 1 and 2 by avoiding the need for ramp braids.

**Alternatives 1 and 2 would completely reconfigure all ramps in the Spaghetti Bowl to eliminate tight loop ramps. Under Alternative 3, one tight loop ramp would remain. All three alternatives would eliminate lane drops on ramps, as well as the lane drops on southbound I-580 and westbound I-80.**

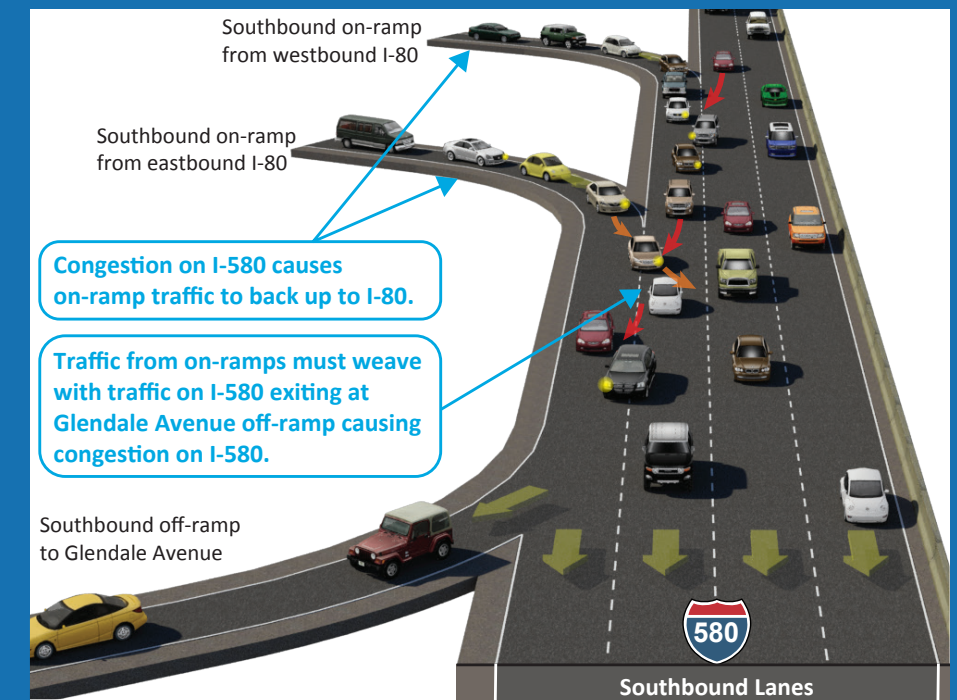
The alternatives were evaluated for the following:

- Ability to meet project purpose and need
- Construction cost
- Ability to avoid and minimize impacts to the natural, built, and cultural environment
- Input from local governments, resource agencies, and the public

Federal and state laws, such as Section 106 of the National Historic Preservation Act, Section 4(f) of the U.S. Department of Transportation Act, and Section 404 of the Clean Water Act, were considered in evaluating alternatives.

Alternatives 1, 2, and 3 were retained for detailed study following an alternatives screening process because they meet all purpose and need elements. The Transportation Demand Management Alternative and Transportation System Management Alternative would not, by themselves, meet the purpose and need of the project and were not retained for detailed study. The No Build Alternative does not meet the purpose and need of the project but was retained for detailed study as a baseline to compare impacts.

## Weaving



**Weaving is the crossing of two or more lanes of traffic in the same direction. For example, weaving occurs when an interchange entrance ramp is followed by an exit ramp. The most critical aspect of operation within a weaving segment is lane changing. The relative placement of entry and exit lanes has a major effect on the number of lane changes required of weaving vehicles to successfully complete their maneuver.**

## Ramp Braiding



**Ramp braids are freeway on- and off-ramps that are close to one another and built so one ramp crosses over the other. Ramp braids eliminate the need for weaving.**

# ENVIRONMENTAL IMPACTS

## Environmental Impacts

Overall, the impacts of Alternatives 1, 2, and 3 would be greater than those of the No Build Alternative and the other alternatives considered. Table ES-1 summarizes the impacts of the No Build Alternative and Alternatives 1, 2, and 3 (see [Chapter 3](#) for a detailed evaluation).

**Table ES-1. Impact Summary Table**

Impact Type	No Build Alternative	Alternative 1	Alternative 2	Alternative 3
<b>Total Cost (\$billions)</b>	0 <sup>a</sup>	\$2.6 in 2018 dollars \$4.1 in year-of-expenditure dollars <sup>b</sup>	\$1.5 in 2018 dollars \$2.4 in year-of-expenditure dollars <sup>b</sup>	\$1.5 in 2018 dollars \$2.4 in year-of-expenditure dollars <sup>b</sup>
<b>Property Acquired (acres)</b>	0	180	92	82
<b>Property Acquired from Reno-Sparks Indian Colony (acres)</b>	0	3.1	0	0
<b>Residential Displacements</b>	0	938	326	233
<b>Reno-Sparks Indian Colony Residential Displacements</b>	0	0	0	0
<b>Commercial Displacements</b>	0	59	22	26
<b>Publicly Owned and Social Service Agency Buildings Affected</b>	0	24	16	20
<b>Parkland Acquired (acres)</b>	0	7.3	2	1.8
<b>Noise Receivers Affected</b>	177	187	186	210
<b>Historic Sites Affected</b>	0	3	1	2
<b>Archaeological Sites Affected</b>	0	0	0	0
<b>Contaminated Sites Affected</b>	0	34	19	25
<b>Water Quality Impacts</b>	Runoff from freeway continues to go directly to Truckee River and smaller streams without being treated.	115 acres more impervious area increases runoff from freeway. <sup>d</sup>	61 acres more impervious area increases runoff from freeway. <sup>d</sup>	49 acres more impervious area increases runoff from freeway. <sup>d</sup>
<b>Stream Impacts (acres filled)</b>	0	0.43	0.22	0.29
<b>100-Year Floodplain Filled (square feet)</b>	0 <sup>e</sup>	1,000 <sup>f</sup>	100 <sup>f</sup>	100 <sup>f</sup>
<b>Threatened and Endangered Species Affected (yes/no)</b>	No	Yes	Yes	Yes
<b>Air Quality Impacts (NAAQS violations)</b>	No	No	No	No

<sup>a</sup> The No Build Alternative would cost between \$175 to \$215 million in the short term to replace the pavement and bridge decks most in need.

<sup>b</sup> This accounts for inflation cost increases over the phased construction of the project. Inflation based on NDOT's Escalation Rate Forecasts (NDOT 2015).

<sup>c</sup> The noise impacts presented in this table are based on preliminary modeling that evaluated 342 receivers and the 2040 PM peak traffic volumes. The preliminary modeling allows direct comparison among all alternatives to help identify the preferred alternative. Section 139 of Title 23, United States Code allows project sponsors to perform more analysis on the preferred alternative after it has been identified, to refine impacts and mitigation. Following the publication of the Draft EIS, NDOT conducted additional noise modeling on Alternative 2, the Preferred Alternative. Traffic noise mitigation proposed in the Final EIS is based on new modeling that evaluated 236 receivers and 2040 PM Peak traffic volumes, resulting in 154 impacted receivers for Alternative 2.

<sup>d</sup> However, runoff would be treated prior to entering Truckee River and smaller streams.

<sup>e</sup> 1,091 square feet of floodway are already filled by the bridge pier that supports I-580 in the Truckee River.

<sup>f</sup> The pier in the Truckee River that supports the I-580 bridge would be removed, which would remove 1,091 square feet of fill from the floodplain. Values are fill that would be placed separate from removal of the existing pier.

NAAQS = National Ambient Air Quality Standards.



The No Build Alternative would not displace any residences or businesses and would not affect cultural resources; however, it would have environmental impacts. The No Build Alternative would not treat stormwater that runs off the freeway, and it would not produce the air quality benefits Alternatives 1, 2, and 3 would achieve through reducing travel delay.

The project's biggest impact would be displacing 233 (Alternative 3) to 938 (Alternative 1) residences. Alternatives 1, 2, and 3 would affect Mineral Manor, a public housing complex owned by the Reno Housing Authority, as well as several large apartment buildings and single-family residences. NDOT would build the project in phases, which would spread the residential displacements over 20 years.

The project would displace between 22 (Alternative 2) and 59 (Alternative 1) businesses. Under Alternative 1, the Nugget Casino Resort's casino would need to close while I-80 is reconstructed over the casino. Also under Alternative 1, NDOT would have to acquire 3 acres from the Walmart parking lot on Second Street. Alternatives 1 and 3 would impact the Grand Sierra Resort's parking lot along I-580. Alternative 1 would also impact parking on Victorian Avenue in Sparks which would negatively impact redevelopment in downtown Sparks.

Mitigating the high number of residential and business displacements would be NDOT's biggest mitigation effort on this project. Residential and business displacements and other impacts would follow the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), which requires just compensation for residences and businesses displaced by a federal project. The displaced residents and businesses who

want assistance in finding new accommodations will get it. NDOT recognizes that the housing market in Reno-Sparks is very expensive for renters and homeowners, and **has committed** to additional measures to assist displaced residents. Phasing the project over 20 years would make it easier for NDOT to find adequate replacement housing because the residential displacements would not happen all at one time.

- **Phase 1 (Spaghetti Bowl Xpress) (2020-2022):** Construct two ramps within the Spaghetti Bowl, the Second Street/Glendale Avenue interchange, and the Mill Street interchange (southbound only), and open third southbound lane through the Spaghetti Bowl (2 property acquisitions)
- **Phase 2 (2023-2025):** Construct east leg (10-15 property acquisitions) from area around the Spaghetti Bowl to McCarran Boulevard, the east limit.
- **Phase 3 (2027-2029):** Construct north leg (200-210 property acquisitions) from area around the Spaghetti Bowl to Parr/Dandini Boulevards, the north limit.
- **Phase 4 (2035-2037):** Construct remaining south leg not completed in Phase 1 (5-10 property acquisitions) down to Meadowood Mall Way, the south limit.
- **Phase 5 (2037-2039):** Construct remaining Spaghetti Bowl ramps and west leg (90-100 property acquisitions) to Keystone Avenue, the west limit.

Alternative 1 would displace the Truckee Meadows Boys & Girls Club. Alternatives 1 and 2 would displace Coral Academy Middle School and the Community

**Alternatives 1, 2, and 3 would remove the existing I-580 bridge pier, which would impact the river during construction. The updated bridge would span the river without piers.**



Services Agency. Alternative 3 would displace several greenhouses on the University of Nevada, Reno's Agricultural Experiment Station. [Section 3.2, Community Resources](#), documents the residential, business, publicly owned building, and social service agency displacements, and other impacts. Like residential and business displacements, NDOT would mitigate the Boys & Girls Club, Coral Academy, and Community Services Agency displacements under the Uniform Act, including finding adequate replacement locations.

Alternative 1 would displace the Centennial Plaza bus station in Sparks. Alternatives 1 and 2 would displace the Regional Transportation Commission's bus maintenance building under I-580 between Villanova Drive and Plumb Lane.

Alternative 1 would displace two parks in Reno and one in Sparks and acquire smaller parts of other parks. Alternatives 2 and 3 would not displace any parks but would acquire part of one park.

FHWA has made the determination that Alternatives 1, 2, and 3 would have a disproportionately high and adverse effect on low-income and minority populations.

This determination was made mostly because of the high number of residential displacements, many of which would occur in neighborhoods with a high percentage of minority and/or low-income residents.

Some residences and other buildings such as hotels may see a small increase in traffic noise levels. Traffic noise barriers are in place in several locations in and around the Spaghetti Bowl today and would be replaced as part of the project.

Alternative 1 would adversely affect one historic district and two historic properties listed in or eligible for listing in the National Register of Historic Places. Alternative 2 would have an adverse effect on one historic district, and Alternative 3 would have **an** adverse effect on **two** historic districts.

Lahontan cutthroat trout, a federally protected species, is present in the Truckee River and could be affected when the concrete bridge pier supporting I-580 is removed. The impact would only occur during construction, when part of the river would be dewatered to move construction equipment to the bridge pier.



**This existing traffic noise barrier at the I-80/Wells Avenue interchange includes an artistic treatment. Traffic noise barriers are practical, reasonable, and effective for minimizing and mitigating noise impacts.**

# PROPOSED MITIGATION

## Proposed Mitigation

NDOT and FHWA **will** avoid and minimize project impacts to the extent practicable. Unavoidable impacts **will** be mitigated to the extent practicable and allowable under state and federal law. Table ES-2 summarizes the mitigation measures NDOT has committed to. [Chapter 3](#) provides more details on mitigation measures.

**Table ES-2.** Mitigation Summary Table

Resource Affected	Proposed Mitigation Measure
Community Impacts	<p>The NDOT Right-of-Way Division, under the guidance of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), <b>will</b> negotiate with the property owners (commercial and residential) directly affected by full or partial acquisition, ensuring that fair market value is received for the required right-of-way. Alternative 1, 2, or 3 <b>will</b> be constructed over a 20-year period, which <b>will</b> make it easier to find adequate replacement housing because the residential displacements <b>will</b> not happen all at one time. Changes to access <b>will</b> be mitigated by modifying freeway signs to direct users to/from I-80/I-580/US 395. NDOT <b>will</b> work with the City of Reno, City of Sparks, and the Regional Transportation Commission of Washoe County to maintain bike routes and transit connectivity across US 395.</p> <p>NDOT <b>will provide the following</b> additional mitigation measures beyond those required by the Uniform Act:</p> <ul style="list-style-type: none"> <li>• Extend rental assistance for displaced renters up to 24 months beyond the required 42 months (rental assistance for a total of 66 months).</li> <li>• Provide funds or land already owned by NDOT to others (Cities of Reno or Sparks, Washoe County) to build affordable replacement housing for non-Reno Housing Authority displacements. Those displaced by this project who wish to remain in the area will be given priority access to the replacement housing. After those needs have been addressed this affordable housing will then be made available to those who qualify for affordable housing and have not been displaced by the project. Residents will be considered eligible for this replacement affordable housing if they meet Section 8 eligibility requirements or Reno Housing Authority’s Admission and Continued Occupancy Policy (2018). The contribution of funds or lands will be tied to commitments from recipients to have affordable replacement housing available prior to the initiation of the NDOT right-of-way acquisition process.</li> <li>• Provide undeveloped land already owned by NDOT to the Reno Housing Authority for them to build replacement units.</li> <li>• Provide the Reno Housing Authority with funding so the Authority could provide vouchers for displaced Mineral Manor residents up to 24 months.</li> <li>• Ensure, to the extent possible, the Reno Housing Authority’s federal funding from the Department of Housing and Urban Development will not be reduced because of the Spaghetti Bowl Project.</li> <li>• Provide potential neighborhood-scale enhancements developed in conjunction with nearby residents or neighborhood advisory boards and City of Reno/City of Sparks.</li> <li>• Work with the Reno Housing Authority to study the remaining useful life of Mineral Manor buildings under different maintenance scenarios.</li> </ul>

Table ES-2. Mitigation Summary Table (continued)

Resource Affected	Proposed Mitigation Measure
Community Impacts (continued)	<p>NDOT will coordinate closely with the Reno Housing Authority, Cities of Reno and Sparks, and the Truckee Meadows Regional Planning Agency to develop an effective residential displacement mitigation plan.</p> <p>NDOT will continue to work with the Reno-Sparks Indian Colony regarding mitigation measures for impacts to the roads surrounding Colony property.</p> <p><b>Construction:</b> NDOT will develop a plan to communicate with the public and property owners regarding construction schedule, street and freeway ramp closures, and detours throughout construction. Access to residences, businesses, public buildings, and social service agencies will be maintained during construction. NDOT will not close consecutive freeway interchanges and will maintain street connections between interchanges to ensure access and circulation through the area.</p> <p>NDOT will work with emergency service providers during the design phase to develop a plan to maintain emergency service response times during construction.</p> <p>NDOT will coordinate with Reno-Sparks Indian Colony to develop measures to mitigate potential construction impacts to Reno-Sparks Indian Colony property.</p>
Parks	<p>NDOT is coordinating with the Reno and Sparks parks departments to develop effective mitigation measures for parks, which could include compensating the communities for the cost of the property acquired for parks and/or finding suitable replacement land for the parks. NDOT will mitigate impacts to the Sage Street Park by constructing recreational improvements on the remainder of the park parcel not impacted by the project and on the adjacent parcel.</p>
Environmental Justice	<p>Mitigation measures for residential and business displacements, community impacts, traffic noise impacts, and visual impacts will benefit low-income and minority populations.</p>
Traffic Noise	<p>NDOT will reconstruct traffic noise barriers in all locations that meet criteria for traffic noise mitigation to equal or better acoustical benefit. NDOT will adjust the height and length of barriers to provide maximum benefit to impacted receivers. NDOT will also build new traffic noise barriers where there currently are none at locations that meet regulatory, guidance, and policy criteria.</p> <p>To mitigate disproportionately high and adverse environmental justice impacts, NDOT will construct screening walls in locations that currently have a traffic noise barrier but no longer meet regulatory, guidance, and policy criteria for traffic noise mitigation. These screening walls will reduce noise levels. Typically they will be 8 to 14 feet tall and have vertical steel posts to hold them in place. Screening walls will look the same as traffic noise barriers.</p> <p><b>Construction Noise and Vibration:</b> NDOT will require that its contractor maintain and operate motorized equipment in compliance with all local, state, and federal laws and regulations relating to noise levels. In addition, if feasible, new and replacement traffic noise barriers and screening walls will be constructed early in each phase to mitigate construction noise. NDOT will minimize the use of vibratory equipment and conduct high-vibration construction during the day, where feasible and appropriate. Construction vibrations can often be perceived at levels far less than would be considered damaging to residential structures. Only the largest equipment anticipated has the capability to produce damaging vibrations. However, vibrations rapidly decrease as they pass through soils, and vibrations are anticipated to be well below expected damage threshold limits near buildings.</p>

Table ES-2. Mitigation Summary Table (continued)

Resource Affected	Proposed Mitigation Measure
Air Quality	<p>The project is not expected to create long-term adverse impacts on air quality, so no mitigation measures will be required.</p> <p><b>Construction:</b> NDOT will mitigate construction vehicle emission impacts by implementing and maintaining a comprehensive traffic control plan and stipulating that unnecessary idling and equipment operation be avoided. NDOT will require equipment and vehicles used during construction to comply with EPA's emissions standards for on-road vehicles and off-road construction equipment. NDOT's contractor will comply with applicable dust-control requirements of the Washoe County Health District Air Quality Management Division and Nevada Division of Environmental Protection as necessary, and NDOT will implement best management practices to minimize emissions from construction. Dust generated by construction will be mitigated by standard dust and emission control measures. Additional measures to reduce construction dust will be incorporated into the construction plans in accordance with NDOT's Standard Specifications for Road and Bridge Construction (NDOT 2014).</p>
Transportation	<p>NDOT will update freeway signs to guide drivers to key destinations where interchanges will be modified or closed. The project will improve local streets where interchanges will be modified for smooth traffic flow and adequate capacity to and from new ramps. Signage and traffic controls (such as traffic signals) will be updated at modified interchanges.</p> <p>NDOT will coordinate with the Regional Transportation Commission on planned pedestrian and bike improvements to incorporate them into the project design wherever practical.</p> <p>NDOT will also restore any bus stops that will be removed by the project, in cooperation with the Regional Transportation Commission and in accordance with their standards, including Americans with Disabilities Act-compliant access.</p> <p><b>Construction:</b> NDOT will coordinate freeway and street lane closures to ease traffic disruptions to the extent possible. NDOT will use nighttime closures where possible to minimize traffic disruptions. NDOT will complete extensive public outreach to communicate any closures or detours to the public. NDOT will avoid rerouting heavily used transit routes, where feasible, and maintain Americans with Disabilities Act-compliant pedestrian access to transit stops, including appropriate safe street crossings. NDOT and FHWA will work with Reno and Sparks to identify pedestrian and bike route detours that may be needed during construction.</p> <p>NDOT will coordinate with the Union Pacific Railroad and Amtrak to minimize interruptions to rail service during construction of the I-580 bridge over the railroad tracks. NDOT will work with Union Pacific to develop a plan to minimize disruption to freight rail service while replacing the railroad bridge over I-80. NDOT will provide signed detours for access to and from Reno-Tahoe International Airport if the Plumb Lane interchange or direct-connect ramps are closed. Either the Plumb Lane interchange or the direct-connect ramps will remain open during construction to provide efficient access to the airport. NDOT will work with the airport authority to develop a construction access plan for the airport.</p>

Table ES-2. Mitigation Summary Table (continued)

Resource Affected	Proposed Mitigation Measure
Visual Character/Aesthetics	<p>NDOT will provide aesthetic treatments to the project’s traffic noise barriers, screening walls, bridges, retaining walls, and signs based on the I-80 Landscape and Aesthetics Corridor Plan (NDOT 2005). NDOT will develop specific aesthetic treatments for this project during final design. The aesthetic treatments will be similar to the treatments NDOT has used for other highway projects in the area. New high-mast freeway lighting will employ shielding on luminaries to minimize light and glare impacts to adjacent residences.</p> <p><b>Construction:</b> NDOT will locate construction staging areas (i.e., where contractors store equipment and material during construction) in places where their visibility will be minimal and, to the extent required, will provide temporary screening to limit views into them from nearby residential areas, trails, or streets. Construction methods will minimize the need to remove vegetation to accommodate construction. Nighttime lighting will be minimized or shielded at staging areas or during construction. NDOT will restore areas disturbed during construction.</p>
Water Resources	<p>In the design phase, NDOT will implement measures to minimize impacts to natural streams and man-made ditches by employing the principles and standards from NDOT’s water quality manuals (NDOT Stormwater Division 2018), the <i>Planning and Design Guide</i> (NDOT 2017a), and the <i>Construction Site Best Management Practices Manual</i> (NDOT 2017b). Construction in or near waterways will be performed in accordance with NDOT’s Structures Manual (NDOT 2008).</p> <p>To mitigate the project’s potential longer-term water quality impacts, NDOT is designing stormwater detention basins to treat runoff from all of the project’s paved area (existing and proposed), along with unpaved and disturbed areas within the construction footprint.</p> <p><b>Construction:</b> NDOT’s contractor will follow <i>NDOT’s Construction Site Best Management Practices Manual</i> (NDOT 2017b) to keep exposed soil from eroding into stormwater flowing offsite, thereby reducing the discharge of sediment and other pollutants into ditches, streams, and the Truckee River. The contractor will develop a stormwater pollution prevention plan (SWPPP) before construction to identify potential stormwater pollution sources and appropriate best management practices to prevent or reduce, to the maximum extent possible, pollutant discharges associated with construction. NDOT’s contractor will prevent debris from falling into the Truckee River during bridge removal and if possible will remove any debris that inadvertently enters the river.</p>
Vegetation, Wildlife, and Fish	<p><b>Vegetation.</b> Native seed mixes, plants, and trees will be used in disturbed areas and along the river. Native trees and plants will be considered for use in landscaped areas. In addition, NDOT will install erosion-control best management practices and manage stormwater to protect vegetation from water-related erosion. During construction, NDOT’s contractor will develop and follow a Noxious Weed Management Plan to prevent the establishment and spread of Nevada State-listed noxious weeds per Nevada Revised Statutes Chapter 555. The management plan shall include mapping of existing noxious weed populations; appropriate eradication/control methods based on weed type, location, applicator certification, monitoring, and retreatment as necessary; and methods for keeping equipment, personnel, staging areas, construction and excavation sites, and roadways clear of noxious weed plants and seeds. The plan shall also address the treatment of weeds in topsoil salvage material.</p>

Table ES-2. Mitigation Summary Table (continued)

Resource Affected	Proposed Mitigation Measure
Vegetation, Wildlife, and Fish (continued)	<p><b>Wildlife and Fish.</b> During construction, NDOT will require nesting bird surveys between March 1 and August 31 and prior to the removal of trees and vegetation to minimize impacts to active nests. The survey will be performed no more than 7 days before the proposed tree or vegetation removal date. If active nests are identified, NDOT will protect them in place with a buffer and limit construction until the young leave the nest. All bridges and buildings will be inspected for the presence of roosting bats or nesting swallows prior to demolition. To prevent establishment of swallow nests or bat roosts, measures will be taken to prevent nesting or roosting on structures prior to demolition. If nesting swallows or roosting bats are identified, then they will not be disturbed until the young swallows leave the nest or young bats are able to leave the roost. Implementing best management practices will minimize impacts due to sedimentation, hazardous material spills, or short-term habitat loss during construction.</p> <p><b>Sensitive Species.</b> Before NDOT removes the I-580 bridge pier from the Truckee River, it will implement measures to minimize impacts to the Lahontan cutthroat trout in accordance with the U.S. Fish and Wildlife Service Biological Opinion. NDOT’s contractor will develop a water diversion plan and fish salvage plan to be submitted to the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the NDOT Environmental Services Division. Water isolated from the diverted Truckee River channel will be allowed to slowly drain out of the work zone to allow fish to move downstream and out of the work zone. Work within the Truckee River will not occur during October through June. NDOT will require the in-water equipment to be inspected for invasive species and prohibit the equipment from entering another waterbody for a minimum of 5 days. All terms and conditions of the U.S. Fish and Wildlife Service Biological Opinion will be adhered to.</p>
Hazardous Materials	<p>Properties with known contamination may be evaluated further on a site-by-site basis to include those properties previously identified or sites realized during project-related activities.</p> <p>Prior to acquiring properties with known contamination, NDOT may conduct additional levels of assessment to determine if further action is needed to evaluate impacts to the property’s value and/or proposed construction activities. Any further assessment and remedial actions will be subject to the approval of the appropriate regulatory agencies, NDOT, and FHWA, as relevant.</p> <p>All structures inclusive of bridges that will be disturbed or demolished will be surveyed to determine the presence of regulated materials to include universal wastes, asbestos-containing material, and heavy metals. All regulated materials will be removed, managed, and disposed of in accordance with applicable regulations, as needed.</p>

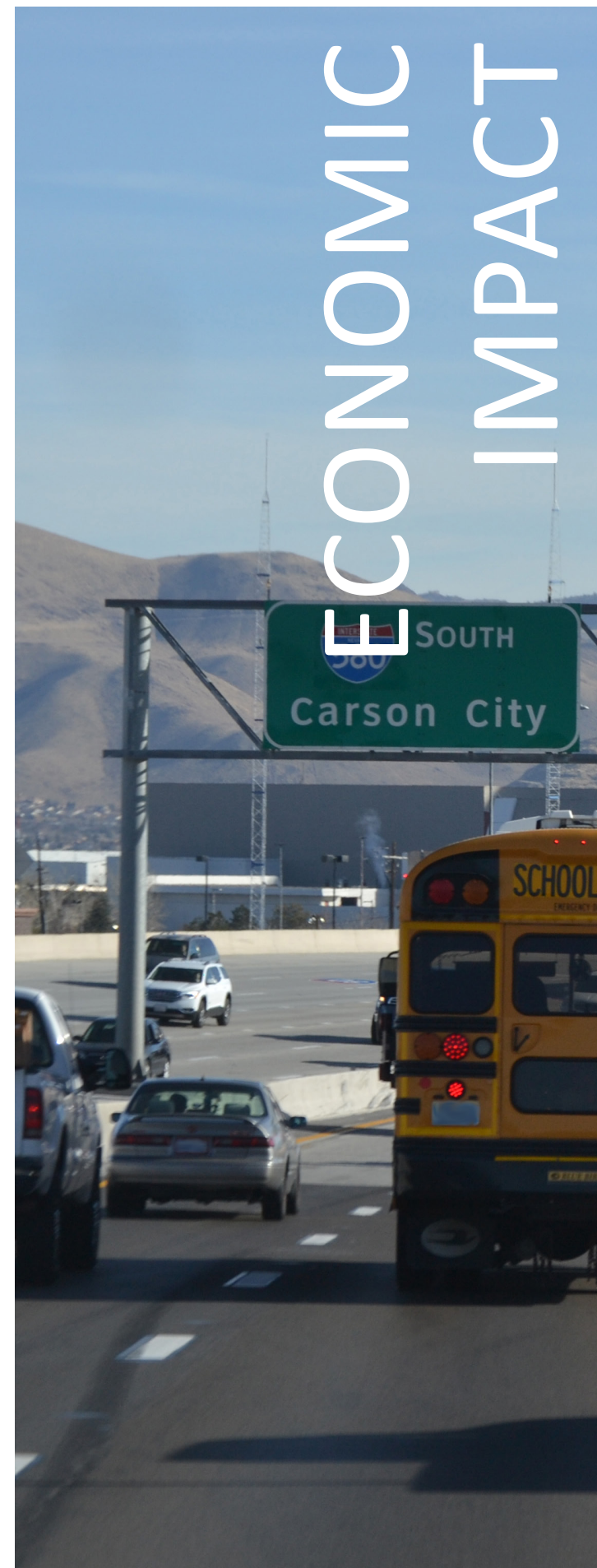
Table ES-2. Mitigation Summary Table (continued)

Resource Affected	Proposed Mitigation Measure
Cultural Resources	<p>Mitigation is required when a project directly or indirectly adversely affects historic properties. Appropriate mitigation measures to address the adverse effects of the project on Mineral Manor Historic District and Coney Island Bar are stipulated in a Memorandum of Agreement between FHWA, the State Historic Preservation Officer, and NDOT. The Reno-Sparks Indian Colony, the Washoe Tribe of Nevada and California, and the Pyramid Lake Paiute Tribe were consulted during the development of the Memorandum of Agreement and offered the opportunity to participate in it. Impacts to Mineral Manor Historic District and Coney Island Bar will be effectively mitigated under Alternative 2 by providing high-quality digital photographs of each historic property, preparing historical documentation that details the historical context and significance of each property, and providing a printed publication to local societies and libraries that educates the public on each of the cultural resources.</p> <p><b>Construction:</b> No archaeological mitigation is required during construction; however, NDOT will develop an Unanticipated Discovery Plan. If any unanticipated cultural resources are encountered during construction, all ground-disturbing activities in the area of the discovery will be halted, and NDOT or its contractor will immediately contact the SHPO or the Reno-Sparks Indian Colony Tribal Historic Preservation Officer (if the discovery is on Reno-Sparks Indian Colony tribal land).</p>
Cumulative Effects	No mitigation measures are necessary.

The alternatives analyzed in the EIS were selected from a range of alternatives. They meet the project purpose and need, are cost effective, and limit the area of additional right-of-way needed. The alternatives also minimize impacts to the environment for all resources described in this EIS.



NDOT will work with the City of Reno and Sparks and the Regional Transportation Commission to ensure bike routes and transit connectivity across I-80, I-580, and US 395 are maintained. NDOT will avoid rerouting heavily used transit routes, where feasible.



# Economic Impact

The economic impact of the project would be the expenditure of \$2.4 to \$4.1 billion (in year-of-expenditure dollars) to construct the project. This amount includes the costs of designing the improvements, acquiring new right-of-way, relocating utilities, and construction. The project would create new construction jobs and a demand for construction equipment and materials. The Council of Economic Advisers within the Executive Office of the President estimates that every \$1 billion in federal highway and transit investment would support 13,000 jobs for one year (FHWA 2018).



Improved travel reliability and safety in the Spaghetti Bowl and the rest of the study area would support local economic development efforts, which can help offset unavoidable impacts to the local tax base.



## Other Federal or State Actions Required

NDOT and FHWA **will** apply to the U.S. Army Corps of Engineers for a permit to place fill in waters of the United States under Section 404 of the Clean Water Act. NDOT **has applied for a permit from the Corps of Engineers under** Section 408 of the Rivers and Harbors Act of 1899 **for Phase 1 of the project. A second Section 408 permit may be needed before removing the existing bridge pier from the Truckee River, which is currently scheduled to occur in Phase 4.** NDOT **will** apply for certification/permits from the Nevada Division of Environmental Protection, Bureau of Water Quality Planning under Sections 401 and 402 of the Clean Water Act. NDOT **has coordinated** threatened and endangered species impacts with the U.S. Fish and Wildlife Service.

NDOT and FHWA **have consulted** with the SHPO, the Advisory Council on Historic Preservation, Reno-Sparks Indian Colony, Washoe Tribe of Nevada and California, Pyramid Lake Paiute Tribe, and other consulting parties on historic properties under Section 106 of the National Historic Preservation Act. **A Memorandum of Agreement that documents measures NDOT and FHWA will take to mitigate adverse effects to historic resources was signed on July 11, 2019. This concluded the Section 106 process.**

NDOT and FHWA **consulted** with officials with jurisdiction over parks (City of Reno and City of Sparks) and historic properties (**the SHPO, and the Reno-Sparks Indian Colony Historic Preservation Officer for Reno-Sparks Indian Colony lands only**) as required under the U.S. Department of Transportation's Section 4(f) law (United States Code **Title 49 Section 303**, and United States Code **Title 23 Section 138**).

# Executive Summary References

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