Final Environmental Assessment

Lawton Interceptor Protection

City of Reno

FEMA-1629-DR-NV, HMGP 1629-4-4

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FEMA

Federal Emergency Management Agency
Department of Homeland Security
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Figures

Acronyms and Abbreviations

APE	area of potential effect
BA	Biological Assessment
BO	Biological Opinion
BMP	best management practice
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
City	City of Reno
CO	carbon monoxide
CWA	Clean Water Act of 1977
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Department of Homeland Security's Federal Emergency Management Agency
GCR	General Conformity Rule
I-80	Interstate 80
IVC	International Vegetation Classification
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NDEM	Nevada Division of Emergency Management
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
O_3	ozone
ONSA	Oxbow Nature Study Area
PA	Programmatic Agreement
PM_{10}	particulate matter less than 10 micrometers in diameter
SHPO	State Historic Preservation Officer
SR 647	State Route 647
tpy	tons per year

URS	URS Group, Inc.
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
WCAQMD	Washoe County Health District Air Quality Management Division
WOUS	Waters of the United States

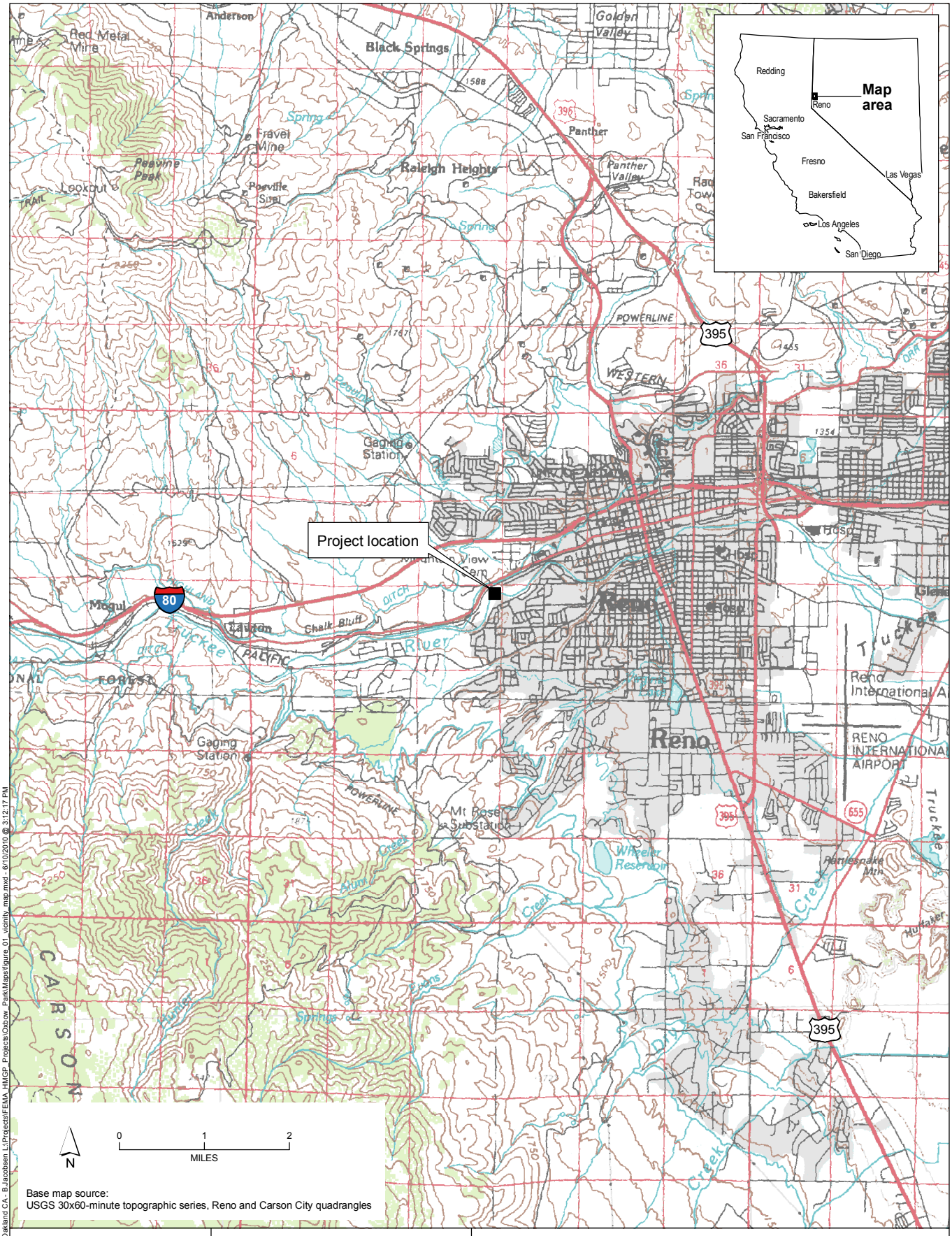
SECTION ONE INTRODUCTION

The City of Reno (City), Nevada, has applied, through the Nevada Division of Emergency Management (NDEM), to the Department of Homeland Security's Federal Emergency Management Agency (FEMA) for Federal financial assistance (Federal action) to protect an existing sewer infrastructure in Reno, Washoe County, Nevada, from rupturing. The project area is in the Oxbow Nature Study Area (ONSA), a nature reserve in Oxbow Park adjacent to the Truckee River on the northern side of the river and located approximately 2 miles from downtown Reno (Figure 1).

As a result of flooding in 1997 and during the 2005–2006 wet season, the Truckee River has migrated as much as 80 feet north from its typical wetted channel location. Risk is high for further migration of the river and bank erosion. The Lawton Interceptor, a sanitary sewer line located approximately 200 feet from the edge of the current river channel, could be compromised by further migration of the river and by bank erosion.

FEMA has prepared an Environmental Assessment (EA) to evaluate the potential environmental, social, and economic impacts of the identified project alternatives, including the No Project Alternative. The EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. §§ 4321–4327 [2009]), the associated Council on Environmental Quality (CEQ) regulations (40 C.F.R. §§ 1500–1508 [2009]), and FEMA's implementing regulations (44 C.F.R. § 10 [2009]).

The EA process includes steps and procedures for the evaluation of the potential environmental, social, and economic impacts of the identified project alternatives. The potential impacts are evaluated according to their context and intensity, as defined in the CEQ regulations. The EA process also includes procedures for giving Federal, State, and local agencies and the public opportunities to provide input on the Proposed Project and identified alternatives.



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HMGP 1629-4-4	City of Reno Lawton Interceptor at Truckee River Oxbow	**Figure 1** Project vicinity

SECTION TWO PURPOSE OF AND NEED FOR ACTION

The City estimates that a rupture of the Lawton Interceptor could result in the discharge of approximately 520,000 gallons of raw sewage into the Truckee River and that the cost of the clean-up and repair would be up to $3.2 million. Sewage service to the several hundred homes that rely on the Lawton Interceptor for service could be interrupted by a rupture. Thousands more residents, users of the ONSA, and associated ecosystems in Oxbow Park and downstream would likely be affected by a discharge of raw sewage discharge into the Truckee River.

The purpose of the project is to protect the Lawton Interceptor and northern bank of the river from erosion during flood events, thereby reducing the potential for damage to the sewer system and associated impacts to residents and ecosystems.

FEMA has concluded that protection of the Lawton Interceptor is needed to reduce the overall risk to residents, ONSA users, and the ecosystem from a sewer rupture during a major flooding event. The purpose of the proposed Federal action is therefore to address the identified need by providing Federal financial assistance to the City to protect the Lawton Interceptor.

SECTION THREE ALTERNATIVE ANALYSIS

The City considered the No Project Alternative (Alternative 1) and four alternatives to protect the Lawton Interceptor from rupturing during a major flooding event. Two of the action alternatives were determined not to be reasonable and eliminated from further consideration (see Section 3.1). Alternative 2 was selected as the Proposed Project (see Section 3.2). Alternative 3, the Alternative Project, is discussed in Section 3.3.

3.1 ALTERNATIVES CONSIDERED AND DISMISSED

The City first considered bypassing the Lawton Interceptor by connecting the sewer line directly from manhole 15012513 to manhole 15022138; however, this alternative would have required extensive ground disturbance on private property and would have been very costly (approximately $1,000 per foot and $835,000 in total) in comparison to the other alternatives. This alternative was determined not to be reasonable and was eliminated from further consideration.

The City also considered constructing rock weirs to prevent flooding, which was done in an area adjacent to the project site, but was determined not to be reasonable because the river in the project area is too deep. This alternative was also eliminated from further consideration.

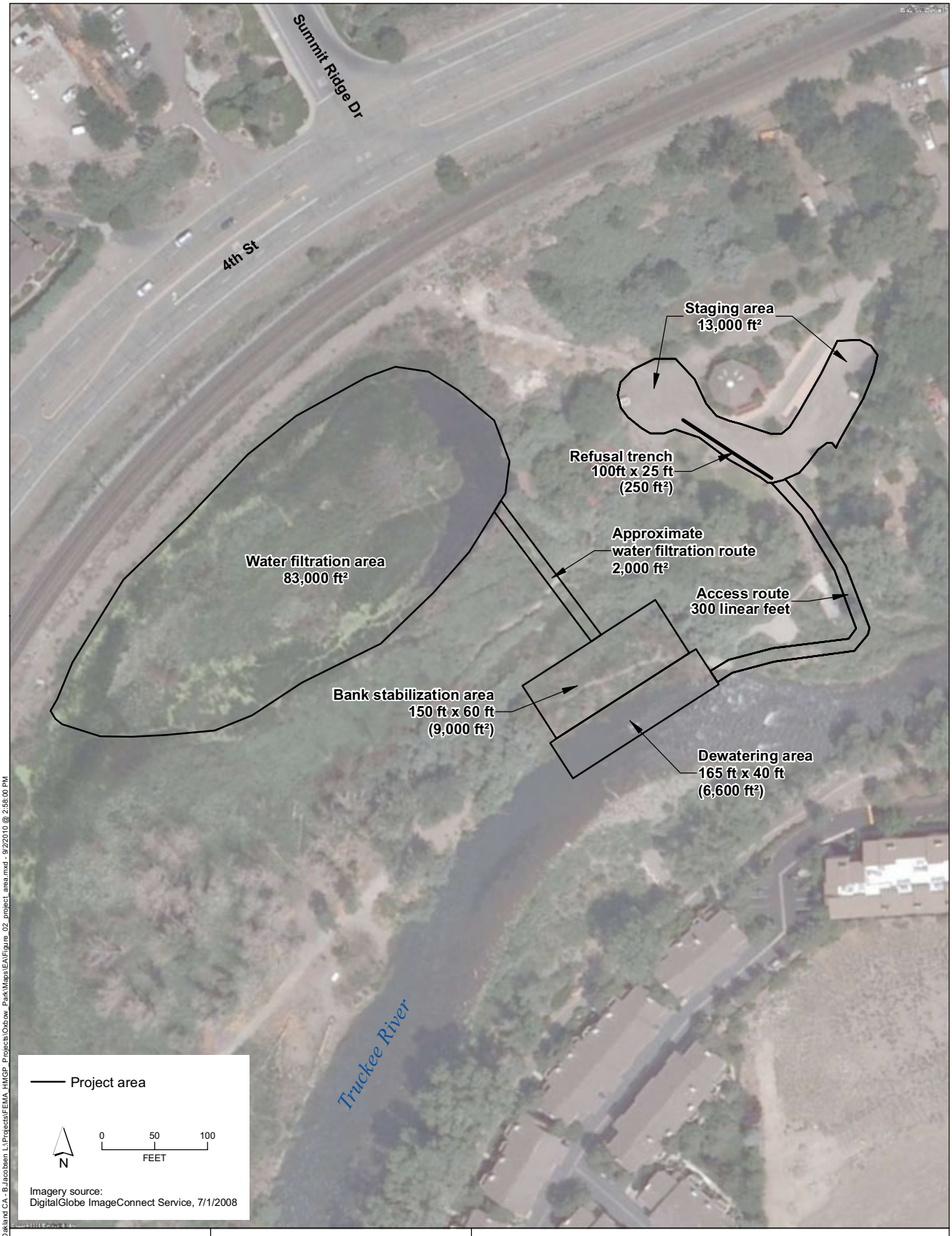
3.2 ALTERNATIVE 1: NO PROJECT

A No Project Alternative is required as part of the environmental analysis and documentation under NEPA. The No Project Alternative is defined as maintaining the status quo, with no FEMA financial assistance provided for any alternative. The No Project Alternative is used to evaluate the effects of not providing eligible assistance for the project and provides a benchmark against which other alternatives are evaluated.

For the purpose of this EA, under the No Project Alternative, it is assumed that the City would be unable to construct improvements to reduce the risk of a rupture from flooding at the Lawton Interceptor. Therefore, under the No Project Alternative, the City would continue to operate the Lawton Interceptor with the risk that rupture could occur during future flood events.

3.3 ALTERNATIVE 2: PROPOSED PROJECT

Alternative 2 is referred to as the Proposed Project because it is the alternative that the City has proposed to FEMA in the request for financial assistance. The Proposed Project consists of two main components: river bank stabilization and installation of a refusal trench. The main staging, ingress, and egress for the Proposed Project would be in the eastern portion of the ONSA parking lot (see Figure 2).



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HMGP 1629-4-4	City of Reno Lawton Interceptor at Truckee River Oxbow	**Figure 2** Proposed project area

3.3.1 Bank Stabilization

Approximately 150 feet of the northern bank of the river would be stabilized using the most current bioengineering methods available. The stabilization methods were selected by the City with input from both U.S. Fish and Wildlife Service (USFWS) and the Nevada Department of Wildlife (NDOW) (Matthew Setty, senior scientist, JBR Environmental Consultants, Inc., pers. comm., April 7, 2010).

The stabilization would include installing root wads at an angle along the river bank to deflect stream flows. Root wads are lengths of downed trees that include the root wad and a portion of the trunk. The trunk portion of the root wad would be approximately 20 feet long and 2 feet in diameter, and the root mass would be approximately 6 feet in diameter. Installation would include burying approximately forty 24- to 30-inch-diameter ballast rocks to anchor the root wads, which would be anchored with a stainless steel aircraft cable.

Trees for the root wads would be obtained locally if possible, but recent wind-driven fires have negatively affected cedars and other large trees in the area, and the City may need to obtain redwoods or other hardwoods from California or Oregon (Matthew Setty, senior scientist, JBR Environmental Consultants, Inc., pers. comm., April 7, 2010).

Installation of the root wads would require dewatering a 6,600-square-foot area of the river (approximately 165 feet long by 40 feet wide) and excavation along approximately 165 feet of the northern river bank. Dewatering would take place over a 25-day period between October 1 and November 15 (45 days) and would be accomplished using plastic K-rails installed on a sandbag base in the river. The water would be pumped into a nearby obligate wetland (see Figure 2). Silt would be collected in a filter bag, which would be cut and allowed to disperse after dewatering is complete.

Willow plantings would also be installed along the bank by excavating to a depth at which the roots would be sitting in the water to ensure that the willow plantings would establish and provide bank stabilization.

Access for the bank stabilization would be obtained through an adjacent property, east of the project area. A portion of the bank stabilization access route would require temporary placement of metal trench plates over stream bank vegetation and a drainage from a culvert. The trench plates would provide a stable surface to allow equipment to access the dewatered riverbed.

3.3.2 Refusal Trench

To armor the Lawson Interceptor, a refusal trench would be construction parallel to approximately 100 feet of the existing sewer line (see Figure 2). The trench would be offset from the existing sewer line by 10 feet to 25 feet. The offset has not been determined precisely because the exact alignment of the sewer line is unknown and has been approximated from 1982 “as-built” drawings. The trench would be installed in the asphalt parking lot of the ONSA (see Figure 2) and would take place over 5 days.

3.4 ALTERNATIVE 3: ALTERNATIVE PROJECT

FEMA guidance requires that at least one reasonable alternative, in addition to the No Project Alternative and the Proposed Project, be considered in the EA. The Alternative Project would be similar to the Proposed Project except that stabilization of the bank would use non-bioengineering practices and a refusal trench would not be installed. The bank would be shaped, and heavy riprap would be placed on the bank to prevent further erosion (Figure 3). Construction of the Alternative Project would take approximately 60 days.

The Alternative Project would consist of the following components:

- Approximately 600 linear feet of riprap would be installed along the northern bank of the river where it passes through the ONSA.
- Willow poles and root wads would be inserted within the riprap to encourage vegetative growth along the bank.
- Small gravel, conducive to fish spawning, would be placed on the riverbed adjacent to the riprap to prevent any exposed dirt from entering the river.

Dewatering would not be required. During construction, a silt fence would be anchored along the entire length of the project area to prevent disturbed sediment from entering the river. Sediment-filled water from within the silt fence would be pumped out of the river at the downstream end of the fence and transferred to an adjacent desilting basin. The desilting basin would be located in an open field at the midpoint of the project area. It would be constructed by placing berms along the perimeter of an area approximately 20 feet wide by 80 feet long. Excavation would not be necessary.

After the sediment has settled out of the water in the desilting basin, the water would be allowed to flow into an irrigation ditch to the north of the project area, and the water would re-enter the river approximately 1 mile east of the project area. Water quality would be monitored to ensure that the water entering the river met water quality standards. This aspect of the project is subject to change pending the finalization of the project design.

All project work, including staging and access, would occur within the ONSA. Construction equipment would access the project area via an existing dirt road that runs from the park's western (non-public) entrance road to approximately the midpoint of the project area. The main staging, ingress, and egress for the Alternative Project would be in the eastern portion of the ONSA parking lot (see Figure 3). Heavy equipment would be operated from the top of the streambank and would not enter the river.

All vegetation within the project area would be removed with the exception of protected trees. An interpretive/educational trail would be temporarily disturbed by construction. The trail would be restored to its previous condition upon completion of the project. Three private residences at the western edge of the park may be affected by the ingress/egress of construction equipment.

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HMGP 1629-4-4	City of Reno Lawton Interceptor at Truckee River Oxbow	**Figure 3** Alternative project area

SECTION FOUR AFFECTED ENVIRONMENT, IMPACTS, AND MITIGATION

The analysis presented in this section focuses on the resources on which some level of impact may result from the implementation of Alternative 1 (No Project Alternative), Alternative 2 (Proposed Project), and Alternative 3 (Alternative Project). The resources are geology and soils, seismicity, water resources, biological resources, historic properties, air quality, noise, transportation, visual resources, recreation, and environmental justice. No other resources have been identified that would require further evaluation pursuant to NEPA.

4.1 GEOLOGY AND SOILS

The project area is located at the western edge of the Central Nevada Basin and Range physiographic province, adjacent to the Sierra Nevada physiographic province. The Central Nevada Basin and Range physiographic province extends from eastern California to central Utah and from southern Idaho into the state of Sonora in Mexico. The dominant landforms of the Central Nevada Basin and Range province are north-south trending mountain ranges, which are generally 10 miles wide and rarely longer than 80 miles long (Price 2004). The project area is adjacent to the Truckee River, approximately 2 miles from downtown Reno, Washoe County, Nevada. Reno is a located in a high desert valley at the foot of the Sierra Nevada mountains.

The primary soil types in the project area are Notus stony loam fine sand and Xeric Torriorthents-Urban land complex (Natural Resource Conservation Service [NRCS] 2010). The Notus series is somewhat poorly drained stony loamy fine sand to approximately 12 inches in depth. From 12 to 60 inches in depth, it is stratified, very gravelly coarse sand to sandy loam. The Xeric Series is well drained urban land and Xeric Torriothents soil with a variable soil profile (NRCS 2010).

4.1.1 Alternative 1: No Project

The No Project Alternative would not have any direct impact on geology or soils, but without implementation of bank stabilization and a refusal trench, future flooding events could potentially result in increased erosion and soil loss in the project area.

Therefore, the No Project Alternative would have potential indirect impacts on geology and soils in the project area.

4.1.2 Alternative 2: Proposed Project

Under the Proposed Project, ground-disturbing activities would include excavation of a 100-foot-long trench in the ONSA parking lot and the installation of root wads, ballast rock, and willow plantings along 165 feet of the northern bank of the Truckee River. Additionally, the Proposed Project would include staging construction equipment and materials in a 13,000-square-foot portion of the existing parking lot and use of a 300-linear-foot access route.

Maximum depth of disturbance is estimated to be up to 6 feet below ground surface for excavating the refusal trench, emplacing the root wads, and planting the willow trees. Installing the refusal trench would require approximately 100 feet of excavation parallel to the sewer line. Installing the root wad structures would require dewatering and excavation along approximately 165 feet of the northern river bank.

The City would dispose of all excess soil in compliance with all applicable Federal, State, and local regulations. All ground-disturbing activities for the construction of the trench would occur in the previously disturbed parking lot area of the ONSA. Because of the previous ground disturbance in this area, it is anticipated that the proposed excavation, grading, and trenching would have a negligible impact on geologic resources in the project area. Ground disturbance along the bank would also be temporary and would result in minimal impacts on geologic resources.

The Proposed Project could result in soil erosion in the project area during construction from natural river flow and surface runoff along the disturbed slope. Wind erosion could also potentially occur at exposed locations along the slope and access road. The City would be responsible for reducing soil loss and erosion through the implementation of appropriate mitigation measures, including the use of silt fencing, covering spoil piles, designating appropriate staging areas (i.e., along existing roads), and watering areas of exposed soil.

With implementation of the mitigation measures, the short-term soil loss and erosion associated with this alternative would be minimal. In addition, the Proposed Project would enhance bank stabilization and would therefore be expected to minimize bank erosion and migration during future flood events.

Therefore, the Proposed Project would result in minor, short-term direct and indirect impacts on geology and soils.

4.1.3 Alternative 3: Alternative Project

Potential impacts resulting from the Alternative Project would be similar to the impacts from the Proposed Project, but because the Alternative Project would not include installation of a refusal trench or dewatering, sedimentation, surface runoff, and wind erosion would be less than for the Proposed Project.

A desilting basin would be located in an open field but would be constructed by placing berms along the perimeter of an area approximately 20 feet wide by 80 feet long. Excavation would not be necessary. If the City pursued this alternative, it would be responsible for the same mitigation measures described for the Proposed Project. Therefore, the short-term ground disturbance associated with this alternative would be expected to be minimal and temporary.

As with the Proposed Project, bank stabilization would be enhanced and erosion would be reduced during major flooding events. The addition of the desilting basin would be temporary; silt deposition is not expected to have any long-term impacts.

Therefore, the Alternative Project would result in minor, short-term direct and indirect impacts on geology and soils.

4.2 SEISMICITY

The project area is in a seismically quiet region; noticeable earthquakes occur less than once every few decades. However, the frequency of seismic activity can fluctuate. The most recent large earthquake in the Reno area occurred in 2008 and was a 4.7 magnitude (USGS 2010).

4.2.1 Alternative 1: No Project

The No Project Alternative would not have any direct impact on seismicity.

4.2.2 Alternative 2: Proposed Project

The installation of the refusal trench and bank stabilization would not change the risk of damage to the sewer interceptor from ground movement during seismic activity. Therefore, this alternative would have no effect on the risk of loss or damage from seismicity.

4.2.3 Alternative 3: Alternative Project

The installation of bank stabilization would not change the risk of damage to the sewer interceptor from ground movement during seismic activity. Therefore, this alternative would have no effect on the risk of loss or damage from seismicity.

4.3 WATER RESOURCES

Any water that falls as rain or snow into the Basin and Range Province is diverted for use (e.g., agricultural, domestic, industrial) or eventually evaporates; none of the streams that originate within the region have outlets to the ocean. The project area is within the Truckee River watershed, which eventually drains to Pyramid Lake, approximately 40 miles northeast of the City.

4.3.1 Water Quality and Hydrology

The Clean Water Act of 1977 (CWA) (33 U.S.C. §§ 1251 et seq. [2010]) established a mechanism for regulating discharges of pollutants into waters of the United States (WOUS) and also established quality standards for surface waters. Under Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. § 403 [2010]) and Section 404 of the CWA (33 U.S.C. § 1344), a permit must be obtained from the U.S. Army Corps of Engineers (USACE) prior to

discharging dredged or fill materials into WOUS unless the activity is exempt. Section 401 of the CWA (33 U.S.C. § 1341) requires certification that any activity authorized under Section 404 of the CWA is in compliance with State water quality standards, effluent limits, and other applicable State laws. The project area is located within and adjacent to the Truckee River, which is considered a WOUS under the jurisdiction of the USACE.

The U.S. Geological Survey (USGS) operates a stream gage (ID #10348000) approximately 3.2 miles downstream of the project area. Records from the gage extend back to 1907, but because of the construction of several dams along tributaries of the Truckee River, the applicable period of record for current flow conditions begins in 1971. The mean monthly discharges for the applicable period of record indicate that high flows typically occur between March and June, consistent with snowmelt in the Sierra Mountain Range. Low flows typically occur from August through October (USGS n.d.[b]).

4.3.1.1 Alternative 1: No Project

Under the No Project Alternative, no improvements would be made, and the City would continue to operate the Lawton Interceptor with the risk that rupture could occur during future flood events. The river bank in the project area is subject to erosion, which in turn places risk on the sanitary sewer infrastructure, which is only 200 feet from the present location of the river bank.

The Lawton Interceptor has no shutoff valve, and any rupture in the line could result in uncontrolled sewage discharge into the river. The City estimates that a rupture and sewage spill at the Lawton Interceptor could result in the discharge of approximately 520,000 gallons of raw sewage into the Truckee River, which would eventually drain into Pyramid Lake and compromise water quality for a large portion of the Truckee River watershed.

Therefore, the No Project Alternative could have major, long-term, indirect impacts on water quality and hydrology.

4.3.1.2 Alternative 2: Proposed Project

The Proposed Project would result in indirect, long-term positive impacts to water quality and hydrology by reducing the total area of bank erosion and the amount of sediment and debris that would erode into river. The Proposed Project would also reduce the risk of flood water undermining the sewer pipe and rupturing the Lawton Interceptor, which could result in a discharge of approximately 520,000 gallons of raw sewage into the river, deteriorating water quality.

The Proposed Project would have temporary short-term effects to water quality and hydrology during the dewatering and excavation processes. In order to emplace the root wad structures, dewatering and excavation would need to occur along approximately 165 feet of the northern river bank. Dewatering would take place over 25 days and over an area of 6,600 square feet (165 feet by 40 feet).

Depending on the amount of silt collected and dispersed during dewatering, water quality could deteriorate because the silt may fill in part of the overbank that could carry flows during large flood events.

To minimize potential impacts to water quality as a result of construction, the City would implement mitigation measures such as installing silt fences, covering spoil piles, watering areas of disturbed soil, staging equipment along existing roads and parking lots, and keeping equipment properly maintained. The City would dispose of excess spoils resulting from drilling, grading, or trenching in compliance with all applicable Federal, State, and local regulations.

The City would be responsible for obtaining the appropriate Sections 404 and 401 CWA permits and certifications and for complying with National Pollutant Discharge Elimination System (NPDES) (Section 402 of the CWA, 33 U.S.C. § 1342) requirements for any pollutants that could be discharged into the water system during construction.

The Proposed Project would have moderate, short-term, direct impacts and minor, long-term, indirect impacts on water quality and hydrology.

4.3.1.3 Alternative 3: Alternative Project

Generally, the impacts to water quality and hydrology from the Alternative Project would be the same as those from the Proposed Project, with several exceptions.

Dewatering would not be necessary during construction. A silt fence would be anchored along the entire length of the project area to prevent disturbed sediment from entering the river. Water from within the silt fence would be pumped out of the river at the downstream end of the fence and transferred to an adjacent desilting basin. After the sediment settled out of the water in the desilting basin, the water would be allowed to flow into an irrigation ditch to the north of the project area, and the water would re-enter the Truckee River approximately 1 mile east of the project area.

Water quality could be affected but would be monitored to ensure that the water entering the river met water quality standards. Furthermore, small gravel would be placed on the riverbed adjacent to the riprap to prevent any exposed dirt from entering the river. Therefore, the direct, short-term impact would be less than the direct, short-term impact of the Proposed Project.

The Alternative Project would also reduce erosion of the riverbank and, consequently, the risk of sewer line rupture. The indirect impacts to the hydrology and water quality would be similar for both alternatives. For the Alternative Project, the City would implement mitigation measures and would be responsible for obtaining the appropriate Sections 404 and 401 CWA permits and certifications and for complying with NPDES requirements for any pollutants that could be discharged into the water system during construction.

Therefore, the Alternative Project would have minor, short-term, direct and minor, long-term, indirect impacts on water quality and hydrology.

4.3.2 Executive Order 11988: Floodplain Management

EO 11988, Floodplain Management, requires Federal agencies to take action to minimize occupancy and modification of floodplains. EO 11988 also requires that Federal agencies proposing to fund a project sited in a 100-year floodplain consider alternatives to avoid adverse effects and incompatible development in the floodplain. FEMA's regulations implementing EO 1988 are codified in 44 C.F.R. Part 9 (2009).

According to Community Panel Number 32031 C 3039 G, FEMA's March 16, 2009, Flood Insurance Rate Map for Washoe County, Nevada, the project area is partially in the 100-year floodplain. Specifically, the project area is located in Zone AE designated "inundated by 100-year flooding for which base flood elevations have been determined," and Zone X, designated "Other Areas; Areas determined to be outside the 0.2% annual chance floodplain," or 500-year floodplain (FEMA 2009).

Because the City participates in FEMA's National Flood Insurance Program, the City has promulgated and enforces a floodplain ordinance at least as stringent as the National Flood Insurance Program and its implementing regulations (44 C.F.R. Parts 59–77).

4.3.2.1 Alternative 1: No Project

The No Project Alternative would not result in impacts to the existing floodplain in the project vicinity.

4.3.2.2 Alternative 2: Proposed Project

In compliance with EO 11988, FEMA considered the Proposed Project's impacts to the floodplain. FEMA applies an Eight-Step Decision-Making Process to ensure that it provides Federal financial assistance for projects consistent with EO 11988 and 44 C.F.R. Part 9. The NEPA compliance process involves essentially the same decision-making process. Therefore, the Eight-Step Decision-Making Process has been integrated into the analysis for the Proposed Project.

In accordance with the Eight Step Decision-Making Process, FEMA published a cumulative Initial Public Notice for the State of Nevada that was associated with severe floods that occurred during the 2005–2006 season (FEMA-1629-DR-NV). The City will be required to publish a Final Public Notice in compliance with EO 11988 before implementation of the Proposed Project.

Under current conditions, the Proposed Project is in the 100-year floodplain. If the Proposed Project is implemented, the floodplain would be modified. The Proposed Project would provide a flood-control benefit to the sewer interceptor abutting the Truckee River and provide protection to surrounding residences from sewage contamination and sewer service interruption during flooding events.

The nature of the Proposed Project (i.e., flood control) requires that it occur in a floodplain. Therefore, no practicable action alternatives are available to locating the Proposed Project in the floodplain. Sections 3.1and 3.3 discuss the other alternatives that were considered.

Although the Proposed Project would result in modification of the 100-year floodplain, it would not increase the Base Flood Elevation. The City has coordinated with FEMA, USACE, and Nevada Department of Water Resources to ensure that the Proposed Project would reduce the risk of damage to critical community assets from recurring floods while not adversely affecting the floodplain.

The City's proposal involves modifying the floodplain, but impacts would be minimized through best management practices (BMPs), such as installing and maintaining sediment-control devices, and permit requirements.

Therefore, the Proposed Project would result in moderate, short-term and minor, long-term impacts to the floodplain, and the Proposed Project would be in compliance with EO 11988.

4.3.2.3 Alternative 3: Alternative Project

The impacts to the floodplain from the Alternative Project would generally be the same as the impacts from the Proposed Project, as described above. The Alternative Project would involve modifying the floodplain, but adverse impacts would be minimized through BMPs, such as installing and maintaining sediment-control devices, and permit requirements.

As with the Proposed Project, if the Alterative Project is implemented, FEMA would ensure that the Eight-Step Decision-Making Process, as required by EO 11988 and 44 C.F.R. Part 9, would be completed prior to construction.

Therefore, the Alternative Project would result in moderate, short-term and minor, long-term impacts to the floodplain. The Alternative Project would be in compliance with EO 11988.

4.3.3 Executive Order 11990: Protection of Wetlands

EO 11990, Protection of Wetlands, requires Federal agencies to take action to minimize the destruction or modification of wetlands by considering both direct and indirect impacts to wetlands. Furthermore, EO 11990 requires that Federal agencies proposing to fund a project that could adversely affect wetlands consider alternatives to avoid such effects. FEMA's regulations implementing EO 11990 are codified in 44 C.F.R. Part 9.

The National Wetland Inventory maps indicate evidence of one wetland in the northern portion of the project area. During the April 8, 2010, reconnaissance field survey conducted by URS Group, Inc. (URS), a contractor to FEMA, the presence of the wetland area was confirmed. In addition, the area of the river bank where slope stabilization is proposed is considered to be a wetland area.

4.3.3.1 Alternative 1: No Project

The No Project Alternative would not have any direct impacts on wetlands, but without the implementation of bank stabilization and the refusal trench, future flooding events could potentially alter the existing hydrology and affect the wetlands in the project area.

Therefore, the No Project Alternative would have potential indirect impacts on wetlands in the project area.

4.3.3.2 Alternative 2: Proposed Project

In compliance with EO 11990, FEMA considered the Proposed Project's impacts to the wetland. FEMA applies the Eight-Step Decision-Making Process to ensure that it provides Federal financial assistance for projects consistent with EO 11990 and 44 C.F.R. Part 9. The NEPA compliance process involves essentially the same decision-making process to meet its objectives as the Eight-Step Decision-Making Process.

In accordance with this process, FEMA published a cumulative Initial Public Notice for the State of Nevada associated with severe floods occurring during the 2005–2006 season (FEMA-1629-DR-NV). The City will be required to publish a Final Public Notice in compliance with EO 11990 before implementation of the Proposed Project.

Short-term impacts to wetlands would occur during the dewatering phase of the project, as well as during work in the river channel. The area would be dewatered by pumping water into a nearby wetland are (see Figure 2). Silt would be collected in a filter bag, which would be cut and allowed to disperse after dewatering was completed. The diversion would be temporary, and the volume of water released into the wetland area would not be expected to result in changes to hydrology or vegetation in the wetland. Therefore, any impacts on wetlands from the Proposed Project would be negligible.

Because of the nature of the project, work within the river is unavoidable. During project development, no other feasible locations were identified for dewatering. Following assessment of dewatering activities on the existing wetlands, it was determined that impacts to the wetlands would be negligible and that mitigation measures would further reduce these impacts. Therefore, use of the wetland area for dewatering is considered to be practicable based on the Eight-Step Decision-Making Process. Prior to construction activities, the City will be responsible for obtaining the appropriate Sections 404 and 401 CWA permits and certifications and for complying with NPDES requirements for any pollutants that could be discharged into the water system during construction.

Therefore, the Proposed Project would have negligible short-term impacts on wetlands.

4.3.3.3 Alternative 3: Alternative Project

The Alternative Project would also result in short-term impacts to wetlands during construction activities, including work in the river and the use of desilting basins. Similar to the Proposed Project, these impacts would be temporary, and any impact on the wetland from the Alternative Project would be negligible. Use of the onsite wetland area for dewatering would not be required. Prior to construction activities, the City will obtain the appropriate Sections 404 and 401 CWA permits and certifications and for complying with NPDES requirements for any pollutants that could be discharged into the water system during construction.

Therefore, the Alternative Project would have negligible short-term impacts on wetlands.

4.4 BIOLOGICAL RESOURCES

The project area contains two main vegetation communities: cottonwood riparian woodland and riparian wetland. The Nevada Natural Heritage Program's *International Vegetation Classification* (IVC) *Alliances and Associations Occurring in Nevada* (Peterson 2008) was used to identify the vegetation alliances associated with each vegetation community. The project area also contains developed areas because it is within the ONSA.

The cottonwood riparian woodland vegetation in the project area can be classified as part of the IVC's Fremont's cottonwood (*Populus fremontii*) Seasonally Flooded Woodland Alliance (Peterson 2008). This vegetation alliance includes vegetation along relatively flat floodplains along low-gradient rivers. The vegetation types in this alliance typically occur in hydric or mesic areas with characteristic sandy and alluvial soils of the floodplain at elevations ranging from 1,300 to 6,560 feet.

In this alliance, Fremont's cottonwood typically forms 30 to 70 percent of the total canopy cover (Peterson 2008). Fremont's cottonwood are present in the project area and make up the canopy cover along with coyote willow (*Salix exigua*), black willow (*S. nigra*) and chokecherry (*Prunus virginiana*). Understory species in the project area include wild rose (*Rosa woodsi*) and Great Basin wild rye (*Lyemus cinerus*). In addition, non-native species such as Chinese elm (*Ulmus parvifolia*) and Russian olive (*Elaeagnus angustifolia*) are present in the project area.

The riparian wetland vegetation in the project area can be classified as part of the IVC's southern cattail (*Typha domingensis*) Western Herbaceous Vegetation Alliance (Peterson 2008). This is a wetland associated with river floodplains. This wetland vegetation is the proposed location for water filtration for the dewatering procedures (Proposed Project) and is located at the western end of the project area.

A small portion of the project area is developed to provide ONSA users access to the Truckee River and surrounding scenic resources. The developed area includes both landscaped and human-made structures. The landscaped areas consist of a small maintained grass plot adjacent to the parking lot and small portions of landscaping surrounding ONSA structures. The human-

made structures in the project area are limited to the large asphalt parking lot, which would act as the staging area for the project; a central ONSA building; dirt footpaths; benches; and viewing platforms.

In addition, there is a recently completed bank stabilization project adjacent to and upstream (west) of the project area that includes native vegetation landscaping such as mulch, stones, native plants, and willows that were planted and are maintained by the City.

4.4.1 Endangered Species Act

Section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. § 1536 [2010]) requires Federal agencies to determine whether the projects that they propose to undertake or fund have any potential to affect species listed or proposed for listing as threatened or endangered or their designated critical habitat.

To determine the potential for federally listed endangered, threatened, or proposed species or designated critical habitat to occur in the project area, FEMA reviewed the USFWS list of federally listed species for Washoe County, Nevada (see Appendix A). To evaluate the potential for the project site to provide suitable habitat for federally listed and USFWS-sensitive species, a FEMA-contracted biologist conducted a reconnaissance field survey on April 8, 2010.

As a result of the field and background review, FEMA has determined that the project area provides suitable habitat suitable for one species listed under the ESA under the jurisdiction of the USFWS: the Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*). Based on further analysis, FEMA has also determined that the species has the potential to be present in the project area and its vicinity.

4.4.1.1 Alternative 1: No Project

Under the No Project Alternative, there would be no direct impact on listed, proposed, or candidate species; however, without implementation of bank stabilization and refusal trench, future flooding events could potentially alter the existing hydrology and affect the river habitat within the project area.

Therefore, the No Project Alternative would have potential indirect impacts on Lahontan cutthroat trout in the project area and downstream.

4.4.1.2 Alternative 2: Proposed Project

Dewatering procedures could potentially result in crushing or injuring Lohontan cutthroat trout during placement of sandbags or trapping individual fish during the placement of K-rail. Bank stabilization would be accomplished using heavy equipment such as a backhoe, which could result in a temporary increase of sediment loads in the river. Increased fine sediment in the river could result in clogged gills of Lahontan cutthroat trout, filled pore spaces between bottom

gravels and cobbles (where fish lay eggs), or, if released in large quantity, buried fry or benthic invertebrates (prey for the species).

Bank stabilization would also require removal of vegetation that currently provides shade to the water surface. Removal of this vegetation would temporarily alter the habitat along the bank by removing the overhanging bank or vegetation that provides cover and shade for the trout. However, the bioengineered bank stabilization is likely to provide some immediate cover for the species and eventually more cover and shading once vegetation has been established.

FEMA has determined that the Proposed Project would affect the Lohontan cutthroat trout during project construction because of the high likelihood that individuals occur within the project area. However, the impacts would be temporary, and the Proposed Project would result in long-term benefits for the species through habitat improvements. In addition, the Proposed Project would have no effect on designated critical habitat for Lahontan cutthroat trout because critical habitat has not been designated for this species.

A Biological Assessment (BA) was prepared and submitted to the USFWS on July 13, 2010 (see Appendix A). The BA discusses potential project impacts to the Lahontan cutthroat trout from the Proposed Project and identifies several measures that would avoid and/or minimize the effects. The City will be responsible for implementing all avoidance and minimization measures described in the BA.

The USFWS issued a Biological Opinion (BO) and Incidental Take Statement on September 22, 2010 (see Appendix A). The USFWS concluded that the Proposed Project would not likely jeopardize the continued existence of the Lahontan cutthroat trout and would not result in destruction or modification of critical habitat. The City is responsible for the implementation of all avoidance and minimization measures and all reasonable and prudent measures listed in the BO. Therefore, the Proposed Project complies with Section 7 of the Endangered Species Act.

4.4.1.3 Alternative 3: Alternative Project

The Alternative Project would involve similar stabilization components as the Proposed Project. However, the Alternative Project would not involve dewatering and would include installation of riprap along a 600-foot stretch of the bank. Activities within the river have the potential to adversely affect the Lahontan cutthroat trout. Therefore, if the City proceeded with the Alternative Project, FEMA would need to re-open consultation with the USFWS to assess the potential impacts to the Lahontan cutthroat trout. The result of the consultation would be recorded in subsequent NEPA documentation.

4.4.2 General Biological Resources

4.4.2.1 Alternative 1: No Project

Under the No Project Alternative, there would be no direct impacts on any unprotected plant or wildlife species; however, without implementation of the bank stabilization and refusal trench, future flooding events could potentially alter the existing vegetation and habitat within the project area.

Therefore, the No Project Alternative would have potential indirect impacts on wildlife and vegetation in the project area.

4.4.2.2 Alternative 2: Proposed Project

The Proposed Project could potentially disturb wildlife in the vicinity of the project. Small mammals, reptiles, amphibians, and insects could suffer injury or mortality from the construction equipment, and species existing in the vicinity would experience harassment from noise and dust and short-term habitat loss from construction disturbance at the staging area, along the bank, or in the location of the refusal trench.

Ground disturbance would likely result in associated disturbance to vegetation. However, these impacts would be limited to the construction period, which is expected to be approximately 45 days. The proposed dewatering pond contains beavers and other wetland wildlife that could be temporarily affected during the dewatering process. However, these impacts would be limited to the dewatering period, which is expected to be no more than 25 days.

The City will be responsible for complying with the Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. §§ 703–712 [2010]) for all construction-related disturbance and all applicable State and local wildlife and vegetation requirements.

Therefore, the Proposed Project is anticipated to result in minor, short-term, direct and moderate, short-term, indirect impacts on general wildlife and vegetation.

4.4.2.3 Alternative 3: Alternative Project

The Alternative Project would result in similar impacts to general vegetation and wildlife as the Proposed Project; however, dewatering would not occur. Additionally, a longer stretch of bank would be affected, and the refusal trench would not be installed. As with the Proposed Project, the City will need to comply with the MBTA for all construction-related disturbance and all applicable State and local wildlife and vegetation requirements.

Therefore, the Alternative Project is anticipated to result in minor, short-term, direct and moderate, short-term, indirect impacts on general wildfire and vegetation.

4.4.3 Executive Order 13112: Invasive Species

EO 13112, Invasive Species, requires Federal agencies to prevent the introduction of invasive species; provide for their control; and minimize the economic, ecological, and human health impacts that invasive species cause. Specifically, EO 13112 requires that Federal agencies not authorize, fund, or implement actions that are likely to introduce or spread invasive species unless the agency has determined that the benefits outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize harm have been implemented.

4.4.3.1 Alternative 1: No Project

Under the No Project Alternative, there would be no direct impacts related to the spread of invasive species; however, without implementation of the bank stabilization and refusal trench, future flooding events could potentially disrupt or clear existing vegetation from the area, encouraging the growth of invasive weeds that prefer disturbed areas.

Therefore, the No Project Alternative would have potential indirect impacts relating to the spread of invasive weeds within the project area.

4.4.3.2 Alternative 2: Proposed Project

The Proposed Project has limited potential to contribute to the spread of invasive species through vegetation removal, use of equipment onsite, and use of offsite plants for revegetation efforts; however, disturbed areas would be restored following construction, and measures would be taken to prevent the introduction of invasive weeds.

The City will ensure that cleaning all equipment before bringing it onsite and will use only certified, weed-free erosion control and revegetation materials. In addition, the City must comply with a local ordinance that requires that all trees transported into the City of Reno be inspected for disease. Therefore, the potential for the Proposed Project to contribute to the spread of invasive species is minimal, and the Proposed Project would comply with EO 13112.

The Proposed Project is therefore anticipated to result in negligible short-term, direct and indirect impacts to invasive species.

4.4.3.3 Alternative 3: Alternative Project

The Alternative Project has the same limited potential to contribute to the spread of invasive species as the Proposed Project. If the City proceeded with this alternative, the City would be required to adhere to the same avoidance measures described for the Proposed Project. Therefore, the Alternative Project would comply with EO 13112.

The Alternative Project is therefore anticipated to result in negligible short-term, direct and indirect impacts on invasive species.

4.5 HISTORIC PROPERTIES

Section 106 of the National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. § 470f [2010]) requires Federal agencies to consider the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings prior to the approval of the expenditure of Federal funds.

A FEMA-contracted archaeologist conducted a search of the National Register of Historic Places and the Nevada Cultural Resources Information System on June 16, 2010. The records search did not identify any previously recorded historical or archaeological resources within the area of potential effect (APE). No previous archaeological studies have been performed within the APE. Seven previous studies have been conducted within 0.5 mile of the APE. Three previously recorded resources are within 0.5 mile of the project area.

A FEMA-contracted archaeologist conducted a cultural resources investigation consisting of a pedestrian survey and literature review and determined that no properties eligible for listing in the National Register of Historic Places exist within the APE (see Appendix B). FEMA documented the results of the record search and pedestrian survey in a Finding of No Historic Properties Report (see Appendix B).

4.5.1 Alternative 1: No Project

The No Project Alternative would not result in any impacts on historic properties because no historic properties exist within the project area.

4.5.2 Alternative 2: Proposed Project

Based on the results of the record search and the pedestrian survey, FEMA determined that the Proposed Project would not affect historic properties. In accordance with Section 106 of the NHPA, FEMA sent a letter to the Reno-Sparks Indian Colony and the Washoe Tribe of Nevada and California to apprise the tribes of the Proposed Project and to request information regarding historic properties or any concerns known to the tribe in the project area (see Appendix B). To date, no responses have been received.

In the event a discovery of an artifact is made during project activities, and in compliance with Stipulation X (Unexpected Discoveries) of the Programmatic Agreement (PA) between FEMA, NDEM, and the Nevada State Historic Preservation Officer (SHPO), the City would cease all activity and notify NDEM immediately. NDEM would notify FEMA and ensure that all reasonable measures are taken to avoid or minimize harm to the resource until FEMA completes additional consultation with the SHPO and the tribes. In the event that human remains are found, the City would also contact the Washoe County Coroner/Medical Examiner. If the Coroner/Medical Examiner determines that the human remains are or may be of Native American origin, the discovery would be treated in accordance with Nevada Revised Statute 383.

In compliance with the PA, on June 30, 2010, FEMA informed the SHPO of its determination that the Proposed Project would not affect historic properties and transmitted the Finding of No Historic Properties Report (FEMA 2010). The SHPO responded and concurred with FEMA's determination on July 16, 2010 (see Appendix B).

Thus, FEMA is in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA).

4.5.3 Alternative 3: Alternative Project

The Alternative Project would involve several of the same components as the Proposed Project and result in the same impacts identified in Section 4.5.2. However, the Alternative Project would also involve an additional 450 feet of bank stabilization. The APE identified by FEMA (2010) included the Alternative Project, and the area proposed for pond installation was included in the record search and pedestrian survey.

Based on the results of the record search and the pedestrian survey, FEMA determined that the Alternative Project would not affect historic properties; however, tribal consultation and consultation with SHPO have not been completed for this alternative. Therefore, if the City proceeded with the Alternative Project, FEMA would re-open consultation with the Reno-Sparks Indian Colony, the Washoe Tribe of Nevada and California, and the SHPO regarding the scope of work in accordance with Stipulation VII of the PA. The result of the consultation would be recorded in subsequent NEPA documentation.

4.6 AIR QUALITY

The Clean Air Act of 1970 (42 U.S.C. §§ 7401–7661 [2009]) is a comprehensive Federal law that regulates air emissions from area, stationary, and mobile sources. The act authorized the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment.

The NAAQS include standards for the following criteria pollutants: nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter less than 10 micrometers in diameter (PM_{10}), and particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$). Areas where the monitored concentration of a pollutant exceeds the NAAQS are classified as being in nonattainment for that pollutant. If the monitored concentration is below the standard, the area is classified as in attainment. After monitoring documents that a nonattainment area meets air quality standards, and if there is a 10-year plan for continuing to meet and maintain such standards, EPA re-designates the area as a maintenance area.

The project area is located in a region that is considered marginal nonattainment for the Federal O_3 8-hour standard and serious nonattainment for the Federal PM_{10} standard (EPA 2010). The region is an attainment area for all other criteria pollutants. The project area is within the

jurisdiction of the Washoe County Health District Air Quality Management Division (WCAQMD).

The National Emissions Standards for Hazardous Air Pollutants (NESHAP) are set by the EPA for air pollutants not covered by NAAQS that may cause adverse impacts on human health, including asbestos. Existing concrete features such as the sewer interceptor may contain asbestos-containing materials.

4.6.1 Alternative 1: No Project

The No Project Alternative would not result in any impacts on air quality.

4.6.2 Alternative 2: Proposed Project

In compliance with the Clean Air Act, FEMA considered the Proposed Project's impact on air quality. Before approval of any Federal action, the General Conformity Rule (GCR) (40 C.F.R. § 51.853 [2009]) states that a "a conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a non-attainment or maintenance area caused by a Federal action would equal or exceed any of the rates" specified in the GCR.

The area of Washoe County where the project is located is considered a marginal nonattainment area for the Federal 8-hour O_3 standard and a serious nonattainment area for the Federal PM_{10} standard. Therefore, the project emissions must be compared to the GCR de minimis thresholds of 100 tons per year (tpy) of nitrogen oxides (NOx), 50 tpy of volatile organic compounds (VOCs) and 70 tpy of PM_{10}. Because there is no direct measurement for O_3, emission rates of NOx, volatile organic compounds (VOCs), which are ozone precursors, were analyzed.

Implementation of the Proposed Project would result in localized, short-term deterioration of air quality. The construction-related effects of the Proposed Project would consist of increases in fugitive dust, mobile construction equipment emissions, and motor vehicle emissions during construction. Earth-moving vehicles (e.g., excavators) operating at and near the construction site would generate construction-related fugitive dust. The fugitive dust would result primarily from particulate matter re-suspended by trenching and material removal at the construction site, vehicle movement, dirt tracked onto unpaved areas at access points, and wind-blown materials. These vehicles also would release minor emissions associated with diesel and gasoline combustion, including CO and O_3 precursors.

Using conservative assumptions regarding duration of construction and the number and types of construction vehicles/equipment to be used for the Proposed Project, FEMA conducted an analysis of the expected emissions using EPA's NONROAD2008a Emissions Model. The model estimates emission inventory for all off-highway mobile equipment and recreational equipment based on inputs for temporal period (i.e., season, year), geographic area, equipment type, and fuel characteristics.

Emission rates were estimated at 6.0 tpy for NOx, 0.82 tpy for VOC, and 0.77 tpy for PM_{10}. These emission rates are far below the GCR threshold rates for O_3 (100 tpy of NO_X and 50 tpy for VOC) and the GCR threshold for PM_{10} (70 tpy). Therefore, the Proposed Project complies with the GCR and this regulation of the Clean Air Act. The City will be responsible for obtaining local air quality permits required by the WCAQMD.

Construction activities may affect existing concrete features. The City will complete all required NESHAP notifications and comply with all local, county, State, and Federal regulations regarding the bank stabilization, trenching, and disposal of materials.

To minimize the effects to air quality, the City will ensure the use of well-maintained and properly tuned construction equipment and vehicles, minimize the idling time of construction vehicles, and use dust-control measures, such as watering disturbed areas and covering spoil piles, as necessary.

Therefore, the Proposed Project would result in negligible impacts on air quality.

4.6.3 Alternative 3: Alternative Project

The Alternative Project would stabilize the bank using non-bioengineering practices and would not include the installation of a refusal trench. The embankment would be shaped and heavy riprap would be placed on the bank to prevent further erosion. The Alternative Project would have a longer construction period and would require more equipment than the Proposed Project, which would result in larger construction-related emissions.

FEMA conducted an analysis of the expected emissions resulting from the Alternative Project using the same model and methodology used to assess potential impacts from the Proposed Project. The additional construction period and additional equipment associated with the Alternative Project would result in emissions of 18.36 tpy for NOx, 2.15 tpy for VOC and 1.78 tpy for PM_{10}. These emission rates are far below the GCR threshold rates for O_3 (100 tpy of NO_X and 50 tpy for VOC) and the GCR threshold for PM_{10} (70 tpy). Therefore, the Alternative Project complies with the GCR and this regulation of the Clean Air Act.

Long-term impacts to air quality would generally be commensurate with those from the Proposed Project; however, the construction period for the Alternative Project is longer and could lead to longer idling times for the construction equipment. Additionally, more dump trucks would be required for the Alternative Project compared to the Proposed Project to bring in the riprap material materials for the desilting basin berms, resulting in more fugitive dust emissions from earth moving.

The City would be required to obtain the same permits; complete the same required notifications, comply with the same Federal, State, county, and local regulations; and implement the same measures to minimize the construction-related effects to air quality as described for the Proposed Project.

Therefore, the Alternative Project would result in negligible impacts on air quality.

4.7 NOISE

Noise-sensitive receptors are normally associated with land uses where indoor and outdoor activities may be subject to substantial interference or discomfort from noise. These land uses often include residential dwellings, hotels, hospitals, nursing homes, educational facilities, libraries, and offices. The noise-sensitive land uses in or near the project area include residential dwellings, the closest of which is approximately 400 feet away. Also, recreational and educational users in the vicinity of the ONSA could be sensitive to changes in noise levels during construction. Existing noise sources include the Interstate 80 (I-80), which is located less than 1 mile away, and school groups in the spring and summer months.

4.7.1 Alternative 1: No Project

The No Project Alternative would not result in any impacts to existing noise levels.

4.7.2 Alternative 2: Proposed Project

The Proposed Project would result in temporary increases in noise levels associated with various construction activities. Residents in the immediate vicinity of the project area, as well as recreational or educational users of the ONSA, could be affected by construction noise.

The City will be responsible for implementing mitigation measures to reduce impacts from noise levels to the extent practicable, including advanced noticing, compliance with equipment noise regulations, minimized use of noise-producing signals, limited construction hours, and compliance with local noise ordinances. Following construction, the Proposed Project would not result in any increases to existing ambient noise levels in the area.

The Proposed Action would therefore result in moderate short-term direct and indirect impacts on noise levels.

4.7.3 Alternative 3: Alternative Project

The Alternative Project would result in similar temporary construction noise impacts and would require the same mitigation measures as the Proposed Project. Following construction, the Alternative Project would not result in any increase to the existing ambient noise levels in the area.

The Alternative Action would therefore result in moderate, short-term, direct and indirect impacts on noise levels.

4.8 TRANSPORTATION

The project area is located at the dead end of Dickerson Road. The project area is also less than 400 feet from State Route 647 (SR 647), a State highway that runs through Reno and Sparks, Nevada, and is less than 1 mile from I-80. SR 647 is managed and maintained by the Nevada Department of Transportation (NDOT). The eastern and western ends of SR 647 connect to I-80.

I-80 traverses the northern portion of the state and serves the Reno-Sparks metropolitan area. I-80 enters Nevada in the canyon of the Truckee River and hugs the northern bank of the river up to its entry to the Truckee Meadows, the name for an urban area consisting of Verdi, Reno, and Sparks. After leaving the Reno/Sparks metropolitan area, the freeway resumes following the Truckee River in a canyon to Fernley.

4.8.1 Alternative 1: No Project

Under the No Project Alternative, there would be no direct impacts on transportation; however, without implementation of bank stabilization and refusal trench, future flooding events could potentially affect parking areas in the ONSA, resulting in temporary closures or other access changes.

Therefore, the No Project Alternative would have potential indirect impacts on transportation in the project area.

4.8.2 Alternative 2: Proposed Project

The mobilization and demobilization of construction vehicles and equipment to the project site could slow traffic along SR 647 and Dickerson Road; however, the need for detours is not anticipated. Impacts to traffic on SR 647 and Dickerson Road associated with construction would be minor and temporary, and the City will provide advance notification, signs, flagpersons, and other measures to minimize disruption to residents and business along SR 647 and Dickerson Road and to motorists traversing the area during construction.

The staging area and proposed refusal trench in the ONSA parking lot could require temporary closure of portions of the lot; however, these closures would be temporary and the City will provide advance notification to park recreational and educational users through onsite signage and the City's web page.

The Proposed Project would have negligible, short-term, direct and secondary impacts on traffic.

4.8.3 Alternative 3: Alternative Project

The Alternative Project would have similar traffic impacts as the Proposed Project with the exception that the refusal trench would not be installed. Therefore, closures of the ONSA parking lot would be for a shorter period.

The Alternative Project would have minor, short-term, direct and secondary impacts on traffic.

4.9 VISUAL RESOURCES

Views from the project area include the Truckee River and surrounding riparian area, nearby residences, portions of I-80, nearby vegetation, and middle-ground views of vegetation and natural topography. The Sierra Nevada mountains are visible to the west. Key observation points are the observation deck, the nature trail, and residences on the opposite bank of the river. The project site is in the ONSA and is characterized by lush riparian vegetation and scenic views of the Truckee River, the adjacent wetland, and distant mountains.

4.9.1 Alternative 1: No Project

Under the No Project Alternative, there would be no direct impacts on visual resource; however, without implementation of bank stabilization and refusal trench, future flooding events could potentially alter or destroy the existing vegetation and habitat within the project area, which would affect the existing character of the site and views to and from surrounding areas.

Therefore, the No Project Alternative would have potential indirect impacts on visual resources in the project area.

4.9.2 Alternative 2: Proposed Project

The installation of the refusal trench and bank stabilization would result in localized, temporary impacts to visual resources from construction vehicles, excavated material, and the storage and use of equipment and materials. The construction operations and area would be visible from the observation deck, portions of the nature trail, and local residences during the construction period, which is expected to last 45 days. Depending on weather and observation points, construction may also be visible from other trails and viewpoints in the ONSA area. Dust would be visible for a greater distance. However, dust would be minimized through implementation of mitigation measures that would include the dust-suppression activities described in Section 4.6.2.

Final placement of compacted parking lot material, repaving of the affected parking areas and associated reconstruction of the compacted dirt walking paths would be completed after the refusal trench and bank stabilization was completed; therefore, visual impacts would be minor and temporary. The bank stabilization portion of the project includes a native revegetation component that would restore views in the long term for recreational and educational park users and residents with a view of the river bank.

The Proposed Project would result in moderate, short-term, direct and indirect impacts on the visual character of the project area.

4.9.3 Alternative 3: Alternative Project

Impacts to visual resources from the Alternative Project would generally be the same as those described for the Proposed Project. However, the Alternative Project would have a greater impact on visual resources than the Proposed Project because all vegetation except protected trees would be removed to install approximately 600 feet of riprap. The bank would have less vegetation, and the riprap would be more visible to recreational and educational park users and residences with a view of the bank. Some willow planting and revegetation would be implemented that would reduce these effects; however, the bank riprap would be anticipated to introduce a new visual element to the project area.

The Alternative Project would result in moderate, short-term, direct and indirect impacts, and minor, long-term, direct impacts on the visual character of the project area.

4.10 LAND USE AND RECREATION

The land within the project area is located in the ONSA, which is owned by the City and managed by the Nevada Department of Wildlife (NDOW). The land surrounding the project area is either residential or undeveloped. The park was opened in 1991 and is designed and operated for recreational and educational use as a wetland and riparian interpretive center. The park includes the last natural riparian zone found within the Reno city limits. Approximately 12,000 schoolchildren visit the park annually, in addition to birders, hikers, and anglers (NDOW 2010). The park provides the residents of neighboring communities with various recreational and educational opportunities, including hiking and picnicking.

4.10.1 Alternative 1: No Project

Under the No Project Alternative, there would be no direct impacts on land use and recreation; however, without implementation of bank stabilization and refusal trench, future flooding events could potentially impact the Lawton Interceptor, portions of the ONSA paths and observation decks, as well as the parking areas, which could temporarily prevent recreational and educational uses of the park.

Therefore, the No Project Alternative would have potential indirect impacts on land use and recreation in the project area.

4.10.2 Alternative 2: Proposed Project

The Proposed Project would not change the function or land use of the ONSA or surrounding areas. The Proposed Project would be completed during the fall when the recreational use at the park is moderate. Although the park would remain open during construction, recreational activities on the park property would be limited because of the presence of construction equipment and workers. The project area would be safeguarded using appropriate signage, temporary fencing, and/or flagging crews. The City will post notices well in advance of

temporary closures so that potential visitors can make alternate plans. The recreating public in the vicinity of the project could be affected by noise and dust, and the public may notice impacts to the visual setting, as previously described.

The Proposed Project would not affect land use. The Proposed Project could result in minor, short-term, direct and indirect impacts on recreation.

4.10.3 Alternative 3: Alternative Project

Under the Alternative Project, impacts to land use and recreation would be similar to those described under the Proposed Project. As with the Proposed Project, the City will post notices well in advance of temporary closures so that potential visitors can make alternate plans. The public could notice moderate, long-term impacts to the visual setting, as previously described.

The Alternative Project would not affect land use. The Alternative Project could result in minor, short-term, direct and indirect impacts on recreation.

4.11 EXECUTIVE ORDER 12898: ENVIRONMENTAL JUSTICE

EO 12898, Environmental Justice, requires Federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse human health or environmental effects on minority and low-income populations that result from their programs, policies, or activities. EO 12898 also tasks Federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible.

The 2000 U.S. census does not identify any minority or low-income populations living in the area surrounding the ONSA (U.S. Census 2000).

4.11.1 Alternative 1: No Project

The No Project Alternative would not result in any impacts to minority or low-income populations.

4.11.2 Alternative 2: Proposed Project

No minority or low-income populations are located within or adjacent to the project area, and the impacts of the Proposed Project would affect all residents and ONSA visitors equally. Thus, the Proposed Project would not result in disproportionately high and adverse effects on minority or low-income populations. As a result, the Proposed Project would comply with EO 12898.

4.11.3 Alternative 3: Alternative Project

As with the Proposed Project, no minority or low-income populations exist within the project area, and the Alternative Project would affect all residents and ONSA visitors equally. Thus, the Alternative Project would not result in disproportionately high and adverse effects on minority or low-income populations. As a result, the Alternative Project would comply with EO 12898.

4.12 CUMULATIVE IMPACTS

CEQ defines a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (40 C.F.R. § 1508.7). Past, present, and reasonably foreseeable future actions were identified based on information obtained from the City, Washoe County, NDOW, NDEM, the NDOT, and FEMA.

Past actions in the area include a similar bank stabilization project directly upstream of the project area; construction, maintenance, and past use of the ONSA, SR 647, and the nearby residential and commercial properties; educational and recreational activities (e.g., hiking, school field trips); and past flooding events. The Truckee River Fund identifies four completed clean-up and educational projects in the vicinity of the project area (TRF 2010). These past actions are assumed to create the existing, affected environment. Ongoing and current projects are limited to the replacement of the boardwalk (discussed below), recreational and educational use, and use and maintenance of developed facilities in the project vicinity.

The City, NDEM, and FEMA documented one reasonably foreseeable future project in the area, other than the project described in this EA, which is the replacement of the ONSA boardwalk. During phone calls between Washoe County, the City, NDOW, and FEMA's contractor on August 26, 2010, and August 27, 2010, no other reasonably foreseeable future projects were identified.

The Truckee River Fund's website identifies one ongoing annual project, titled Truckee River Clean-up Day, within the vicinity of the project, which consists of the clean-up of "hot spots" along the river (TRF 2010). The NDOT website identifies an improvement project along I-80 that includes some infrastructure improvements and striping and signage additions in the vicinity of the project area (NDOT 2010).

The potential for each alternative to contribute to cumulative impacts is discussed below. If an alternative would have no impact or negligible direct or indirect impacts to a resource, it is assumed that this alternative would not contribute to cumulative impacts on that resource and is not discussed further in this section.

Under the No Project Alternative, no bank stabilization or sewer protection would occur, and the potential for bank erosion and a potential sewer rupture during flood events would remain. Under this alternative, no direct impacts to social, cultural, or natural resources (refer to Sections 4.1 to

4.11) would occur; however, there is potential for indirect impacts in the event of a flood. Because it is difficult to quantify the potential impacts of an unknown event, for the purposes of this discussion, the No Project Alternative is considered not to contribute to cumulative impacts.

Under both the Proposed Project and Alternative Project, ONSA users, area residents, and visitors could experience cumulative air quality, noise, transportation, visual, and recreational, impacts resulting from overlapping or consecutive construction/implementation periods. However, when considered with past, present, and reasonably foreseeable future actions in the area, and the temporary nature of these impacts, the project's contribution would not be expected to be cumulatively substantial.

Under both the Proposed Project and Alternative Project, cumulative impacts related to geology and soils, water resources, biological resources, and invasive species would occur. However, when considered with past, present, and reasonably foreseeable future actions, and the temporary nature of the impacts, the project's contribution would not be expected to be cumulatively considerable.

Implementation of either the Proposed Project or Alternative Project would stabilize the bank and provide protection to the Lawton Interceptor, thus reducing the risk of bank loss and sewer rupture during flood events. Implementation of the projects identified on the Truckee River Fund website would further reduce river contamination in the project vicinity (TRF 2010). When considered together with past, present, and reasonably foreseeable future actions, these alternatives would result in cumulative contributions to flood protection in the area.

Therefore, the project would result in minor, long-term, cumulative impacts on air quality, noise, transportation, visual, and recreational, geology and soils, water resources, biological resources, and invasive species.

4.13 MITIGATION MEASURES

Mitigation measures are actions that have been identified to minimize or avoid the impacts of the alternatives on social, cultural, and natural environmental resources when appropriate. The environmental consequences of the alternatives, as described in the preceding documentation, are projected with the understanding that the City is responsible for implementing applicable mitigation measures as a condition of any grant award. The City may also be required to implement additional mitigation measures based on its compliance with local, State, or other general laws or regulations, as applicable. The following measures will be required as a stipulation for receipt of Federal financial assistance from FEMA.

4.13.1 Alternative 1: No Project

No mitigation measures would be required for the implementation of this alternative.

4.13.2 Alternative 2: Proposed Project

If the Proposed Project is implemented by the City, the following mitigation measures will be required:

- The City will use silt fences, covering spoil piles, staging equipment along existing roads, and watering areas of exposed soil as necessary to minimize soil loss from surface runoff and wind erosion.
- The City will keep construction and maintenance equipment properly maintained.
- The City will dispose of excess spoils resulting from drilling, grading, or trenching in compliance with all applicable Federal, State, and local regulations.
- The City will obtain the appropriate Section 404/401 Clean Water Act permits and certifications prior to construction.
- The City will comply with NPDES (Section 402 of the Clean Water Act) requirements for any pollutants that could be discharged into the water system during construction.
- The City will publish a Final Public Notice in compliance with EO 11988 and EO 11990 before implementation of the Proposed Project.
- The City will comply with the USFWS BO regarding impacts to the Lahontan cutthroat trout and implement all measures required in the BO to avoid or reduce impacts to this species.
- The City will comply with the MBTA for all construction-related disturbance and all applicable State or local wildlife and vegetation requirements.
- The City will use a native seed mix to reseed any area of ground disturbance as a result of the Proposed Project once construction is complete.
- The City will take measures to prevent the introduction of invasive weeds at the construction site, including cleaning all equipment before bringing it onsite and using only certified, weed-free erosion control and re-vegetation materials.
- In the event a discovery of an artifact is made during project activities, and in compliance with Stipulation X (Unexpected Discoveries) of the PA between FEMA, NDEM, and the SHPO, the City will cease all activity and notify NDEM immediately. NDEM would notify FEMA and ensure that all reasonable measures are taken to avoid or minimize harm to the resource until FEMA completes additional consultation with the SHPO and the tribe.
- In the event that human remains are found, the City will contact the Washoe County Coroner/Medical Examiner. If the Coroner/Medical Examiner determines that the human remains are or may be of Native American origin, the discovery will be treated in accordance with Nevada Revised Statute 383.

- The City will complete all required NESHAP notifications and comply with all Federal, State, county, and local regulations regarding the demolition and disposal of materials.
- The City will ensure the use of well-maintained and properly tuned construction equipment and vehicles, minimize the idling time of construction vehicles, and use dust-control measures, such as watering disturbed areas and covering spoil piles, as necessary.
- The City will post public notices that provide advance notification of construction and on its website and onsite.
- All mobile or fixed noise-producing construction equipment that is regulated for noise output by a Federal, State, or local agency will comply with such regulation.
- Noise-producing signals, including horns, whistles, alarms, and bells, will be used for safety purposes only.
- Construction will be limited to weekdays between 7 a.m. and 7 p.m. and between 10 a.m. and 5 p.m. on weekends.
- Noise levels resulting from construction will comply with local noise ordinances.
- The City will provide advance notification, signs, flagpersons, and other measures to minimize disruption to residents along SR 647 and Dickerson Road and motorists traversing the area during construction.
- After construction, the City will re-pave the portion of the parking lot excavated for the refusal trench and re-seed the affected portion of the bank with native riparian and wetland seed mix.
- The City will post notices well in advance of temporary closures so that potential visitors can make alternate plans.

4.13.3 Alternative 3: Alternative Project

The City would be required to comply with all mitigation measures listed in Section 4.13.2.

4.14 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

4.14.1 Irreversible or Irretrievable Commitment of Resources

For the purposes of this EA, irreversible commitment of resources is interpreted to mean that once resources are committed, the production or use of those resources would be lost for other purposes throughout the life of the alternative being implemented. An irretrievable commitment of resources defines those resources that are used, consumed, destroyed, or degraded during the

life of the alternative and that could not be retrieved or replaced during or after the life of the alternative.

The No Project Alternative would not directly require the use of resources. However, the risk of loss of social, natural, and cultural resources as a result of flooding and sewer rupture would continue as it currently exists.

Both the Proposed Project and Alternative Project would require the commitment of human and fiscal resources. The additional expenditure of labor required for the Proposed Project and Project Alternative would be limited to the efforts during construction because maintenance is expected to be commensurate with current maintenance activities. Funding for the project would not be available for other uses and would therefore be irretrievable.

The project alternatives would also require the commitment of natural resources. Natural resources that would be committed to the project as a result of either of project alternative include land, rock materials, water, and vegetation. Installation of the bank stabilization and refusal trench would not result in the incorporation of a larger area of land than what is currently developed. Installation of riprap for the Alternative Project would require a minimal amount of land in addition to what is currently being used.

Both build alternatives would require temporary commitment of water resources for construction purposes. After project construction, water flow patterns and volumes would revert to their pre-project conditions. Vegetation committed for implementation of the Proposed Project would be restored, and the project area would therefore only temporarily be affected by construction. Vegetation committed for implementation of the Alternative Project would be semi-restored through revegetation, but the installation of riprap would result in some permanent loss of vegetated areas.

Non-renewable and irretrievable fossil fuels and construction materials (e.g., cement, steel, water, energy) would be required. Labor and materials are also used in the fabrication, preparation, and distribution of construction materials. These materials are generally not retrievable. However, the project would require only a small amount of these materials, the materials are abundant, and use would not result in a measurable impact to the availability of these resources.

The implementation of either of the build alternatives would result in the commitment of resources as described above; however, the alternatives would also result in a decreased risk of bank erosion and an associated sewer rupture, and therefore an overall decrease in risk of irreversible and irretrievable loss of resources resulting from flood events.

4.14.2 Short-Term Uses of the Environment and Maintenance and Enhancement of Long-Term Productivity

Implementation of either the Proposed Project or the Alternative Project would result in short-term uses of the environment and short- and long-term impacts on the environment, as documented in Sections 4.1 to 4.11. However, these uses of the environment would be balanced by the increased protection from bank erosion and associated sewer rupture that either alternative would provide. Furthermore, implementation of any of the alternatives would not preclude or alter the range of potential uses of the resources in the area.

SECTION FIVE PUBLIC PARTICIPATION AND AGENCY COORDINATION

FEMA is the lead Federal agency for conducting the NEPA compliance process for this proposal. The lead Federal agency is responsible for expediting the preparation and review of NEPA documents in a way that is responsive to the needs of City residents while meeting the spirit and intent of NEPA and complying with all NEPA provisions. Appendices A and B provide applicable agency correspondence.

The Draft EA was circulated for a 7-day public comment period, during which a public notice was published in the *Reno Gazette*. During the public comment period, FEMA accepted written comments on the Draft EA addressed to the FEMA Region IX Environmental and Historical Preservation Office, 1111 Broadway, Suite 1200, Oakland, California 94607, or to fema-rix-ehp-documents@dhs.gov. No comments were received during the comment period. FEMA will consider the results of this Final EA and publicize its decision in a Finding of No Significant Impact or Notice of Intent to prepare an Environmental Impact Statement. Interested parties (Appendix C) will be provided a copy of this documentation.

SECTION SIX REFERENCES

EPA (U.S. Environmental Protection Agency). 2010. The Green Book Nonattainment Areas for Criteria Pollutants. Available at http://www.epa.gov/air/oaqps/greenbk/index.html. Accessed August 2010.

FEMA (Federal Emergency Management Agency). 2009. Flood Insurance Rate Maps, Washoe County, Nevada and Incorporated Areas, 32031C3039G. Available at http://map1.msc.fema.gov/idms/ IntraView.cgi?KEY=61178603&IFIT=1. Accessed on April 26, 2010.

———. 2010. *Finding of No Historic Properties Report for the Protect Lawton Interceptor Project: City of Reno, Washoe County, Nevada.* Prepared by URS Group, Inc. June 29, 2010.

NDOT (Nevada Department of Transportation). 2010. *I-80 Design Build Project*. Available at http://www.nevadadot.com/projects/i80db/mpd.asp. Accessed on August 27, 2010.

NDOW (Nevada Department of Wildlife). 2010. News and Media. Available at http://www.ndow.org/about/news/pr/081408_oxbow.shtm. Access on August 23, 2010.

NRCS (U.S. Department of Agriculture, Natural Resource Conservation Service). 2010. Web Soil Survey: Oxbow Park, Nevada. Available at http://websoilsurvey.nrcs.usda.gov/ Accessed on August 18, 2010.

Peterson, E.B. 2008. *International Vegetation Classification Alliances and Associations Occurring in Nevada with Proposed Additions*. Carson City, Nevada: Nevada Natural Heritage Program.

Price, J.G. 2004. *Geology of Nevada*. Nevada Bureau of Mines and Geology. Available at http://www.nbmg.unr.edu/dox/imfprice.pdf. Accessed on August 16, 2010.

TRF (Truckee River Fund). 2010. Completed and Ongoing Projects. Available at http://www.truckeeriverfund.org/projects/map.shtml. Accessed on August 27, 2010.

U.S. Census. 2000. Census 2000 Summary File 1 (SF 1) 100-Percent Data, Census Tracts 32.01 and 10.06. Available at http://factfinder.census.gov. Accessed on May 14, 2009.

USFWS (U.S. Fish and Wildlife Service). 2010. Nevada Ecological Services Database. Available at http://www.fws.gov. Accessed on March 30, 2010.

USGS (U.S. Geological Survey). 2010. Earthquakes Hazard Program. Available at http://earthquake.usgs.gov/earthquakes/eqinthenews/2008/nn00242554/. Accessed on August 22, 2010.

———. No date (a). Geologic Provinces of the United States: Basin and Range Province. Available at http://geomaps.wr.usgs.gov/parks/province/basinrange.html. Accessed on August 30, 2010.

———. No date (b). USGS Surface Water Monthly Discharge Statistics. Gage ID #10348000, Truckee River at Reno, NV. Available at http://waterdata.usgs.gov/nwis/nwisman/?site_no=10348000&agency_cd=USGS. Accessed on August 25, 2010.

Personal Communication

Setty, Matthew. 2010. Personal communication between Matthew Setty, senior scientist at JBR Environmental Consultants, Inc. and Jessie Golding, biologist at URS Group, Inc., on April 7, 2010.

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