Subgrant Project Application

Application Title: Marlette Lake Dam Resilient Infrastructure Project
Subgrant Applicant: State Public Works Divsion
Application Number: NV-2019-001
Application Year: 2019
Grant Type: Project Application
Address: 515 East Musser Street, Suite 102, Carson City, NV 89701-0000

Subapplicant Information	
Name of Subapplicant	State of Nevada Public Works Division
State	NV
Type of Subapplicant	State Government
Legal status, function, and facilities owned:	Under the Nevada Department of Administration, the State Public Works Division plans, manages, and implements state capital improvements and proactively manages state facilities. The State Public Works Division is responsible for professional services which include development of the State Capital Improvement Program (CIP), project management, the Facility Condition Analysis Program, and the State Building Official. Additionally, the State Public Works Division is responsible for Buildings and Grounds which includes facility management, the Marlette Lake Water System, and the State Leasing Program. The State Public Works Division receives funds from the Nevada Legislature every 2- years for a CIP. It is the State Public Works Divisions mission to provide well planned, efficient, and safe facilities to state agencies so they can effectively administer their programs. The Marlette Lake Water System consists of Marlette Lake and Hobart Reservoir, a 1-million gallon storage tank above Lakeview, a pump at Marlette Lake with a natural gas fired generator at a remote building site, several catchments on the East Slope of the Sierra Nevada Mountains above Washoe Valley which are designed to capture spring water runoff, and interconnecting piping systems. The Marlette Lake Water System is located on State property and is managed by the State Public Works Division. (Please see Index of Attachments and Attachment 1 - Intergovernmental Review)
State Tax Number:	
Federal Tax Number: Other type name:	
Federal Employer Identification (EIN)	88-6000022
What is your DUNS Number?	805679656 -
Is Subapplication subject to review by Executive Order 12372 Process?	No. Program has not been selected by state for review
Is the Subapplicant delinquent on any Federal debt?	No
Explanation:	

Contact	
Authorized Subgrant Agent	
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Title	Administrator
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Community Information							
Please provide the name of each community that will benefit from this mitigation activity by clicking on the Find Community button. You shall modify Congressional District for each community by directly editing the textbox(es) provided. You should also notify your state NFIP coordinator so that it can be updated in the Community Information System database. When you are finished, click the *Save and Continue* button below.							
State	County Code	Community Name	CID Number	CRS Community	CRS Rating	State Legislative District	US Congressional District
NV	320019_QBM0Z0HX6	WASHOE COUNTY*	320019	Y	7	320019	2
NV	320001_QBM0Z0HWQ	CARSON CITY, CITY OF	320001	Y	6	320001	2
NV	320033_QBM0Z0HXI	STOREY COUNTY*	320033	Y	8	320033	2
NV	N/A	Statewide					2
NV	320029_QBM0Z0HXE	LYON COUNTY*	320029	N		320029	2

Comments

Washoe County is located along the eastern slopes of the Carson Range of the Sierra Nevada Mountains in western Nevada. The county covers an area of 6,600 square miles in the northwest section of the State bordering California and Oregon. Washoe County is bordered by Humboldt, Pershing and Churchill Counties on the east and Storey County and Carson City to the south. (Please see Attachment 2 - Washoe County Location Map.) The Marlette Lake Dam, an earthen filled dam on Marlette Creek, is located east of Lake Tahoe in Washoe County, Nevada. (Please see Attachment 3 - Marlette Lake Dam Location and Attachment 4 - Historic Marlette System Overview.) The system is a historic water system originally constructed in the mid-1870's to provide water to Virginia City, and was authorized for purchase by the 1963 Legislature from the Curtiss-Wright Corporation at a cost of $1.65 million. Originally, water was conveyed via a wooden flume from Marlette Lake to a pipeline bored through the mountain and eventually fed into Hobart Reservoir. The wooden flume structure has been removed and the adjacent trail, named the Flume Trail, remains for visitors to explore this historic area. The adjoining lands to the Marlette Water System are administered and controlled by State Parks. Today the System provides raw water to Carson City, Storey County, and Lyon County. In fact, it is the only source of raw water for Virginia City is piped to Storey County's system through the inverted siphon piping system that runs down from the storage tanks on the East Slope, under the 395/I-580 freeway, and up the east side of Washoe Valley to the 5-mile reservoir near Virginia City. The major objectives of the system are to preserve and protect local water sources, provide adequate supplies of water to the areas served, maintain the system in a condition calculated to assure dependable supplies of water, and sell water under equitable and fiscally sound contractual arrangements. This system is funded entirely from water sales to Carson City, Storey County and Lyon County.

Attachments

Attachment 1 - Intergovernmental Review.pdf
Attachment 2 - Washoe County Location Map.pdf
Attachment 3 - Marlette Lake Dam Location Map.pdf
Attachment 4 - Historic Marlette Water System Overview.pdf
Index of Attachments.docx

State	NV	
Community Name	WASHOE COUNTY*	
County Name	NEVADA	
County Code	WASHOE COUNTY	
City Code	320019	
FIPS Code	031	Help
CID Number	320019	Help
CRS Community	Y	
CRS Rating	7	
State Legislative District	320019	
US Congressional District	2	
FIRM or FHBM available?	Yes	
Community Status	PARTICIPATING	Help
Community participates in NFIP?	Yes	
Date entered in NFIP	06-25-1975	
Date of most recent Community Assistance Visit (CAV)?	08-11-2014	Help

State	NV
Community Name	CARSON CITY, CITY OF
County Name	NEVADA
County Code	CARSON CITY

City Code	320001	
FIPS Code	510	Help
CID Number	320001	Help
CRS Community	Y	
CRS Rating	6	
State Legislative District	320001	
US Congressional District	2	
FIRM or FHBM available?	Yes	
Community Status	PARTICIPATING	Help
Community participates in NFIP?	Yes	
Date entered in NFIP	08-06-1975	
Date of most recent Community Assistance Visit (CAV)?	07-21-2011	Help

State	NV	
Community Name	STOREY COUNTY*	
County Name	NEVADA	
County Code	STOREY COUNTY	
City Code	320033	
FIPS Code	029	Help
CID Number	320033	Help
CRS Community	Y	
CRS Rating	8	
State Legislative District	320033	
US Congressional District	2	
FIRM or FHBM available?	Yes	
Community Status	PARTICIPATING	Help
Community participates in NFIP?	Yes	
Date entered in NFIP	10-04-1989	
Date of most recent Community Assistance Visit (CAV)?	09-20-2012	Help

State	NV	
Community Name	Statewide	
County Name		
County Code		
City Code		
FIPS Code		Help
CID Number		Help
CRS Community		
CRS Rating		
State Legislative District		
US Congressional District	2	
FIRM or FHBM available?	No	
Community participates in NFIP?	No	
Date entered in NFIP		
Date of most recent Community Assistance Visit (CAV)?		Help

State	NV	
Community Name	LYON COUNTY*	
County Name	NEVADA	
County Code	LYON COUNTY	
City Code	320029	
FIPS Code	019	Help
CID Number	320029	Help

CRS Community	N	
CRS Rating		
State Legislative District	320029	
US Congressional District	2	
FIRM or FHBM available?	Yes	
Community Status	PARTICIPATING	Help
Community participates in NFIP?	Yes	
Date entered in NFIP	04-20-1982	
Date of most recent Community Assistance Visit (CAV)?	10-20-2009	Help

Mitigation Plan			
Is the entity that will benefit from the proposed activity covered by a current FEMA-approved multi-hazard mitigation plan in compliance with 44 CFR Part 201?	Yes		
If Yes, please answer the following:			
What is the name of the plan?	Washoe County Regional Hazard Mitigation Plan		
What is the type of plan? When was the current multihazard mitigation plan approved by FEMA?	Local MultiJurisdictional Multihazard Mitigation Plan 05-09-2016		
Describe how the proposed activity relates to or is consistent with the FEMA-approved mitigation plan.	The project meets the following goals and objectives of the Washoe County Hazard Mitigation Plan: Mitigation action 5.2 - Encourage seismic strength evaluations of critical facilities in the jurisdiction to identify vulnerabilities for mitigation of schools and community college, public infrastructure, and critical facilities to meet current seismic standards; and Mitigation Action 5.5 -Assess, repair, and/or replace infrastructure that may fail during earthquakes. Please see Attachment 5-Local Hazard Mitigation Plans Excerpts.		
If No or Not Known, please answer the following:			
Does the entity have any other mitigation plans adopted? If Yes, please provide the following information.	No		
Plan Name	Plan Type	Date Adopted	Attachment
Does the State/Tribe in which the entity is located have a current FEMA-approved mitigation plan in compliance with 44 CFR Part 201?	Yes		
If Yes, please answer the following:			
What is the name of the plan?	State of Nevada Enhanced Hazard Mitigation Plan		
What is the type of plan?	Enhanced State Multi-hazard Mitigation Plan		
When was the current multihazard mitigation plan approved by FEMA?	10-20-2018		
Describe how the proposed activity relates to or is consistent with the State/Tribe's FEMA-approved mitigation plan.	This project meets the following goals and objectives of the State of Nevada Enhanced Hazard Mitigation Plan: Goal 3.F - Encourage seismic retrofit of deficient essential structures and infrastructure of community and State critical facilities (economic and lifeline-utilities) to structurally and seismically withstand the effects of earthquakes; Goal 4.G - Upgrade State-owned or operated infrastructure (e.g. servicing roads, culverts, bridges, channels, and structures) related to State-owned or operated critical facilities to protect critical facilities from flood damages or disruption of essential services; Goal 4.H - Protect existing assets as well as future development from the effects of dam failure; Goal 4.J - Inventory and inspect existing dams for structural and hydraulic adequacy and implement operational constraints, if warranted; and, Goal 4.K - Install early warning weather stations in watersheds with dams above populated areas. Please see Attachment 6-State of Nevada Enhanced Hazard Mitigation Plan Pages 4-8 and 4-11.		
If you would like to make any comments, please enter them below.			
This project also meets the goals and objectives of the Carson City Hazard Mitigation Plan, Goal 3: Reduce the possibility of damage and losses due to earthquakes; Storey County Hazard Mitigation Plan, Goal 3.E: Retrofit all critical assets within strong shaking areas that do not meet the most current IBC requirements for safety; with higher priority given to critical facilities, infrastructure, and government agencies located within identified historical buildings; and Lyon County Multi-jurisdictional Hazard Mitigation Plan, Goal 5.4: Seismically retrofit or replace critical facilities that are necessary during and/or immediately after a disaster or emergency.			
To attach documents, click the *Attachments* button below.			
Attachment 6 - State of Nevada Enhanced Hazard Mitigation Plan Pages 4-8 and 4-11.pdf Attachment 5 - Local Hazard Mitigation Plans Excerpts.pdf			

Scope of Work (Page 1 of 3)
Title of your proposed activity (should include the type of activity and location):
Marlette Lake Dam Resilient Infrastructure Project
Hazard(s) Identified to be mitigated:
Dam/Levee Break, Earthquake, Flood
Proposed types of Mitigation Activity(ies):

Activity Code	Activity Name
402.3	Infrastructure Protective Measures

If Other or Miscellaneous selected above, please specify:
Provide a clear and detailed description of your proposed activity:
The Marlette Lake Water System, including the Marlette Lake Dam, is the only source of raw water for Virginia City and Gold Hill in Storey County, and Silver City in Lyon County, Nevada and a secondary drinking water supply to Carson City, Nevada. Recent evaluations through the Marlette Lake Dam Emergency Action Plan indicate a high probability of a dam breach due to an earthquake which will result in flooding. The proposed Marlette Lake Dam Resilient Infrastructure Project will provide seismic upgrades to the Marlette Lake Dam and spillway in order to reduce risk to reduce the risk to the public, critical infrastructure, the environment and Thunderbird Lodge personnel and property due to a dam breach as the result of a seismic event. (Please see Attachment 7 - Project Description, Attachment 8 - Preliminary Site Plans and Attachment 9 - Estimated Project Timeline.) The project proposes stabilizing the dam by enlarging the existing embankment. This would be accomplished by flattening the downstream slope to a 3:1 slope and by adding a stability berm at the base of the downstream embankment. The addition of fill material on the downstream slope will cover the existing rock facing on the original dam. Since this is a significant historical feature, the preliminary design calls for preserving the facing and adding signage describing the history of the dam. Liquefaction and inadequate compaction of the original dam embankment will be mitigated by either compaction grouting or vibro-compaction of the liquefiable materials. Additionally, the crest height will be increased to reduce risk of overtopping. Final design of the dam stabilization would be based on a probabilistic seismic risk analysis whereby the behavior of the dam under specific levels of earthquake loading and return periods are defined. The analysis would consider the probability of a breach from multiple sources and ranges of magnitude, not just the Maximum Credible Earthquake. The project also includes 1) removing and replacing the existing spillway wall with a new reinforced concrete structure consisting of walls, foundations, a lid and a trash rack at the inlet. The walls would extend above the level of the new crest and would also prevent rocks from entering the spillway. The new lid would prevent snow from accumulating in the spillway. The new structure would also alleviate the need to perform repairs to the existing spillway wall that is beginning to experience deterioration in the form of spalling and cracking; 2) replacement of outlet pipes with a new inlet structure that is designed to prevent siltation. A cofferdam will be constructed to allow dewatering at the existing outlet structure so it can be replaced with a new outlet structure and new pipes; 3) installation of automated outlet control and SCADA system housed in a 10-foot by 10-foot masonry building for security purposes; and 4) road improvements to allow access by construction equipment to the dam site.
Is there construction in this project?
Y
Provide a detailed description of the proposed project's location (e.g. municipality, street address, major intersecting streets and other important landmarks). Supporting documentation such as maps that clearly identify the location and critical features to the project such as topography, waterways, adjacent community boundaries, etc., should be attached:
Marlette Lake Dam is located on the east side of Lake Tahoe within Sections 7, 12, 13 an 18 of Township 15 North, Range 18 East. The dam and the majority of the Lake is located within Washoe County bounds. A southern portion of the Lake and the roadway is located in Carson City bounds. The access road is located within Section 1 of Township 14 North Range 18 East and Sections 18, 19, 24, 25, and 36 of Township 15 North, Range 18 East. (Please see Attachment 3 - Marlette Lake Dam Location Map, Attachment 10 - System Overview Maps, Attachment 11 - Existing Access Road, and Attachment 12 - Marlette Lake Dam FIRM.)

Scope of Work (Page 2 of 3)
Latitude:
39.1727
Longitude:
119.9073
Describe the need for this activity. Why should this mitigation activity be completed?
Nevada is the third most seismically active state in the US and Washoe County is located in one the most seismically active areas in Nevada. The most hazardous fault zones in Washoe County are the Mount Rose fault zone, West Tahoe fault and Pyramid Lake fault. Additionally, dozens of smaller faults are located in areas throughout the county. As recent as 11-25-18, the Nevada Seismological Lab reported at 2.2 magnitude earthquake near the Marlette Lake Dam. (See Attachment 13 - Seismic Hazards, Attachment 13.1 - 11-25-18 Nevada Seismological Lab, and Attachment 14 - Marlette Lake Dam EAP.) The Marlette Lake Water System was constructed in the 1870's to support timber operations and supply water to Virginia City, Nevada. The Marlette Lake Dam is approximately 33 feet high having been raised twice since the original was built. The latest addition was in 1959. Marlette Lake has a storage capacity of approximately 11,780 acre-feet of water at the spillway level. The elevation of the top of the dam is reported to be 7,843 feet. The elevation of the channel bottom downstream is 7,810 feet. The dam length is approximately 287 feet wide. There is one concrete lined spillway on the north side of the dam and a manual outlet valve with control on top of the dam. The dam is normally unattended when pumping is not in progress. The dam is also inaccessible most of the winter due to deep snow. The lake is frozen over most of the winter. The spillway is the primary level control for the lake. The spillway and outlet valve both empty into Marlette Creek which runs under State Route 28 into Lake Tahoe. The dam is on property managed by NV State Parks and State Public Works.

State Route 28 is a highway maintained by NV Department of Transportation. While there are no permanent population centers in the potentially affected, the area has heavy recreational use during the summer months and State Route 28 is the main north-south road for the Tahoe Basin in the winter. The shoreline of Lake Tahoe, where Marlette Creek enters, is public land administered by the USFS and is popular with beach goers and fisherman. The Thunderbird Lodge, located on USFS, contains five structures built in 1934 and listed on the National Historic Register. Additionally, a 16-inch effluent pipeline is located 42-inches below the roadway shoulder. The pipeline is owned and maintained by Incline Village General Improvement District (IVGID). This pipe carries treated effluent from IVGIDs water resource recovery plant out of the Lake Tahoe Basin to wetlands facility southeast of Carson City. The effluent export line has a daily flow of 1.0 million gallons. Marlette Lake Dam is designated a high hazard dam due to reasonable potential for loss of life and/or extreme economic loss downstream in the event of a dam failure. Failure of Marlette Lake Dam due to an earthquake in the area presents a potential for substantial damage downstream due to the steep terrain and resulting high flow velocities. A "Probable Maximum Flood Analysis and Emergency Action Plan (EAP)" was completed in 2002 and updated in the 2015. (See Attachment 14 - Marlette Lake Dam EAP.) The analysis showed that due to the location of the dam in an area of high seismic activity, the construction of the dam, and the age of the dam, the most likely cause of failure would be due to a large earthquake in the area. The inundation mapping prepared as a part of the EAP assumes a clear day breach (see Page 21 and 22 of Attachment 14 - Marlette Lake Dam EAP.) The report indicates the probable substantial damage to the dam itself and any existing structures and improvements within the downstream flow path, including State Route 28 and the Incline Village General Improvement District effluent pipeline, as well as to the ecology of Lake Tahoe. Furthermore, there would be loss of use of the water system, State Route 28, and the IVGID sewer line, Lake Tahoe's pristine environment, and possible injuries or loss of life.

Who will the mitigation activity benefit and/or impact?

The desired outcome of the Marlette Lake Dam Resilient Infrastructure Project is to reduce the risk to the public, critical infrastructure, the environment, and Thunderbird Lodge personnel and property due to a dam breach as the result of a seismic event. The Marlette Lake Dam Resilient Infrastructure Project will reduce the cost for emergency response; reduce damage costs and repair time for the dam, State Route 28, and the IVGID effluent pipeline; protect critical infrastructure and Lake Tahoe; and decrease community impacts due to roadway closures, loss of use of water, and loss of effluent pipeline. The State Public Works Division has actively solicited the input and partnership of Washoe County, Carson City, Storey County, and in planning and conceptualizing this project. Carson City, Storey County and Lyon will benefit from the project because it will protect their water infrastructure and supply. Washoe County will benefit from reduced cost for emergency response should the Marlette Lake Dam fail. The Tahoe Regional Planning Agency is in support of the project because of the enormous ecological affect to Lake Tahoe that a dam breach would have resulting in high sedimentation flows in Marlette Creek, as well as significant potential for a discharge of treated effluent into Lake Tahoe. The proposed long-term mitigation activity will benefit the Marlette Lake Water System Users, IVGID residents, local and visiting recreation enthusiasts, historic Thunderbird Lodge facility and personnel, the clarity and environment of Lake Tahoe, and emergency response personnel for Washoe, Carson, Storey and Lyon Counties. The State will derive an additional benefit of increasing safety of a historic critical infrastructure close to the Capital, safeguarding the pristine environment of the Lake Tahoe basin, and the staff managing the Marlette Lake Water System, fishery, trails and campsite. The Governor of Nevada and the Legislative Committee for the Review and Oversight of the Tahoe Regional Planning Agency and the Marlette Lake Water System have expressed the support of this long-term mitigation activity which will increase safety of life and property. The results of the proposed project include the reduction of costs for response by emergency personnel, risk to public safety and state employees, and repair of infrastructure. The Nevada Department of Wildlife has expressed support of the dam retrofit because the lake is used as a brood lake for rainbow and cutthroat trout where spawning operations occur annually and offspring are used to stock waterbodies around the state. The Nevada Division of Parks supports the project because it will protect and preserve recreational facilities. The Thunderbird Lodge Preservation Society supports the project because it will protect staff and historic property from a future dam breach. The Nevada Department of Transportation is in support of the project because it will protect State Route 28 the main north-south road for the Tahoe Basin in the winter. (Please see Attachment 15 - Letters of Support.)

How will the mitigation activity be implemented?

State Public Works Division proposes to stabilize the dam to reduce impacts from seismic events by enlarging the embankment. The project also includes removing and replacing the existing spillway wall; replacement of outlet pipes with a new inlet structure; installation of automated outlet control and SCADA system and seismic monitoring system housed in a 10-foot by 10-foot masonry building; and road improvements to allow access by construction equipment to the dam site. (Please see Attachment 7 - Project Description, Attachment 8 - Preliminary Site Plans, Attachment 9 - Estimated Project Timeline, and Attachment 16 - O & M Costs Email.) State Public Works Division will solicit and retain consulting firm(s) to conduct assessments and environmental studies on Marlette Lake Dam. These assessments will include geotechnical, geological and underwater investigations of the Marlette Lake Dam infrastructure and stability. State Public Works Division will also solicit and retain a consulting and survey firm for design work. The engineering consultant will conduct the preliminary surveys and confirm any necessary easements and prepare final design. The Environmental Field Studies will be completed during summer months. Federal, State, and local agency permits will be acquired over the design and construction duration of the project schedule. Once final permitting requirements have been obtained and incorporated into the project designs and specifications and project cost is complete, the consultant will assist State Public Works Division with the bid solicitation process. The successful contractor will construct the proposed improvements to access road, construction of cofferdam, dam retrofits, new outlet structure, mechanical building and spillway structure during summer and early fall months. The consultant will perform contract administration services during this phase including quality control and quality assurance services (QC/QA), periodic inspections and construction surveys. Upon completion of construction, the consultant will prepare record drawings, and a letter of substantial completion of the project to FEMA and State Public Works Division. Once completed and final inspection is done the following winter season, a project close out letter will be issued. State Public Works will assume responsibility for project maintenance once the work is complete. Annual maintenance includes: access road maintenance/repair, brush and tree removal, inspection and maintenance of the dam and spillway, log boom maintenance, herbicide application for vegetation control, Marlette Lake monitoring (USGS Site), and use of a helicopter for access during winter months if necessary.

Describe how the project is technically feasible and will be effective in reducing the risk by reducing or eliminating damage to property and/or loss of life in the project area. Please include engineering design parameters and references to the following: preliminary schematic or engineering drawings/design; applicable building codes; engineering practices and/or best practices; level of protection (e.g., life safety, 100-yr floor protection with freeboard, 100-yr wind design, etc.):

The proposed project will reduce risk of a dam breach during an earthquake magnitude 6.5 by stabilizing the dam through enlarging the existing embankment. Preliminary research was performed relative to the deficiencies in the inspection reports and a "Probable Maximum Flood Analysis and Emergency Action Plan (EAP)" was completed in 2002 and updated in the 2015. (See Attachment 14 - Marlette Lake Dam EAP.) initial research indicates that this earth embankment dam could experience deformation, slope instability and/or cracking during a seismic event. While several other alternatives were analyzed, stabilization of the existing embankment is the preferred approach. Final design of this alternative would be based on a probabilistic seismic risk analysis whereby the behavior of the dam under specific levels of earthquake loading and return periods are defined. The analysis would consider the probability of a breach from multiple sources and ranges of magnitude, not just the Maximum Credible Earthquake. Additionally, the preferred alternative is more cost effective that a dam embankment replacement, and it allows the reservoir, including the fishery, to remain operational during the stabilization process as well as preserve the historical feature of the dam by preserving the facing and adding signage describing the history of the dam. If the existing dam and appurtenant infrastructure was left in their current condition with no improvements, in the event of an earthquake this alternative could result in failure of the dam due to the lack of necessary seismic retrofits. The mitigation would be accomplished by flattening the downstream slope to a 3:1 slope and by adding a stability berm at the base of the downstream embankment. The addition of fill material on the downstream slope will cover and preserve the existing rock facing on the original dam. Liquefaction and inadequate compaction of the original dam embankment will be mitigated by either compaction grouting or vibro-compaction of the liquefiable

materials. Additionally, the crest height will be increased to reduce the risk of overtopping. The project also includes 1) removing and replacing the existing spillway wall with a new reinforced concrete structure consisting of walls, foundations, a lid and a trash rack at the inlet. The walls would extend above the level of the new crest and would also prevent rocks from entering the spillway. The new lid would prevent snow from accumulating in the spillway. The new structure would also alleviate the need to perform repairs to the existing spillway wall that is beginning to experience deterioration in the form of spalling and cracking; 2) replacement of outlet pipes with a new inlet structure that is designed to prevent siltation. A cofferdam will be constructed to allow dewatering at the existing outlet structure so it can be replaced with a new outlet structure and new pipes; 3) installation of automated outlet control and SCADA system and seismic monitoring system housed in a 10-foot by 10-foot masonry building for security purposes; and 4) road improvements to allow access by construction equipment to the dam site. (Please see Attachment 7 - Project Description and Attachment 8 - Preliminary Site Plans.)

Who will manage and complete the mitigation activity?

The State Public Works Division will manage and complete the mitigation activity. The State Public Works Division has implemented large grant programs in the past, including FEMA PDM Grants. The State Public Works Division has established procedures for implementation of grant funded projects and has the available staff and resources capable of providing technical support to the overall program. Within the State Public Works Division, a Project Manager will be assigned to oversee the project and ensure that the mitigation activity is within the scope, schedule, and budget, and this is reflected in costs. The State Public Works Division will hire an engineering consultant and bid the project for construction, or may choose an alternative project method, such as Construction Manager at Risk (CMAR) or a Design-Build. The CMAR is a delivery method which entails a commitment by the Construction Manager to deliver the project within a Guaranteed Maximum Price which is based on the construction documents and specifications. Design-build is a method of project delivery in which one entity - the design-build team - works under a single contract with the project owner to provide design and construction services. Under either alternative project method, Federal procurement requirements will be met. Once selected, the Project Manager will coordinate with the consultant and contractor on project activities, and develop and track budgets and schedules. Additionally, fiscal and clerical support staff will be tasked to track appropriate in-kind and cash contributions, and will abide by basic accounting principles. The Project Manager will hold regular meetings with key personnel to provide regular updates on the project status also used in the development of required PDM grant program reports.

Scope of Work (Page 3 of 3)

Will the project address the hazards identified and what risks will remain from all hazards after project implementation (residual risk)?

The purpose of the mitigation project is to structurally retrofit the Marlette Lake Dam to protect it from failure during a seismic event. Upon completion of the proposed mitigation efforts, the potential for dam failure will be significantly reduced. If this project is not implemented, the dam, State Route 28, the effluent pipeline, Thunder Bird Lodge and Lake Tahoe remain at risk for substantial damages from a seismic event. Damages to the dam will result in loss of use of the water system for up to 60 days during repair, loss of use of State Route 28 for up to 20 days during repair, loss of use of the effluent pipeline, and loss of use of the Thunderbird Lodge. Additionally, due to the heavy recreational use of the area in the summer and that State Route 28 is the is the main north-south road for the Tahoe Basin in the winter, there is a high potential for injury or loss of life if the dam fails. The proposed project is a long-term solution with a 50-year project useful life that will protect the critical infrastructure and the public in the event of an 6.5 magnitude earthquake. After project implementation, the risks that will remain from hazards will be greatly reduced. In the event of an earthquake, depending on the magnitude of the seismic event, rigid structures associated with the dam including the spillway, outlet piping and valve housing structure, could be damaged. Facilities associated with pumping activities to Hobart Reservoir may also be impacted. For the BCA, it is assumed a seismic event occurs during a period of pumping. During the site assessment after a seismic event, pumping activities may be required to be stopped until it is verified that the pumping equipment has not been damaged. If damage has occurred to any of the rigid structures or to the existing pumping facility, temporary pumping measures may need to be implemented to lower the water surface elevation of the reservoir to perform additional inspections or repairs or to continue providing water into Hobart Reservoir and the Marlette Lake Water System. It is estimated that the assessment to determine if it is safe to continue pumping would take no more than one week to complete. Although there should be no impact to SR 28, to be conservative, this BCA assumes that SR 28 is closed to traffic during the time period in which the structural assessment of the dam is conducted after a large seismic event. If any of the rigid structures are damaged, it is estimated that costs to perform any required immediate repairs would be approximately $200,000.

When will the mitigation activity take place?

The remote location on the eastern slope of the Sierra Nevada mountain is not accessible during winter months depending on the severity of the winter. Heavy snow in the location is possible from November through April. If awarded funding to perform the proposed mitigation activity, State Public Works Division will oversee and administer the associated activities within the scope, schedule, and budget as described in the application. The State Public Works Division will hire an engineering consultant and bid the project for construction, or may choose an alternative project method, such as Construction Manager at Risk (CMAR) or a Design-Build. Under either alternative project method, State Public Works Division will select the consultant and contractor through solicitation of Statements of Qualifications to ensure consultants and contractors will meet performance expectations. The Statements of Qualifications evaluation criteria includes review of technical competence and specialization of the applying firm; ability of individuals assigned to the project; past performance, including meeting project schedules, staying within budgets, change orders, and providing quality projects; and past experience on similar projects. In addition, standard contract documents require submittal of progress schedules, based on milestones and completion dates specified in the contract documents. Standard contracts also require monthly project schedule meetings. The standard construction Agreement, establishes total contract time, including substantial completion and final completion milestones. The project will be completed within 26 months as proposed on the estimated project timeline, which includes timelines for consultant selection, considerations for the winter season when there is no access to the site, final design, project permitting, advertisement for bids and award, commencement of construction, and post- project permitting. (Please see Attachment 9 - Estimated Project Timeline.) The State Public Works Division will manage the project and to ensure all appropriate documentation is maintained throughout the project.

Why is this project the best alternative. What alternatives were considered to address the Risk and why was the proposed activity considered the best alternative?

The preliminary engineering analysis contemplated three different alternatives: 1. No Action, 2. Dam Embankment Replacement and 3. Stabilization of the Existing Embankment. Alternative 1 has no associated direct cost and no benefit. It is not a feasible alternative. The No Action Alternative would leave the residents of the community vulnerable to injury or loss of human life and substantial economic loss resulting from potentially serious damage to the dam itself, State Route 28, the effluent pipeline, the Thunderbird Lodge, as well as the ecology of Lake Tahoe. Alternative 2 is also not feasible because it would require the dam, including the original historic dam, be removed and replaced in its current location with a new embankment of similar height and features. This alternative would be much more expensive and therefore is economically unfeasible. Therefore, Alternative 3 Stabilization of the Existing Embankment is the preferable approach and is the best solution to the existing problem.

Please identify the entity that will perform any long-term maintenance and provide a maintenance schedule and cost information. The subapplicant or owner of the area to be mitigated is responsible for maintenance (including costs of long-term care) after the project is completed:

State Public Works will assume responsibility for long term maintenance once the project is complete. Annual maintenance will include road maintenance and repair; brush and tree removal; dam and spill way monitoring and maintenance; log boom maintenance; use of herbicides for vegetation control; Marlette Lake monitoring at the USGS site; and use of a helicopter when necessary for winter access. Please see Attachment 16 - O & M Costs and Maintenance Letter.

If you would like to make any comments, please enter them below:

Attachments:

Attachment 13.1 - 11-25-18 Nevada Seismological Lab.pdf
Attachment 14 - Marlette Lake Dam EAP Report Final.pdf
Attachment 7 - Project Description.pdf
Attachment 8 - Preliminary Site Plans.pdf
Attachment 9 - Estimated Project Timeline.pdf
Attachment 10 - System Overview Maps.pdf
Attachment 11 - Existing Access Road.pdf
Attachment 12 -Marlette Lake Dam FIRM.pdf
Attachment 13 - Seismic Hazard.pdf
Attachment 16 - O and M Costs and Maintenance Letter.pdf

Schedule

Enter Work Schedule					
Description Of Task	Starting Point	Unit Of Time	Duration	Unit Of Time	Work Complete By
Existing Condition Assessments	1	DAYS	90	DAYS	Consultant
Final Design	90	DAYS	180	DAYS	State Public Works and Consultant
Environmental Studies & Fed, State, Local Permits	270	DAYS	75	DAYS	State Public Works and Consultant
Bid Project for Construction	345	DAYS	60	DAYS	State Public Works and Consultant
Project Construction	405	DAYS	150	DAYS	Contractor and Consultant
Post Construction Services	555	DAYS	120	DAYS	State Public Works and Consultant
Project Close Out	675	DAYS	120	DAYS	State Public Works and Consultant
Estimate the total duration of the proposed activity:			795	DAYS	

402.3 - Infrastructure Protective Measures					Federal Share: $ 10,000,000.00
Item Name	**Cost Classification**	**Unit Quantity**	**Unit of Measure**	**Unit Cost ($)**	**Cost Estimate ($)**
Pre Award - Prelimin Engineering - Engineer	Architectural Engineering Basic Fees	151.00	Hour	$ 185.00	$ 27,935.00
Pre Award - BCA Development - Grant Professional	Architectural Engineering Basic Fees	40.00	Hour	$ 175.00	$ 7,000.00
Ex Cond Assessment - Geotechnical- Earthen Dam	Architectural Engineering Basic Fees	1.00	Each	$ 150,000.00	$ 150,000.00
Ex Cond Assessment -Geotechnical - Bedrx Integrity	Architectural Engineering Basic Fees	100.00	Hour	$ 170.00	$ 17,000.00
Ex Cond Assessment - Subsurface Investigation	Architectural Engineering Basic Fees	1.00	Each	$ 28,291.00	$ 28,291.00
Design - Dam and Road Survey	Architectural Engineering Basic Fees	1.00	Each	$ 110,000.00	$ 110,000.00
Design - Access Road Improvements - Engineer	Architectural Engineering Basic Fees	80.00	Hour	$ 190.00	$ 15,200.00
Design - Access Road Improvements - Eng Technician	Architectural Engineering Basic Fees	350.00	Hour	$ 130.00	$ 45,500.00
Design - Seismic Retrofit Dam - Engineer	Architectural Engineering Basic Fees	250.00	Hour	$ 190.00	$ 47,500.00
Design - Seismic Retrofit Dam - Eng Technician	Architectural Engineering Basic Fees	800.00	Hour	$ 130.00	$ 104,000.00
Design - Retrofit Spillway - Engineer	Architectural Engineering Basic Fees	150.00	Hour	$ 190.00	$ 28,500.00
Design - Retrofit Spillway - Eng Technician	Architectural Engineering Basic Fees	350.00	Hour	$ 130.00	$ 45,500.00
Design - Mechanical Building - Engineer	Architectural Engineering Basic Fees	100.00	Hour	$ 190.00	$ 19,000.00
Design - Mechanical Building - Eng Technician	Architectural Engineering Basic Fees	250.00	Hour	$ 130.00	$ 32,500.00
Design - Instrumentation/Controls - Engineer	Architectural Engineering Basic Fees	100.00	Hour	$ 190.00	$ 19,000.00
Design - Instrumentation/Controls - Eng Technician	Architectural Engineering Basic Fees	200.00	Hour	$ 130.00	$ 26,000.00
Design - Third Party Review - Engineer	Architectural Engineering Basic Fees	160.00	Hour	$ 190.00	$ 30,400.00
Env/Permitting - Sec 404 & Sec 10 Nationwide	Other Architectural Engineering Basic Fees	80.00	Hour	$ 130.00	$ 10,400.00
Env/Permitting - Endangered Species Act Section 7	Other Architectural Engineering Basic Fees	80.00	Hour	$ 130.00	$ 10,400.00
Env/Permitting - Arch & Historical Studies	Other Architectural Engineering Basic Fees	200.00	Hour	$ 130.00	$ 26,000.00
Env/Permitting - Wetlands Delineation	Other Architectural Engineering Basic Fees	160.00	Hour	$ 130.00	$ 20,800.00
Env/Permitting - Plant Surveys	Other Architectural Engineering Basic Fees	60.00	Hour	$ 130.00	$ 7,800.00
Env/Permitting - USFS Right-of-Way	Other Architectural Engineering Basic Fees	60.00	Hour	$ 210.00	$ 12,600.00
Env/Permitting - Section 106 National Hist Preserv	Other Architectural Engineering Basic Fees	60.00	Hour	$ 130.00	$ 7,800.00
Env/Permitting - 401 Water Quality	Other Architectural Engineering Basic Fees	40.00	Hour	$ 130.00	$ 5,200.00
Env/Permitting - Div of Water Resources Dam	Other Architectural Engineering Basic Fees	40.00	Hour	$ 150.00	$ 6,000.00
Env/Permitting - NPDES Storm Water	Other Architectural Engineering Basic Fees	80.00	Hour	$ 130.00	$ 10,400.00
Env/Permitting - Temporary Working in Waterways	Other Architectural Engineering Basic Fees	40.00	Hour	$ 130.00	$ 5,200.00
Env/Permitting - Tahoe Regional Planning Agency	Other Architectural Engineering Basic Fees	120.00	Hour	$ 150.00	$ 18,000.00
Env/Permitting - Nevada State Parks	Other Architectural Engineering Basic Fees	30.00	Hour	$ 150.00	$ 4,500.00
Env/Permitting - State Building Permit	Other Architectural Engineering Basic Fees	30.00	Hour	$ 150.00	$ 4,500.00
Env/Permitting - Air Quality Permit Carson City	Other Architectural Engineering Basic Fees	40.00	Hour	$ 150.00	$ 6,000.00
Env/Permitting - Nevada Division of State Lands	Other Architectural Engineering Basic Fees	40.00	Hour	$ 150.00	$ 6,000.00
Env/Permitting - State Historical Preservation	Other Architectural Engineering Basic Fees	40.00	Hour	$ 150.00	$ 6,000.00
Project Management - State Public Works Proj Mgr	Architectural Engineering Basic Fees	1,767.00	Hour	$ 130.00	$ 229,710.00
Project Management - Construction Survey	Architectural Engineering Basic Fees	450.00	Hour	$ 250.00	$ 112,500.00
Project Management - Svcs During Constr - Engineer	Architectural Engineering Basic Fees	2,025.00	Hour	$ 190.00	$ 384,750.00
Project Management - Svc During Const - Eng Tech	Architectural Engineering Basic Fees	1,500.00	Hour	$ 130.00	$ 195,000.00
Construction - Gen Conditioning/Mobilization	Construction And Project Improvement	1.00	Each	$ 345,600.00	$ 345,600.00
Construction - SWPP	Construction And Project Improvement	1.00	Each	$ 81,000.00	$ 81,000.00
Construction - Clear and Grub	Construction And Project Improvement	1.00	Hour	$ 21,600.00	$ 21,600.00
Construction - Access Road Improvements	Construction And Project Improvement	3.00	Mile	$ 25,000.00	$ 75,000.00
Construction - Temp Cofferdam	Construction And Project Improvement	1.00	Each	$ 270,000.00	$ 270,000.00
Construction - Cut Keyway/Import Material	Construction And Project Improvement	7,000.00	Cubic Yard	$ 164.00	$ 1,148,000.00
Construction - Agg Base over Dam	Construction And Project Improvement	50.00	Cubic Yard	$ 216.00	$ 10,800.00
Construction - Extend Pipe Outlet	Construction And Project Improvement	80.00	Linear Foot	$ 92.00	$ 7,360.00
Construction - Slipline Existing Outlet Pipes	Construction And Project Improvement	540.00	Linear Foot	$ 270.00	$ 145,800.00
Construction - Pressure Grout Existing Footprint	Construction And Project Improvement	27,000.00	Cubic Yard	$ 334.00	$ 9,018,000.00
Construction - New Outlet Structure & Valve	Construction And Project Improvement	1.00	Each	$ 65,000.00	$ 65,000.00

Construction - Mechanical Building	Construction And Project Improvement	1.00	Each	$ 81,000.00	$ 81,000.00
Construction - New Spillway	Construction And Project Improvement	80.00	Linear Foot	$ 4,100.00	$ 328,000.00
Env/Permitting - Washoe County Dust Control	Other Architectural Engineering Basic Fees	40.00	Hour	$ 150.00	$ 6,000.00
Env/Permitting - Div of Water Resources Cofferdam	Other Architectural Engineering Basic Fees	60.00	Hour	$ 150.00	$ 9,000.00
Design - Outlet Pipe & Gate Box - Engineer	Architectural Engineering Basic Fees	100.00	Hour	$ 190.00	$ 19,000.00
Design - Outlet Pipe & Gate Box - Engineer Tech	Architectural Engineering Basic Fees	300.00	Hour	$ 130.00	$ 39,000.00
Design - Project Advertising	Administrative Expense	1.00	Each	$ 5,000.00	$ 5,000.00
Design - Printing	Administrative Expense	1.00	Each	$ 2,500.00	$ 2,500.00
Project Management - State Public Works Inspector	Architectural Engineering Basic Fees	2,238.00	Hour	$ 97.00	$ 217,086.00
Construction - Seismic Monitoring Equip for Dam	Construction And Project Improvement	1.00	Each	$ 50,000.00	$ 50,000.00
				Total Cost	$ 13,787,632.00

Total Project Cost Estimate: $ 13,787,632.00

Cost Share		
Activity Cost Estimate	$ 13,787,632.00	
Federal Share Percentage	72.52877071%	
Non-Federal Share Percentage	27.47122929%	
	Dollars	Percentage
Proposed Federal Share	$ 10,000,000.00	72.52877071%
Proposed Non-Federal Share	$ 3,787,632.00	27.47122929%

Non-Federal Funds				
Source Agency	**Name of Source Agency**	**Funding Type**	**Amount ($)**	**Action**
State Agency Funding	General Fund - CIP Funding	Cash	$ 3,787,632.00	View Details
		Grand Total	**$ 3,787,632.00**	
If you would like to make any comments, please enter them below.				
Please see Attachment 17 - Cost Estimate and Attachment 18 - Match Letter				
Attachments				
Attachment 18 - Match Letter.pdf Attachment 17 - Project Cost (stamped).pdf				

Funding Source	State Agency Funding
Name of Funding Source	General Fund - CIP Funding
Funding Type	Cash
Amount	$ 3,787,632.00
Date of availability	07-01-2019
Funds commitment letter date	12-03-2018
Attachment (funds commitment letter)	

Cost Effectiveness	
Attach the Benefit Cost Analysis (BCA), if completed for this project	
Net Present Value of Project Benefits (A)	$ 3.3184585E7
Total Project Cost Estimate (B)	$ 1.3974309E7
What is the Benefit Cost Ratio for the entire project (A/B)?	2.37
If you would like to make any comments, please enter them below.	
Please see Attachment 19 - BCA Methodology and Report and BCA Attachments as referenced in BCA Report.	
Attachments:	
Marlette Lake Dam Resilient Infrastructure BCA.zip Attachment 19 - BCA Methodology and Report.pdf BCA Attachments.zip	

A. National Historic Preservation Act - Historic Buildings and Structures

* 1. Does your project affect or is it in close proximity to any buildings or structures 50 years or more in age?	Yes

If Yes, you must confirm that you have provided the following:

- [x] The property address and original date of construction for each property affected (unless this information is already noted in the Properties section),
- [x] A minimum of two color photographs showing at least three sides of each structure (Please label the photos accordingly),
- [x] A diagram or USGS 1:24,000 scale quadrangle map displaying the relationship of the property(s) to the project area.

To help FEMA evaluate the impact of the project, please indicate below any other information you are providing:

- [x] Information gathered about potential historic properties in the project area, including any evidence indicating the age of the building or structure and presence of buildings or structures that are listed or eligible for listing on the National Register of Historic Places or within or near a National Register listed or eligible historic district. Sources for this information may include the State Historic Preservation Officer, and/or the Tribal Historic Preservation Officer (SHPO/THPO), your local planning office, historic preservation organization, or historical society.
- [x] Consideration of how the project design will minimize adverse effects on known or potential historic buildings or structures, and any alternatives considered or implemented to avoid or minimize effects on historic buildings or structures. Please address and note associated costs in your project budget.
- [ ] For acquisition/demolition projects affecting historic buildings or structures, any data regarding the consideration and feasibility of elevation, relocation, or flood proofing as alternatives to demolition.
- [ ] Attached materials or additional comments.

Comments:

The Marlette Lake Water System was built in 1873 for domestic and mining use. The Marlette Lake Water System including the Marlette Lake Dam is listed on the National Register of Historic Places and is recognized as a significant engineering feat accomplished in the American West during the 19th century. The project has been designed to minimize adverse effects on historic resources and will require evaluation of potential historic and cultural impacts. The project scope, budget, and schedule have considered additional archaeological and historic studies which may be necessary. Please see Attachment 4 - Historic Marlette Water System Overview, Attachment 8 - Preliminary Site Plan, Attachment 9 - Estimated Project Timeline, Attachment 17 - Cost Estimate, Attachment 20 - National Register Nomination Form, Attachment 21 - SHPO Consultation Letter, and Attachment 22 - USGS Map of Project Site.

Attachments:

Attachment 4 - Historic Marlette Water System Overview.pdf
Attachment 8 - Preliminary Site Plans.pdf
Attachment 17 - Project Cost (stamped).pdf
Attachment 9 - Estimated Project Timeline.pdf
Attachment 20 - National Register Nomination Form.pdf
Attachment 22 - USGS Map of Marlette Lake.pdf
Attachment 21 - SHPO Consultation.pdf

B. National Historic Preservation Act - Archeological Resources

* 1. Does your project involve disturbance of ground?	Yes

If Yes, you must confirm that you have provided the following:

- [x] A description of the ground disturbance by giving the dimensions (area, volume, depth, etc.) and location
- [x] The past use of the area to be disturbed, noting the extent of previously disturbed ground.
- [x] A USGS 1:24,000 scale or other site map showing the location and extent of ground disturbance.

To help FEMA evaluate the impact of the project, please indicate below any other information you are providing:

- [x] Any information about potential historic properties, including archeological sites, in the project area. Sources of this information may include SHPO/THPO, and/or the Tribe's cultural resources contact if no THPO is designated. Include, if possible, a map showing the relation of any identified historic properties to the project area.
- [ ] Attached materials or additional comments.

Comments:

Marlette Lake Dam is an earthen filled dam located along Marlette Creek. The dam was constructed in 1873 and was modified twice, most recently in 1957, to

raise the height of the dam. The current dam is approximately 52 feet high with a crest length of approximately 287 feet. There is one concrete lined spillway on the north side of the dam and one outlet pipe with a manual control on the top of the dam. The proposed project will stabilize the existing embankment by enlarging the embankment. The spillway will be replaced with a new reinforced concrete structure consisting of walls, foundations, a lid and a trash rack at the inlet. The walls would extend above the level of the new crest and would also prevent rocks from entering the spillway. Additionally, approximately 3 miles of the road to the dam site requires improvement to allow access by construction equipment necessary to accomplish the recommended improvements. The approximate area of disturbance for the proposed dam and spillway modifications is 0.8 acres. Additional areas of disturbance will be needed immediately adjacent to the dam and spillway for construction staging. Minor disturbance will be required along the access road to the dam to allow for construction equipment to access the work site. Most of the disturbance along the road will likely be within the existing road footprint with minor disturbance outside of the existing road footprint. This additional disturbance is estimated to be no more than 1.2 acres for a total disturbance of approximately 2 acres. The estimated volume of fill material to be imported to the site for the dam modifications is 5,800 cubic yards. The maximum depth of fill is estimated to be less than 10 feet at the toe of the downstream face of the dam embankment. Please see Attachment 4 - Historic Marlette Water System Overview, Attachment 8 - Preliminary Site Plan, Attachment 20 - National Register Nomination Form, and Attachment 22 - USGS Map of Project Site.

Attachments:

C. Endangered Species Act and Fish and Wildlife Coordination Act

* 1. Are Federally listed threatened or endangered species or their critical habitat present in the area affected by the project? Yes

If Yes, you must confirm that you have provided the following:

- [x] Information you obtained to identify species in or near the project area. Provide the source and date of the information cited.

To help FEMA evaluate the impact of the project, please indicate below any other information you are providing:

- [x] Any request for information and associated response from the USFWS, the National Marine Fisheries Service (NMFS) (for affected ocean-going fish), or your State Wildlife Agency, regarding potential listed species present and potential of the project to impact those species.
- [ ] Attached materials or additional comments.

Comments:

According to the USFWS IPAC Resource List, the species that are potentially affected by activities in this location include the North American Wolverine, the Sierra Nevada Yellow-legged Frog and the Lahontan Cutthroat Trout. There are no critical habitats at this location. However, there is likely a presence of Bald Eagle, Cassin's Finch, Golden Eagle, Lewis's Woodpecker, Olive-sided Flycatcher, Rufous Hummingbird, Williamson's Sapsucker, and Willow Flycatcher. The project scope and schedule have included consideration in timing and budget for environmental studies that will be required including Endangered Species Act Section 7 Consultation for fish, wildlife and migratory birds. Please see Attachment 9 - Estimated Project Timeline, Attachment 17 - Cost Estimate, Attachment 23 - USFWS IPAC Resource List, Attachment 24 - USFWS Consultation Letter, and Attachment 25 - NDOW Consultation Letter.

* 2. Does your project remove or affect vegetation? Yes

If Yes, you must confirm that you have provided the following:

- [x] Description of the amount (area) and type of vegetation to be removed or affected.
- [x] A site map showing the project area and the extent of vegetation affected.
- [x] Photographs or digital images that show both the vegetation affected and the vegetation in context of its surroundings.

To help FEMA evaluate the impact of the project, please indicate below any other information you are providing:

- [ ] Attached materials or additional comments.

Comments:

The predominant forest cover in the area is second-growth mixed conifer forest that is characteristic of the east side of Lake Tahoe. Adjacent to the reservoir and along Marlette Creek, riparian vegetation is present including aspens, willows and mountain alder. Impacts to vegetation would be minor for each project component. Approximately 2 acres of ground disturbance is expected during the dam and spillway improvements construction, and some vegetation and tree removal along the existing access road may occur during improvement of the road for site access. The project scope and schedule have included consideration in timing and budget for environmental studies that will be required including plant surveys for sensitive plants and noxious weeds. Attachment 7 - Project Description pages 5 and 6 for photos of vegetation, Attachment 8 - Preliminary Site Plans, Attachment 9 - Estimated Project Timeline, Attachment 17 - Cost Estimate, Attachment 23 - USFWS IPAC Resource List, Attachment 24 - USFWS Consultation Letter, and Attachment 25 - NDOW Consultation Letter.

* 3. Is your project in, near (within 200 feet), or likely to affect any type of waterway or body of water? Yes

If Yes, and project is not within an existing building, you must confirm that you have provided the following:

- [x] A USGS 1:24,000 scale quadrangle map showing the project activities in relation to all nearby water bodies (within 200 feet).
- [x] Any information about the type of water body nearby including: its dimensions, the proximity of the project activity to the water body, and the expected and possible changes to the water body, if any. Identify all water bodies regardless whether you think there may be an effect

☑	A photograph or digital image of the site showing both the body of water and the project area.

To help FEMA evaluate the impact of the project, please indicate below any other information you are providing:

☑	Evidence of any discussions with the US Fish and Wildlife Service (USFWS), and/or your State Wildlife Agency concerning any potential impacts if there is the potential for the project to affect any water body.
☐	Attached materials or additional comments.

Comments:

Marlette lake covers 381 surface acres and has a maximum depth of 45 feet. The proposed project will only encompass work in immediate proximity to the dam and the spillway on Marlette Creek. The addition of fill material will be located on the downstream slope. The inlet to the outlet pipes will be replaced with a new inlet structure that is designed to prevent siltation. A cofferdam will be constructed to allow dewatering at the existing outlet structure so it can be replaced with a new outlet structure and new pipes. The spillway will be replaced with a new reinforced concrete structure consisting of walls, foundations, a lid and a trash rack at the inlet. Permitting will be required through the USACE for Section 404 Permit/Section 10 Nationwide Permit, the Nevada Division of Water Resources for application of Dam Plan Approval, the Nevada Division of Water Resources for Notice of Instructions "Cofferdam", Nevada Division of Environmental Protection for National Pollution Discharge Elimination Systems (NPDES) Stormwater General Permit, and Nevada Division of Environmental Protection for Temporary Working in Waterways. Water quality protection measures would be implemented during construction to protect waters downstream of the reservoir in accordance with permit requirements and conditions. Please see Attachment 22 - USGS Map of Marlette Lake, Attachment 24 - USFWS Consultation Letter, and Attachment 25 - NDOW Consultation Letter.

Attachments:

Attachment 17 - Project Cost (stamped).pdf
Attachment 9 - Estimated Project Timeline.pdf
Attachment 23 - USFWS IPAC Resource List.pdf
Attachment 7 - Project Description.pdf
Attachment 25 - NDOW Consultation.pdf
Attachment 24 - USFW Consultation.pdf

D. Clean Water Act, Rivers and Harbors Act, and Executive Order 11990 (Protection of Wetlands)

* 1. Will the project involve dredging or disposal of dredged material, excavation, adding fill material or result in any modification to water bodies or wetlands designated as "waters of the U.S" as identified by the US Army Corps of Engineers or on the National Wetland Inventory?	Yes

If Yes, you must confirm that you have provided the following:

☑	Documentation of the project location on a USGS 1:24,000 scale topographic map or image and a copy of a National Wetlands Inventory map or other available wetlands mapping information.

To help FEMA evaluate the impact of the project, please indicate below any other information you are providing:

☑	Request for information and response letter from the US Army Corps of Engineers and/or State resource agencies regarding the potential for wetlands, and applicability of permitting requirements.
☐	Evidence of alternatives considered to eliminate or minimize impacts to wetlands.
☐	Attached materials or additional comments.

Comments:

The National Wetlands Inventory depicts freshwater forested/shrub wetlands in the project vicinity. Please see Attachment 26 - USFWS Wetlands Map from the National Wetlands Inventory (NWI) mapper. A wetland mitigation plan would be used during the federal and state permitting/approval processes to assess wetland impacts and determine appropriate replacement of those impacts. Further, it is anticipated that a US Army Corps Engineers Section 404 permit and Section 10 permit will be required. Please see Attachment 27 - USACE Consultation Letter.

Attachments:

Attachment 21 - SHPO Consultation.pdf
Attachment 26 - USFWS Wetlands Map.pdf
Attachment 27 - USACE Consultation.pdf

E. Executive Order 11988 (Floodplain Management)

* 1. Does a Flood Insurance Rate Map (FIRM), Flood Hazard Boundary Map (FHBM), hydrologic study, or some other source indicate that the project is located in or will affect a 100 year floodplain, a 500 year floodplain if a critical facility, an identified regulatory floodway, or an area prone to flooding?	Yes

If Yes, please indicate in the text box below any documentation to identify the means or the alternatives considered to eliminate or minimize impacts to floodplains (See the 8 step process found in 44 CFR Part 9.6.) to help FEMA evaluate the impact of the project:

Please see Attachment 12 - Marlette Lake Dam FIRM which identifies Marlette Lake as being in the A Flood Zone. Due to the nature of the project, action must occur in the floodplain. However, the resultant project will mitigate flood hazards in the future by reducing the risk of flooding downstream which would be

caused by a dam breach.

* 2. Does the project alter a watercourse, water flow patterns, or a drainage way, regardless of its floodplain designation?	Yes

If Yes, please indicate below any other information you are providing to help FEMA evaluate the impact of the project:

- ☐ Hydrologic/hydraulic information from a qualified engineer to demonstrate how drainage and flood flow patterns will be changed and to identify down and upstream effects.
- ☑ Evidence of any consultation with US Army Corps of Engineers (may be included under Part D of the Environmental Information).
- ☐ Request for information and response letter from the State water resource agency, if applicable, with jurisdiction over modification of waterways.
- ☐ Attached materials or additional comments.

Comments:

The project includes protection and modification of the spillway to alleviate impeded flow. The existing slope uphill of the spillway is unstable and rocks roll into the spillway. Furthermore, the spillway fills with snow during the winter impeding the flow of water out of the spillway. The preferred alternative is to remove and replace the existing spillway wall with a new reinforced concrete structure consisting of walls, foundations, a lid and a trash rack at the inlet. The walls would extend above the level of the new crest and would also prevent rocks from entering the spillway. The new lid would prevent snow from accumulating in the spillway. The new structure would also alleviate the need to perform substantial repairs to the existing spillway wall that is beginning to experience deterioration in the form of spalling and cracking. The proposed improvements will be designed so that existing downstream channel and structure capacities will not need to be increased. Please see Attachment 27 - USACE Consultation Letter.

Attachments:

Attachment 12 -Marlette Lake Dam FIRM.pdf
Attachment 27 - USACE Consultation.pdf

F. Coastal Zone Management Act

* 1. Is the project located in the State's designated coastal zone?	No

If Yes, please indicate below any other information you are providing to help FEMA evaluate the impact of the project:

- ☐ Information resulting from contact with the appropriate State agency that implements the coastal zone management program regarding the likelihood of the project's consistency with the State's coastal zone plan and any potential requirements affecting the cost or design of the proposed activity.
- ☐ Attached materials or additional comments.

Comments:

Attachments:

G. Farmland Protection Policy Act

* 1. Will the project convert more than 5 acres of "prime or unique" farmland outside city limits to a non-agricultural use?	No

Comments:

Please see Attachment 28 - Farmland Classification Map. There is no prime farmland within the project area.

Attachments:

Attachment 28 - Farmland Classification Map.pdf

H. RCRA and CERCLA (Hazardous and Toxic Materials)

* 1. Is there a reason to suspect there are contaminants from a current or past use on the property associated with the proposed project?	No

If Yes, please indicate below any other information you are providing to help FEMA evaluate the impact of the project:

- ☐ Comments and any relevant documentation.
- ☐ Results of any consultations with State or local agency to obtain permit with requirements for handling, disposing of or addressing the effects of hazardous or toxic materials related to project implementation.
- ☐ Attached materials or additional comments.

Comments:
Marlette Lake Dam has been part of the historic Marlette Lake Water System since 1873, and there is no record or evidence of any contaminants from a current or past use on the property.

* 2. Are there any studies, investigations, or enforcement actions related to the property associated with the proposed project?	No

If Yes, please indicate below any other information you are providing to help FEMA evaluate the impact of the project:

- ☐ Comments and any relevant documentation.
- ☐ Results of any consultations with State or local agency to obtain permit with requirements for handling, disposing of or addressing the effects of hazardous or toxic materials related to project implementation.
- ☐ Attached materials or additional comments.

Comments:

* 3. Does any project construction or operation activities involve the use of hazardous or toxic materials?	No

If Yes, please indicate below any other information you are providing to help FEMA evaluate the impact of the project:

- ☐ Comments and any relevant documentation.
- ☐ Results of any consultations with State or local agency to obtain permit with requirements for handling, disposing of or addressing the effects of hazardous or toxic materials related to project implementation.
- ☐ Attached materials or additional comments.

Comments:

* 4. Do you know if any of the current or past land-uses of the property affected by the proposed project or of the adjacent properties are associated with hazardous or toxic materials?	No

If Yes, please indicate below any other information you are providing to help FEMA evaluate the impact of the project:

- ☐ Comments and any relevant documentation.
- ☐ Results of any consultations with State or local agency to obtain permit with requirements for handling, disposing of or addressing the effects of hazardous or toxic materials related to project implementation.
- ☐ Attached materials or additional comments.

Comments:

Attachments:

I. Executive Order 12898, Environmental Justice for Low Income and Minority Populations

* 1. Are there low income or minority populations in the project's area of effect or adjacent to the project area?	No

If Yes, you must confirm that you have provided the following:

- ☐ Description of any disproportionate and adverse effects to these populations.

To help FEMA evaluate the impact of the project, please indicate below any other information you are providing:

- ☐ Description of the population affected and the portion of the population that would be disproportionately and adversely affected. Please include specific efforts to address the adverse impacts in your proposal narrative and budget.
- ☐ Attached materials or additional comments.

Comments:

Attachments:

J. Other Environmental/Historic Preservation Laws or Issues	
* 1. Are there other environmental/historic preservation requirements associated with this project that you are aware of?	No
If Yes, please indicate in the text box below a description of the requirements, issues or public involvement effort.	
* 2. Are there controversial issues associated with this project?	No
If Yes, please indicate in the text box below a description of the requirements, issues or public involvement effort.	
* 3. Have you conducted any public meeting or solicited public input or comments on your specific proposed mitigation project?	Yes
If Yes, please indicate in the text box below a description of the requirements, issues or public involvement effort.	
Over the past year three public meetings have been held through the Legislative Committee for the Review and Oversight of the Tahoe Regional Planning Agency and the Marlette Lake Water System. The meetings were held on December 18, 2017, June 5, 2018, and August 28, 2018. Agendas and minutes as are included as Attachment 29 - Public Meeting Agendas and Minutes.	
Attachments:	
Attachment 29 - Public Meeting Agendas and Minutes.pdf	

K. Summary and Cost of Potential Impacts	
* 1. Having answered the questions in parts A. through J., have you identified any aspects of your proposed project that have the potential to impact environmental resources or historic properties?	Yes
If Yes, you must confirm that you have:	
☑ Evaluated these potential effects and provided the materials required in Parts A through J that identify the nature and extent of potential impacts to environmental resources and/or historic properties.	
☑ Consulted with appropriate parties to identify any measures needed to avoid or minimize these impacts.	
☑ Considered alternatives that could minimize both the impacts and the cost of the project.	
☑ Made certain that the costs of any measures to treat adverse effects are realistically reflected in the project budget estimate.	
Comments:	
It is recognized that the Marlette Lake Dam Resilient Infrastructure Project has the potential to impact environmental resource or historic properties. However, these potential effects have been evaluated and the preferred alternative was selected that will minimize both the impacts and the cost of the project. Initial consultation letters have been sent to the State Historic Preservation Office, USFWS, Nevada Division of Wildlife, and the USACE. The project scope and schedule have included consideration in timing and budget for environmental studies that will be required including Endangered Species Act Section 7 Consultation for fish, wildlife and migratory birds, archeological and historical studies, wetlands delineations, and plant surveys for sensitive plants and noxious weeds. Additionally, Federal, State and local permitting requirements have been identified. Federal Permitting will include Section 404 Permit/Section 10 Nationwide Permit, USFS Right-of-Way for access from Spooner Lake Road, Section 106 if the National Historic Preservation Act. State Permitting will require Bureau of Water Pollution Control (401 Water Quality Permit), Division of Water Resources (application of Dam Plan Approval), Division of Water Resources (Notice of Instructions "Cofferdam"), National Pollution Discharge Elimination Systems (NPDES) Stormwater General Permit, Temporary Working in Waterways, Tahoe Regional Planning Agency, Nevada State Parks, State Building Permit, Air Quality Permit (NDOE) for Carson City, Nevada Division of State Lands, State Historical Preservation Office Section 106 Review. Local permitting will include a Washoe County Dust Control Permit. A permit application will be prepared for each of the permitting agencies and will include a detailed alternatives analysis, conceptual drawings, and discuss impacts and mitigation measures for any environmental resource or historic property.	
Attachments:	

Evaluation (Page 1 of 2)	
Is the recipient participating in the Community Rating System (CRS)?	Yes
If yes, what is their CRS rating?	7
Is the recipient a Cooperating Technical Partner (CTP)?	Yes
Is the recipient a Firewise Community?	No
If yes, please provide their Firewise Community number.	
Has the recipient adopted building codes consistent with the International Codes?	Yes
Has the recipient adopted the National Fire Protection Association (NFPA) 5000 Code?	No
Have the recipient's building codes been assessed on the Building Code Effectiveness Grading Schedule (BCEGS)?	Yes
If yes, what is their BCEGS rating?	2

Evaluation (Page 2 of 2)	
How will this mitigation activity leverage involvement of partners to enhance its outcome?	Over the last year, the State Public Works Division has actively solicited the input and partnership of the Legislative Committee for Review and Oversight of the Tahoe Regional Planning Agency and the Marlette Lake Water System; State Office of Grant Procurement, Coordination and Management; Nevada Division of Emergency Management; Nevada Division of State Lands; State Dams and Safety Division; State Water Resources; Tahoe Regional Planning Agency; Washoe County; Storey County; Carson City; Lyon County; Nevada Division of Parks; Nevada Division of Wildlife and the Carson Water Subconservancy District to conceptualize this proposed project for Advanced Assistance. Three public meetings were held through the Legislative Committee for Review and Oversight of the Tahoe Regional Planning Agency and the Marlette Lake Water System. (Please see Attachment 29 - Public Meetings.) Several field visits to the project site were held with the stakeholders. And over a dozen individual and small group meetings were held to discuss the scope of this project. These project partners have expressed their support of the project which will help to determine the future eligibility of dam upgrades for a future Hazard Mitigation Grant Program application. (Please see Attachment 15 - Letters of Support from the Legislative Oversight Review Committee, Nevada Division of State Lands, Washoe County, Storey County, Carson City, Lyon County, Nevada Division of State Parks, Nevada Division of Wildlife, and the Carson Water Subconservancy District.) If this request for Advanced Assistance is approved, State Public Works will continue to leverage these partnerships to determine the best possible project to eliminate potential danger to homes and critical infrastructure (roadways) located downstream of the Hobart Reservoir Dam and ensure long term operation and full function of the Marlette Water System.
How will this mitigation activity offer long-term financial and social benefits or promote resiliency for the community?	The Marlette Water System is the primary drinking water source for Virginia City, Gold Hill, and Silver City in Storey County, Nevada and a secondary drinking water supply to Carson City, Nevada. Storey County currently has 835 service connections (including both residential and business). Loss of water service to Storey County alone would result in enormous impacts. In the event of a dam failure at Marlette Lake, immediate water needs would be served by stored water in Hobart Reservoir. However, typical pumping from Marlette to meet system demands occurs from approximately 60 to 150 days per year, depending on the water year. If there is a dam breach at Marlette Lake, the length of time to design, permit and repair damages to the facility will likely take in excess of 12 months. If the dam fails and water cannot be pumped from Marlette Lake into Hobart Reservoir and the system, system demands will likely not be met if the dam is out of commission. To be conservative, the BCA assumes a minimum of 60 days of system demand may not be met. A dam breach at the Marlette Lake Dam has both a high vulnerability and a high potential for an extended duration of loss of water service. Additionally, a dam breach would affect properties and critical infrastructure downstream resulting in loss of property, injury, and potential loss of life. Lack of water would impede recovery and the long-term loss of water supply could lead to business failure. Ecological impacts to Lake Tahoe alone could have significant economic impacts to tourism and businesses. Marlette Lake Dam must be maintained at a level that ensures a reliable water supply and public safety in the event of an earthquake. Seismically retrofitting the dam will protect lives, protect the drinking water and other critical infrastructure, protect the economy of the communities, and prepare the communities and the State to recover quickly from an earthquake event.
Please provide the percent of the population benefiting from this mitigation activity.	100.0
Please explain your response.	The Marlette Water System provides 100 percent of the water for Virginia City, Gold Hill and Silver City, Nevada as well as approximately 25% of the water to Carson City. It is estimated that a dam breach at Marlette Lake Dam could result in 60 days of system demand not being met (depending on the water year) during the reconstruction of the dam.
Does this mitigation activity protect a critical facility?	Yes
If yes, please select the type of critical facilities to be protected	Water Facilities, Sewer and wastewater treatment Facilities
Comments:	
Washoe County participates in the Community Rating System and their CRS is 7. Carson City participates in the Community Rating System and their CRS is 6. Storey County participates in the Community Rating System and their CRS is 8. Lyon County participates in the Community Rating System and their CRS is 10. The State of Nevada Division of Emergency Management is a Cooperating Technical Partner with FEMA. The Nevada Division of Forestry coordinates the	

Firewise Community Program for the State of Nevada. Washoe County, Carson City, Storey County, Lyon County and the State of Nevada have adopted building codes consistent with International Building Codes. Washoe County, Carson City, and Storey County building codes have been assessed on the Building Code Effectiveness Grading Schedule. The Washoe County, Carson City and Storey County are rated 2.

Name	Date Attached
Attachment 29 - Public Meeting Agendas and Minutes.pdf	12-02-2018

Assurances and Certifications	
Please click the link in the status column to view forms.	
Forms	Status
Part II: Assurances **Construction** Programs.	Complete
Part II: Certifications Regarding Lobbying; Debarment, Suspension and Other Responsibilities Matters; and Drug-Free Workplace Requirements.	Complete
Part III: SF-LLL, Disclosure of Lobbying Activities (**Complete only if applying for a grant of more than $100,000 and have lobbying activities using Non-Federal funds. See the Certifications Regarding Lobbying; Debarment, Suspension and Other Responsibilities Matters; and Drug-Free Workplace Requirements form for lobbying activities definition.**)	Not Applicable

Attachments
Attachment 30 - Assurances - Construction Programs.pdf

Certifications Regarding Lobbying; Debarment, Suspension and Other Responsibility Matters; and Drug-Free Workplace Requirements.

Attachments
Attachment 31 - FEMA Form 20-16C.pdf

Section 17.630 of the regulations provide that a grantee that is a State may elect to make one certification in each Federal fiscal year. A copy of which should be included with each application for FEMA funding. States and State agencies may elect to use a Statewide certification.

Comments and Attachments		
Name of Section	Comment	Attachment
Community	Washoe County is located along the eastern slopes of the Carson Range of the Sierra Nevada Mountains in western Nevada. The county covers an area of 6,600 square miles in the northwest section of the State bordering California and Oregon. Washoe County is bordered by Humboldt, Pershing and Churchill Counties on the east and Storey County and Carson City to the south. (Please see Attachment 2 - Washoe County Location Map.) The Marlette Lake Dam, an earthen filled dam on Marlette Creek, is located east of Lake Tahoe in Washoe County, Nevada. (Please see Attachment 3 - Marlette Lake Dam Location and Attachment 4 - Historic Marlette System Overview.) The system is a historic water system originally constructed in the mid-1870's to provide water to Virginia City, and was authorized for purchase by the 1963 Legislature from the Curtiss-Wright Corporation at a cost of $1.65 million. Originally, water was conveyed via a wooden flume from Marlette Lake to a pipeline bored through the mountain and eventually fed into Hobart Reservoir. The wooden flume structure has been removed and the adjacent trail, named the Flume Trail, remains for visitors to explore this historic area. The adjoining lands to the Marlette Water System are administered and controlled by State Parks. Today the System provides raw water to Carson City, Storey County, and Lyon County. In fact, it is the only source of raw water for Virginia City is piped to Storey County's system through the inverted siphon piping system that runs down from the storage tanks on the East Slope, under the 395/I-580 freeway, and up the east side of Washoe Valley to the 5-mile reservoir near Virginia City. The major objectives of the system are to preserve and protect local water sources, provide adequate supplies of water to the areas served, maintain the system in a condition calculated to assure dependable supplies of water, and sell water under equitable and fiscally sound contractual arrangements. This system is funded entirely from water sales to Carson City, Storey County and Lyon County.	Index of Attachments.docx Attachment 4 - Historic Marlette Water System Overview. Attachment 3 - Marlette Lake Dam Location Map.pdf Attachment 2 - Washoe County Location Map.pdf Attachment 1 - Intergovernmental Review.pdf
Mitigation Plan	This project also meets the goals and objectives of the Carson City Hazard Mitigation Plan, Goal 3: Reduce the possibility of damage and losses due to earthquakes; Storey County Hazard Mitigation Plan, Goal 3.E: Retrofit all critical assets within strong shaking areas that do not meet the most current IBC requirements for safety; with higher priority given to critical facilities, infrastructure, and government agencies located within identified historical buildings; and Lyon County Multi-jurisdictional Hazard Mitigation Plan, Goal 5.4: Seismically retrofit or replace critical facilities that are necessary during and/or immediately after a disaster or emergency.	Attachment 5 - Local Hazard Mitigation Plans Excerpts.p Attachment 6 - State of Nevada Enhanced Hazard Mitiga
Scope of Work		Attachment 12 -Marlette Lake Dam FIRM.pdf Attachment 13 - Seismic Hazard.pdf Attachment 11 - Existing Access Road.pdf Attachment 10 - System Overview Maps.pdf Attachment 9 - Estimated Project Timeline.pdf Attachment 8 - Preliminary Site Plans.pdf Attachment 7 - Project Description.pdf Attachment 16 - O and M Costs and Maintenance Letter. Attachment 13.1 - 11-25-18 Nevada Seismological Lab.p Attachment 14 - Marlette Lake Dam EAP Report Final.pd
Cost Share	Please see Attachment 17 - Cost Estimate and Attachment 18 - Match Letter	Attachment 18 - Match Letter.pdf Attachment 17 - Project Cost (stamped).pdf
Cost Effectiveness	Please see Attachment 19 - BCA Methodology and Report and BCA Attachments as referenced in BCA Report.	BCA Attachments.zip Attachment 19 - BCA Methodology and Report.pdf Marlette Lake Dam Resilient Infrastructure BCA.zip
Evaluation	Washoe County participates in the Community Rating System and their CRS is 7. Carson City participates in the Community Rating System and their CRS is 6. Storey County participates in the Community Rating System and their CRS is 8. Lyon County participates in the Community Rating System and their CRS is 10. The State of Nevada Division of Emergency Management is a Cooperating Technical Partner with FEMA. The Nevada Division of Forestry coordinates the Firewise Community Program for the State of Nevada. Washoe County, Carson City, Storey County, Lyon County and the State of Nevada have adopted building codes consistent with International Building Codes. Washoe County, Carson City, and Storey County building codes have been assessed on the Building Code Effectiveness Grading Schedule. The Washoe	Attachment 29 - Public Meeting Agendas and Minutes.pd

	County, Carson City and Storey County are rated 2.	
EHP - A - National Historic Preservation Act - Historic Buildings and Structures	The Marlette Lake Water System was built in 1873 for domestic and mining use. The Marlette Lake Water System including the Marlette Lake Dam is listed on the National Register of Historic Places and is recognized as a significant engineering feat accomplished in the American West during the 19th century. The project has been designed to minimize adverse effects on historic resources and will require evaluation of potential historic and cultural impacts. The project scope, budget, and schedule have considered additional archaeological and historic studies	Attachment 22 - USGS Map of Marlette Lake.pdf Attachment 21 - SHPO Consultation.pdf Attachment 20 - National Register Nomination Form.pdf Attachment 9 - Estimated Project Timeline.pdf Attachment 4 - Historic Marlette Water System Overview. Attachment 8 - Preliminary Site Plans.pdf Attachment 17 - Project Cost (stamped).pdf
EHP - B - National Historic Preservation Act - Archeological Reources	Marlette Lake Dam is an earthen filled dam located along Marlette Creek. The dam was constructed in 1873 and was modified twice, most recently in 1957, to raise the height of the dam. The current dam is approximately 52 feet high with a crest length of approximately 287 feet. There is one concrete lined spillway on the north side of the dam and one outlet pipe with a manual control on the top of the dam. The proposed project will stabilize the existing embankment by enlarging the embankment. The spillway will be replaced with a new reinforced concrete structure	
EHP - C - Endangered Species Act and Fish and WildLife Coordination Act	According to the USFWS IPAC Resource List, the species that are potentially affected by activities in this location include the North American Wolverine, the Sierra Nevada Yellow-legged Frog and the Lahontan Cutthroat Trout. There are no critical habitats at this location. However, there is likely a presence of Bald Eagle, Cassin's Finch, Golden Eagle, Lewis's Woodpecker, Olive-sided Flycatcher, Rufous Hummingbird, Williamson's Sapsucker, and Willow Flycatcher. The project scope and schedule have included consideration in timing and budget for	Attachment 24 - USFW Consultation.pdf Attachment 25 - NDOW Consultation.pdf Attachment 7 - Project Description.pdf Attachment 23 - USFWS IPAC Resource List.pdf Attachment 17 - Project Cost (stamped).pdf Attachment 9 - Estimated Project Timeline.pdf
EHP - D - Clean Water Act, Rivers and Harbors Act, and Executive Order 11990	The National Wetlands Inventory depicts freshwater forested/shrub wetlands in the project vicinity. Please see Attachment 26 - USFWS Wetlands Map from the National Wetlands Inventory (NWI) mapper. A wetland mitigation plan would be used during the federal and state permitting/approval processes to assess wetland impacts and determine appropriate replacement of those impacts. Further, it is anticipated that a US Army Corps Engineers Section 404 permit and Section 10 permit will be required. Please see Attachment 27 - USACE Consultation Letter.	Attachment 26 - USFWS Wetlands Map.pdf Attachment 27 - USACE Consultation.pdf Attachment 21 - SHPO Consultation.pdf
EHP - E - Executive Order 11988 (Floodplain Management)	Please see Attachment 12 - Marlette Lake Dam FIRM which identifies Marlette Lake as being in the A Flood Zone. Due to the nature of the project, action must occur in the floodplain. However, the resultant project will mitigate flood hazards in the future by reducing the risk of flooding downstream which would be caused by a dam breach. ----------	Attachment 12 -Marlette Lake Dam FIRM.pdf Attachment 27 - USACE Consultation.pdf
EHP - G - Farmland Protection Policy Act	Please see Attachment 28 - Farmland Classification Map. There is no prime farmland within the project area.	Attachment 28 - Farmland Classification Map.pdf
EHP - H - RCRA and CERCLA (Hazardous and Toxic Materials)	Marlette Lake Dam has been part of the historic Marlette Lake Water System since 1873, and there is no record or evidence of any contaminants from a current or past use on the property.	
EHP - J - Other Environmental/Historic		

Preservation Laws or Issues	Over the past year three public meetings have been held through the Legislative Committee for the Review and Oversight of the Tahoe Regional Planning Agency and the Marlette Lake Water System. The meetings were held on December 18, 2017, June 5, 2018, and August 28, 2018. Agendas and minutes as are included as Attachment 29 - Public Meeting Agendas and Minutes.	Attachment 29 - Public Meeting Agendas and Minutes.pd
EHP - K - Summary and Cost of Potential Impacts	It is recognized that the Marlette Lake Dam Resilient Infrastructure Project has the potential to impact environmental resource or historic properties. However, these potential effects have been evaluated and the preferred alternative was selected that will minimize both the impacts and the cost of the project. Initial consultation letters have been sent to the State Historic Preservation Office, USFWS, Nevada Division of Wildlife, and the USACE. The project scope and schedule have included consideration in timing and budget for environmental studies that will be required including	

FEMA Grants Application

Attachments
Attachment 30 - Assurances - Construction Programs.pdf

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