

Montana Department of Commerce  
Treasure State Endowment Program  
**Environmental Assessment**

**GIEM BRIDGE OVER THE BEAVERHEAD RIVER**

**MADISON COUNTY, MONTANA**

**DRAFT**

**Proposed Action:** The Giem Bridge on Silver Bow Lane over the Beaverhead River is a single-lane, load-limited, fracture critical bridge that provides primary access to numerous residential users, agricultural operations, and recreationalists. Madison County proposes to replace the structure with a new, two-span precast, prestressed concrete structure on driven pile foundations. The new Giem Bridge will: provide a two-lane crossing, increase safety, ensure long-term access, handle legal loading requirements, and increase waterway adequacy.

**A. Environmental Checklist:**

**As the Engineer that prepared the preliminary engineering report, I Ryan Holm, PE have reviewed the information presented in this checklist and believe that it accurately identifies the environmental resources in the area and the potential impacts that the project could have on those resources.** In addition, the required state and federal agencies were provided with the required information about the project and requested to provide comments on the proposed public facility project. Their comments have been incorporated into and attached to the Preliminary Engineering Report.

**Engineer's Signature:** \_\_\_\_\_

## ENVIRONMENTAL REVIEW CHECKLIST

<b>NAME OF PROJECT:</b>	Giem Bridge over the Beaverhead River
<b>PROPOSED ACTION:</b>	Bridge Replacement
<b>LOCATION:</b>	<u>Madison County</u> , Montana

**Key Letter:**

**N:** No Impact; **B:** Potentially Beneficial; **A:** Potentially Adverse; **P:** Approval/Permits Required; **M:** Mitigation Required

### PHYSICAL ENVIRONMENT

KEY	1	<p><b>Soil Suitability, Topographic and/or Geologic Constraints (e.g., soil slump, steep slopes, subsidence, seismic activity)</b></p>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>NRCS Soil Maps indicate the soils at the bridge site are classified as Rivra, cool-Fluvaquents complex, 0 to 2 percent slopes. These soils are primarily composed of sandy and gravelly alluvium. The soils have a high steel corrosion rating which may require special coatings on steel in contact with the soil. The adjacent hillside located to the east of the structure exhibits exposed conglomerate sedimentary rock. Prior to construction, a geotechnical analysis will be undertaken in order to determine the most efficient foundation design based on the in-situ soils in the project vicinity.</p> <p>- Ryan Holm, P.E. - USDA National Cooperative Soil Survey</p>
KEY	2	<p><b>Hazardous Facilities (e.g., power lines, EPA hazardous waste sites, acceptable distance from explosive and flammable hazards including chemical/petrochemical storage tanks, underground fuel storage tanks, and related facilities such as natural gas storage facilities &amp; propane storage tanks)</b></p>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>A file search of the State Hazard Mapping (DEQ) and State Digital Atlas (NRIS) revealed <u>no</u> underground storage tanks, petroleum leak sites, or related facilities in the project vicinity.</p> <p>A site visit determined that there is an overhead power line located 180 feet downstream of the existing bridge. Due to the proximity of the project to the adjacent overhead power line, close coordination with the power utility will be necessary during construction. At this stage, no impact to the line is anticipated.</p> <p>Prior to construction, a detailed inspection will be undertaken by contacting a utility location service. If utilities are located within the affected area, they will be relocated. Typically, such relocations are completed by the utility company at no cost to the County.</p> <p>- Ryan Holm, P.E. - Digital Mapping Index, Montana DEQ</p>

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KEY	3	<b>Effects of Project on Surrounding Air Quality or Any Kind of Effects of Existing Air Quality on Project (e.g., dust, odors, emissions)</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>The only impacts on air quality may be temporary dust during construction. Reasonable efforts will be taken during construction to minimize these temporary impacts.</p> <p>- Ryan Holm, P.E.</p>
KEY	4	<b>Groundwater Resources &amp; Aquifers (e.g., quantity, quality, distribution, depth to groundwater, sole source aquifers)</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>Given the nature of the construction activities, the proposed project should not have any impact on groundwater resources and aquifers.</p> <p>- Ryan Holm, P.E.</p>
KEY	5	<b>Surface Water/Water Quality, Quantity &amp; Distribution (e.g., streams, lakes, storm runoff, irrigation systems, canals)</b>
<b>P, M</b>		<p><i>Response and source of information:</i></p> <p>The preferred alternative for this structure is a two-span bridge with a driven pile foundation, which will have minor impacts on the streambed. The center pier will be supported by driven pile which produces less adverse impacts to water quality than either spread footings or drilled shafts. The center pier will be constructed outside of the active channel. The new structure will be installed in the same approximate location of the existing bridge. Best Management Practices (BMP's) will be utilized during construction to minimize adverse impacts to water quality.</p> <p>Madison County intends to coordinate with the Contractor so that as much of the work as possible can be implemented during periods of low flow. Emphasis will be placed on completing in-stream work in the shortest amount of time possible for the least amount of disturbance. Additionally, limited temporary adverse effects to water quality are expected during removal of the existing structure and installation of the riprap keyway at the abutments.</p> <p>Matt Jaeger, local FWP Fisheries Biologist, requested the replacement structure have active curbing for the length of the bridge that would preclude sediment or road fill on the bridge from falling into the stream. Lindsay Ford, from the DEQ Director's Office, also requested the bridge deck design will need to incorporate features that preclude direct drainage off the deck into the stream. The new bridge design will implement a drainage mechanism to prevent drainage and debris from entering directly into the Beaverhead River.</p> <p>No refueling of equipment will take place within 100 feet of the ordinary high-water mark or any wetland boundary. The Contractor will be required to have spill kits (minimum of 5-gallon capacity) on board each piece of equipment at all times when working near water. The Contractor will be required to inspect all equipment for oil, gas, diesel, antifreeze, hydraulic fluid, or other petroleum leaks prior to</p>

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	<p>entering the construction site. If a leak is detected, the leak will be repaired prior to the equipment being allowed to work on the project site. No construction equipment will operate within the active channel of the river unless it is specifically permitted to do so.</p> <p>A detour route utilizing an existing roadway network is located north of the existing structure and will be used during the bridge replacement in order to convey local traffic during construction.</p> <p>Based on a consult with the USACE, the proposed project has the potential to impact Waters of the U.S. (WOUS). As such, a 404 permit will be secured prior to construction of the bridge replacement. The project is anticipated to disturb less than one acre of existing ground. As a result, a Storm Water Permit is not anticipated to be required at this time. All additional necessary stream permits will be acquired prior to construction and the contractor will be required to abide by the conditions set forth by these permits.</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> <li>- Matt Jaeger, FWP Biologist</li> <li>- Lindsay Ford, DEQ, Director's Office</li> <li>- Jade Clabaugh, USACE Regulatory Branch</li> </ul>
KEY	<b>6</b>
	<b>Floodplains &amp; Floodplain Management (Identify any floodplains within one mile of the boundary of the project.)</b>
<b>P</b>	<p><i>Response and source of information:</i></p> <p>The bridge is <u>not</u> located in a mapped Federal Emergency Management Agency (FEMA) floodplain. However, the County Floodplain Administrator, Charity Fechter, requested a floodplain development permit be acquired as the bridge is located in a flood-prone area.</p> <p>Steve Story, the DNRC Water Operations Bureau Chief, provided supplemental information that the State and FEMA are in the process of completing a new floodplain study of the Beaverhead River. As such, he recommended that the Giem Bridge Replacement project include an as-built survey to be provided to the County and DNRC to supplement the new floodplain study data already gathered.</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> <li>- Charity Fechter, Madison County Floodplain Administrator</li> <li>- John Connors, P.E., CFM DNRC</li> <li>- Steve Story, P.E., CFM DNRC</li> </ul>
KEY	<b>7</b>
	<b>Wetlands Protection (Identify any wetlands within one mile of the boundary of the project.)</b>
<b>N</b>	<p><i>Response and source of information:</i></p> <p>Based on information collected from site visits and the U.S. Fish and Wildlife Survey National Wetlands Inventory, there appear to be two wetland types within a mile of the bridge: palustrine scrub-shrub and riverine unconsolidated bottom. However, within the anticipated construction limits, only the riverine unconsolidated bottom is present. The Army Corps of Engineers requires a Department of the Army</p>

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	<p>(DA) permit under the authority of Section 404 of the Clean Water Act, for any fill material discharged into wetlands adjacent to waters of the U.S.</p> <p>The area directly affected by the proposed bridge and road improvements primarily consists of the existing bridge footprint and the footprint for the new bridge alignment at approximately the same location including riprap aprons and roadway approaches. As such, little impact to wetlands are anticipated; however, if deemed necessary during the design phase, a detailed wetland delineation will occur to identify any potential impacts to nearby wetlands. If needed, this delineation will follow delineation guidelines in the Army Corps of Engineers 1987 Delineation Manual (and applicable Regional Supplement).</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> <li>- USFWS National Wetlands Inventory</li> <li>- Jade Clabaugh, USACE Regulatory Branch</li> </ul>
KEY	<b>8 Agricultural Lands, Production, &amp; Farmland Protection (e.g., grazing, forestry, cropland, prime or unique agricultural lands) (Identify any prime or important farm ground or forest lands within one mile of the boundary of the project.)</b>
<b>A, B</b>	<p><i>Response and source of information:</i></p> <p>The Giem Bridge over the Beaverhead River is located in a rural area with primarily agricultural properties to the west and undeveloped properties to the east. Preliminary investigations indicate that some of the surrounding lands are designated as Prime Farmland if Irrigated (NRCS Soils Map). Farmlands at their nearest occur 50 feet to the southwest of the bridge. Farmlands within a mile of the bridge include both irrigated and non-irrigated alfalfa and grass. The new bridge alignment is likely to be skewed to the channel, necessitating the new east abutment to be moved downstream and the new west abutment to remain in a similar location. Due to this anticipated new bridge alignment and subsequent roadway realignment, the maximum potential area of impact to potential farmland is less than 0.01 acres (this ground is not currently being farmed).</p> <p>Several ranching operations are present in the bridge vicinity and grazing cattle are common.</p> <p>A section of state land is located a half mile to the northeast of the bridge. No forest lands exist within one mile of the project.</p> <p>If the bridge is not improved and becomes closed, agricultural operations would be forced to detour to different roadways in order to access their agricultural interests and grazing allotments. A new structure will ensure access to the area for another 75 years.</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> <li>- NRCS Soil Survey</li> </ul>

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KEY	9	<b>Vegetation &amp; Wildlife Species &amp; Habitats, Including Fish and Sage Grouse (e.g., terrestrial, avian and aquatic life and habitats)</b>
P		<p><i>Response and source of information:</i></p> <p>The proposed project is not expected to have any permanent effects on vegetation and wildlife. Any effects on plant species due to construction activities will be re-seeded to promote re-vegetation and reduce effects of erosion.</p> <p>A database search conducted using the Montana Natural Heritage Program website and by the USFWS found 10 possible species of special concern in the area: Bald Eagle, Golden Eagle, Annual Indian Paintbrush, Mealy Primrose, Ute Ladies' Tresses, Canada Lynx, Red Knot, Whitebark Pine, Plains Spadefoot, and Arctic Grayling.</p> <p>Jodi Bush of the United States Fish and Wildlife Service notes that <i>"The species list provided above indicates those that may occur in Madison county, but it is unlikely all of these will occur within your project areas...there are several small populations of Ute Ladies' Tresses within a mile of the site (Natural Heritage Database 2018). As such, we recommend that a qualified botanist survey the site for this species."</i></p> <p>Jodi Bush also notes that due to the Migratory Bird Treaty Act (MBTA), should work occur during breeding season of migratory birds; removal of swallow nests shall occur as they are built, but prior to egg laying, from any bridge structures. Cutting or removing trees or shrubs for project clearing should take place between August 16<sup>th</sup> and April 30<sup>th</sup> if the proposed work will occur during the breeding season.</p> <p>She also noted that, according to the Natural Heritage Database, there is a bald eagle nest within 0.5 mile of the project site. During the preliminary design phase, this nest any other bald eagle or golden eagle nesting sites within 0.5 mile of the project site will be identified, and if still present, implementations from the 2010 Montana Bald Eagle Management Guideline will occur.</p> <p>Based on a review of the Montana Sage Grouse Habitat Conservation Program Mapper (<a href="https://sagegrouse.mt.gov/projects">https://sagegrouse.mt.gov/projects</a>), the proposed project is not mapped in an Executive Order (EO) Area for Sage Grouse Habitat. As such, Sage Grouse are not anticipated to be adversely affected by this work.</p> <p>The Beaverhead River supports aquatic wildlife populations; therefore, careful consideration to the stream habitat and effects that the proposed bridge will have on the stream will be considered. Based on past projects in the vicinity, in order to minimize any long term affects to spawning Brown Trout, all in-stream work should take place between mid-July and late-October. Necessary stream permits will be obtained prior to construction and the Contractor will be required to adhere to all guidelines outlined in these documents.</p> <p>According to Lindsay Ford of DEQ's Director's Office, and the 2017 401 Certification General Conditions of the Nationwide Permit, riprap used on the project, that isn't directly under the bridge, will need to be vegetated and include soil infill in the riprap, and geotextile should be avoided, if</p>

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	<p>possible, under riprap. To comply with this requirement, riprap outside of the bridge footprint will be revegetated and a granular filter will be evaluated for use under the riprap in lieu of geotextile.</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> <li>- Matt Jaeger, MFWP Biologist</li> <li>- Jodi Bush, USFWS</li> <li>- Montana Natural Heritage Program</li> <li>- Montana Sage Grouse Habitat Conservation Program</li> <li>- Lindsay Ford, DEQ Director's Office</li> <li>- 401 Certification Nationwide Permit General Conditions</li> </ul>
KEY	<b>10</b> <b>Unique, Endangered, Fragile, or Limited Environmental Resources, Including Endangered Species (e.g., plants, fish or wildlife)</b>
<b>P</b>	<p><i>Response and source of information:</i></p> <p>A database search conducted using the Montana Natural Heritage Program website and by the USFWS found 10 possible species of special concern in the area: Bald Eagle, Golden Eagle, Annual Indian Paintbrush, Mealy Primrose, Ute Ladies' Tresses, Canada Lynx, Red Knot, Whitebark Pine, Plains Spadefoot, and Arctic Grayling.</p> <p>Jodi Bush of the United States Fish and Wildlife Service notes that "<i>The species list provided above indicates those that may occur in Madison county, but it is unlikely all of these will occur within your project areas...there are several small populations of Ute Ladies' Tresses within a mile of the site (Natural Heritage Database 2018). As such, we recommend that a qualified botanist survey the site for this species</i>".</p> <p>Jodi Bush also notes that due to the Migratory Bird Treaty Act (MBTA), should work occur during breeding season of migratory birds; removal of swallow nests shall occur as they are built, but prior to egg laying, from any bridge structures. Cutting or removing trees or shrubs for project clearing should take place between August 16<sup>th</sup> and April 30<sup>th</sup> if the proposed work will occur during the breeding season.</p> <p>She also noted that, according to the Natural Heritage Database, there is a bald eagle nest within 0.5 mile of the project site. During the preliminary design phase, this nest any other bald eagle or golden eagle nesting sites within 0.5 mile of the project site will be identified, and if still present, implementations from the 2010 Montana Bald Eagle Management Guideline will occur.</p> <p>Based on a review of the Montana Sage Grouse Habitat Conservation Program Mapper (<a href="https://sagegrouse.mt.gov/projects">https://sagegrouse.mt.gov/projects</a>), the proposed project is not mapped in an Executive Order (EO) Area for Sage Grouse Habitat. As such, Sage Grouse are not anticipated to be adversely affected by this work.</p> <p>The Beaverhead River supports aquatic wildlife populations; therefore, careful consideration to the stream habitat and effects that the proposed bridge will have on the stream will be considered. Based on past projects in the vicinity, in order to minimize any long term affects to spawning Brown Trout, all in-stream work should take place between mid-July and late-October. Necessary stream permits will be</p>

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		<p>obtained prior to construction and the Contractor will be required to adhere to all guidelines outlined in these documents.</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> <li>- Matt Jaeger, MFWP Biologist</li> <li>- Jodi Bush, USFWS</li> <li>- Montana Natural Heritage Program</li> <li>- Montana Sage Grouse Habitat Conservation Program</li> </ul>
KEY	11	<b>Unique Natural Features (e.g., geologic features)</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>There are no unique, natural features located in the vicinity of the proposed project.</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> </ul>
KEY	12	<b>Access to, and Quality of, Recreational &amp; Wilderness Activities, Public Lands and Waterways and Public Open Space</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The Giem Bridge serves, on average, 61 vehicles per day including primary access to private homes, agricultural properties, State of Montana lands and Bureau of Land Management (BLM) lands. Closure of the bridge would impact access to (and quality of experience of) recreational activities, public lands and waterways, and public open space for local residents, hunters, hikers, fisherman and other recreationalists. The bridge lies in big game Hunting District 322 which gives hunters opportunities to pursue multiple species of game including black bear, antelope, deer, elk and moose. The new structure would ensure access to the area for 75 years.</p> <p>Howard Chrest, local resident, states, “Recreational activities are an important source of income for many interests in Montana and Madison County. By creating new access sites or improving existing ones (like the opportunity at the Giem Bridge), you enhance these opportunities.”</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> <li>- Howard Chrest, Resident</li> </ul>
<b>HUMAN POPULATION</b>		
KEY	1	<b>Visual Quality – Coherence, Diversity, Compatibility of Use and Scale, Aesthetics</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>The project is not anticipated to adversely impact the visual quality of the area.</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> </ul>



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KEY	<b>2</b>	<b>Nuisances (e.g., glare, fumes)</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>The proposed project may cause temporary nuisances such as noise and exhaust fumes from construction equipment, and traffic detours will be necessary while the bridge is under construction. However, no long-term impacts have been identified, and efforts will be made to minimize nuisances and address specific problems as they occur.</p> <p>- Ryan Holm, P.E.</p>
KEY	<b>3</b>	<b>Noise - suitable separation between noise sensitive activities (such as residential areas) and major noise sources (aircraft, highways &amp; railroads).</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>Nearby residences may be temporarily affected by noise from the construction of this bridge, which is anticipated to occur over a period of 75 days. However, as the bridge is not intended to increase use of Silver Bow Lane, no additional noise sources are anticipated.</p> <p>- Ryan Holm, P.E.</p>
KEY	<b>4</b>	<b>Historic Properties, Cultural, and Archaeological Resources</b>
<b>M</b>		<p><i>Response and source of information:</i></p> <p>As a general rule, all bridges that are 50 years or older are considered eligible for listing on the National Register of Historic Places. The Giem Bridge was originally constructed in 1910 according to the MDT Bridge Historian, Jon Axline. The State Historic Preservation Office (SHPO) also indicates that the Giem Bridge is recorded as a historic site (Site 24MA1392). No other recorded sites are located in the vicinity of the bridge.</p> <p>Recent discussions with Jon Axline, MDT Historian, confirm the bridge is a historically significant structure and is eligible for listing on the National Register of Historic Places. He recommends the bridge be recorded to Historic American Engineering Record (HAER) standards if the existing bridge is to be replaced. As the existing bridge meets criteria for the National Register of Historic Places, prior to any construction, historical mitigation efforts will record the bridge description, history and photographs to be submitted to the National Register.</p> <p>Given the historic nature of the bridge and the realignment of the new approaches, a cultural resources inventory will be performed prior to construction to ensure no cultural resources are impacted.</p> <p>- Ryan Holm, P.E.  - Jon Axline, MDT Historian  - Damon Murdo, State Historical Preservation Office</p>

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KEY	<b>5</b>	<b>Changes in Demographic (population) Characteristics (e.g., quantity, distribution, density)</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>The proposed project is not anticipated to affect any changes in demographics to the area. The proposed replacement will be capable of safely supporting legal loads including agricultural loads and delivery truck traffic.</p> <p><i>“This project is in compliance with the recommendations in the Capital Improvement Plan 2015 update and the Madison County Growth Policy (2012).” - Charity Fechter, Madison County Planner</i></p> <p>- Ryan Holm, P.E - Charity Fechter, Madison County Planner</p>
KEY	<b>6</b>	<b>Environmental Justice – (Does the project avoid placing lower income households in areas where environmental degradation has occurred, such as adjacent to brownfield sites?)</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>No residents will be relocated as part of this project.</p> <p>- Ryan Holm, P.E.</p>
KEY	<b>7</b>	<b>General Housing Conditions - Quality, Quantity, Affordability</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The Giem Bridge provides primary access to numerous residences and agricultural operations in adjacent properties. The proposed project will allow residents and ranch/farm owners to continue to have the most direct access to their properties. If the bridge is not improved and becomes closed, residents would be forced to detour to different roadways in order to access their homes and properties. A new structure will ensure access to the area for 75 years.</p> <p>- Ryan Holm, P.E.</p>
KEY	<b>8</b>	<b>Displacement or Relocation of Businesses or Residents</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The proposed project will allow residents, agricultural operations and businesses to continue to have the most direct access to their properties. The load limit of the bridge already prevents agricultural hauling on the most direct route to all but the passenger vehicles. If the bridge is not improved and closes, residents, agricultural operations, and businesses would be unable to use the most convenient access to their homes and properties. This would increase the current hardship for the local farming and ranching community, especially during harvest season, shipping season and during periods of inclement weather. Depending on the direction of a travel, the detour route would add up to 14 additional miles for those accessing areas beyond the bridge. A new structure will ensure access by all vehicles to the area for 75 years.</p> <p>- Ryan Holm, P.E.</p>

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KEY

9

**Public Health and Safety**

**B**

*Response and source of information:*

Based on recent bridge inspection(s), the structure is in fair condition; however, it is a one-lane, fracture critical, load-limited bridge, past its useful life and should be viewed as a threat to public safety. The load rating of the structure is 7 tons based on capacity issues of the existing truss components, which limits many vehicle types from safely crossing the structure. The steel truss is in fair condition with areas of corrosion, pitting, pack rust and early section loss. The concrete and timber abutments are in satisfactory condition with backwall plank decay, backwall bulging and wingwall failure. The timber plank deck is in fair condition with end checks and areas of decay. The timber running plank wearing surface is in poor condition with heavy wear, section loss, and decay.

The narrowness of the existing bridge is another safety concern. The existing bridge provides a useable width of 14.8-feet, which is too narrow to safely handle two-way travel. The new structure should be designed with a useable width of 24-feet.

Sharp horizontal curves are present at both bridge ends, with the worst curve being east of the bridge. This has resulted in sight distance issues and larger vehicle tire tracking issues. The new structure should be skewed to the channel and roadway realignment should occur to increase public safety.

The current bridge rail configuration is substandard steel rail connected to vertical truss elements and intermediate posts which are connected to the exterior stringers. The steel rail has collision damage, areas of rotation, and the northeast end of rail is bent and separated from the end post creating a goring hazard. In its current condition, the bridge rail likely provides minimal protection to stray vehicles that impact the rail and is a potential method of failure if substantial collision damage were to occur, due to the nature of the bridge being fracture critical. Bridge rail and guardrail terminal end sections should be added to the new bridge as required by the County Bridge Standards.

The existing bridge should be replaced with a new structure that can adequately handle legal loads, remedy the significant structural concerns, and provide safely for two-way travel. A new bridge would eliminate all structural deficiencies and provide a useful life of 75 years.

- Ryan Holm, P.E.
- MDT Bridge Inspection Report
- GWE Bridge Inspection Report

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<b>KEY</b>	<b>I0</b>	<b>Lead Based Paint and/or Asbestos</b>
<b>M</b>		<p><i>Response and source of information:</i></p> <p>It is not known if lead based paint or asbestos is present at this site. However, recent requirements from Montana DEQ require an inspection for asbestos (performed by an accredited inspector) prior to any demolition taking place. This inspection may be waived depending on the type of the bridge structure and its components. Lead-based paint mitigation will involve properly disposing of bridge components with lead-based paint, if found.</p> <p>- Ryan Holm, P.E.</p>
<b>KEY</b>	<b>I1</b>	<b>Local Employment &amp; Income Patterns – Quantity and Distribution of Employment, Economic Impact</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>The proposed structure replacement should not create any significant effects on local employment and income patterns. A new structure will ensure access to the area for 75 years.</p> <p>- Ryan Holm, P.E.</p>
<b>KEY</b>	<b>I2</b>	<b>Local &amp; State Tax Base &amp; Revenues</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>The proposed project should have no impact on local and state tax base and revenues.</p> <p>- Ryan Holm, P.E.</p>
<b>KEY</b>	<b>I3</b>	<b>Educational Facilities - Schools, Colleges, Universities</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The bridge is <u>not</u> located on a designated school bus route, however, local residents use the bridge to take kids to and from school.</p> <p>- Ryan Holm, P.E.</p>

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<b>KEY</b>	<b>I 4</b>	<b>Commercial and Industrial Facilities - Production &amp; Activity, Growth or Decline</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>A new bridge will allow farming and ranching equipment to cross the structure providing access for local ranchers and farmers. A large stockyard is located just to the east of the bridge. The bridge is currently posted with a 7-ton weight limit which pretty much excludes all but the lightest single axle trucks and tractor trailers from crossing the bridge. If the posted weight limit remains in place because the bridge is not replaced, it will contribute to a further decline of economic activity in the area.</p> <p>John Osborne states, “We have a farm and ranch operation located ~4 miles south of the bridge on E. Bench Road and we are consistently incurring additional expense and delays in shipping and receiving loads for our operation.”</p> <p>According to Ron &amp; Georgia Nye, “I have a small hay and grain operation. When I have to deliver across the valley, I have to go around the Giem Bridge because of the weight restrictions and this adds 14 miles to my trip.”</p> <p>The project proposes to replace the bridge with a structure that will handle all legal loads and the bridge will be aligned to minimize the tight curves on each end. This will provide a crossing for semi-trucks hauling produce, stock, and other commercial products.</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> <li>- John Osborne, Rancher</li> <li>- Ron &amp; Georgia Nye, Ranchers</li> </ul>
<b>KEY</b>	<b>I 5</b>	<b>Health Care – Medical Services</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The Giem Bridge provides primary access to numerous residences, agricultural operations and recreational opportunities. If the bridge is not improved and becomes closed, medical, fire, and law enforcement personnel would be forced to travel longer distances to reach residences directly east of the bridge.</p> <ul style="list-style-type: none"> <li>- Ryan Holm, P.E.</li> </ul>

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KEY	<b>16</b>	<b>Social Services – Governmental Services (e.g., demand on)</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The Giem Bridge provides primary access to numerous residences and adjacent properties. If the bridge is not improved and becomes closed, services such as the United States Postal Service would be forced to detour to different roads in order to deliver mail to homeowners. A new structure will ensure access to the area and access to government services for 75 years. No additional demand on government services is anticipated as a result of the bridge replacement.</p> <p>- Ryan Holm, P.E. - Twin Bridges USPS Office</p>
KEY	<b>17</b>	<b>Social Structures &amp; Mores (Standards of Social Conduct/Social Conventions)</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>The proposed project should not have any impact on social structures and mores.</p> <p>- Ryan Holm, P.E.</p>
KEY	<b>18</b>	<b>Land Use Compatibility (e.g., growth, land use change, development activity, adjacent land uses and potential conflicts)</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The Giem Bridge provides primary access to numerous residences and agricultural operations. The proposed project will allow residents and business owners (including ranchers and farmers) to continue to have the most direct access to their properties. If the bridge is not improved and becomes closed, residents would be forced to detour to different roads for access. A new structure will ensure access to the area for 75 years.</p> <p>- Ryan Holm, P.E.</p>
KEY	<b>19</b>	<b>Energy Resources - Consumption and Conservation</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The proposed project will ensure that the current, most direct routes utilized by local residents and ranching traffic will continue to be available. If the bridge were to close, travelers would be forced to utilize alternate routes. As a result, more fuel will likely be consumed by taking longer alternate routes.</p> <p>- Ryan Holm, P.E.</p>
KEY	<b>20</b>	<b>Solid Waste Management</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>There are no waste management services in the area, as such, residents and businesses utilize the bridge on a regular basis to access County managed waste disposal sites. The proposed project will ensure that current routes utilized by local residents and business traffic will continue to be available. A new structure will ensure access to the area for 75 years.</p> <p>- Ryan Holm, P.E.</p>

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KEY	21	<b>Wastewater Treatment - Sewage System</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>Not applicable to this project.</p> <p>- Ryan Holm, P.E.</p>
KEY	22	<b>Storm Water – Surface Drainage</b>
<b>M</b>		<p><i>Response and source of information:</i></p> <p>The proposed bridge design, including the new roadway design, will take Best Management Practices (BMP's) into account. Matt Jaeger, local FWP fisheries management biologist, requested the proposed structure would have active curbing for the length of the bridge that would preclude sediment or road fill on the bridge from falling into the stream.</p> <p>- Ryan Holm, P.E. - Matt Jaeger, FWP - Lindsay Ford, DEQ, Director's Office</p>
KEY	23	<b>Community Water Supply</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>Not applicable to this project.</p> <p>- Ryan Holm, P.E.</p>
KEY	24	<b>Public Safety – Police</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The Giem Bridge provides primary access to numerous residences, agricultural operations and adjacent properties. If the bridge is not improved and becomes closed, medical, fire, and law enforcement personnel would be forced to travel longer distances to reach residents directly east of the bridge. A new structure will ensure access to the area for 75 years.</p> <p>- Ryan Holm, P.E.</p>
KEY	25	<b>Fire Protection – Hazards</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The Giem Bridge provides primary access to numerous residences and agricultural operations. If the bridge is not improved and becomes closed medical, fire, and law enforcement personnel would be forced to travel longer distances to reach residents directly east of the bridge. A new structure will ensure access to the area for 75 years.</p> <p>- Ryan Holm, P.E.</p>

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<b>KEY</b>	<b>26</b>	<b>Emergency Medical Services</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The Giem Bridge provides primary access to numerous residences and agricultural operations in adjacent properties. If the bridge is not improved and becomes closed medical, fire, and law enforcement personnel would be forced to travel longer distances to reach residents directly east of the bridge. A new structure will ensure access to the area for 75 years.</p> <p>- Ryan Holm, P.E.</p>
<b>KEY</b>	<b>27</b>	<b>Parks, Playgrounds, &amp; Open Space</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>Closure of the bridge would impact access to (and quality of experience of) recreational activities, public lands and waterways, and public open space for local residents, hunters, hikers, fisherman and other recreationalists. The bridge acts as the primary access to both State and BLM lands that are available to the public to take part in these recreational activities. The new structure would ensure access to the area for 75 years.</p> <p>- Ryan Holm, P.E.</p>
<b>KEY</b>	<b>28</b>	<b>Cultural Facilities, Cultural Uniqueness &amp; Diversity</b>
<b>M</b>		<p><i>Response and source of information:</i></p> <p>As a general rule, all bridges that are 50 years or older are considered eligible for listing on the National Register of Historic Places. The Giem Bridge was originally constructed in 1910 according to the MDT Bridge Historian, Jon Axline. The State Historic Preservation Office (SHPO) also indicates that the Giem Bridge is recorded as a historic site (Site 24MA1392). No other recorded sites are located in the vicinity of the bridge.</p> <p>Recent discussions with Jon Axline, MDT Historian, confirm the bridge is a historically significant structure and is eligible for listing on the National Register of Historic Places. He recommends the bridge be recorded to Historic American Engineering Record standards if the existing bridge is to be replaced. As the existing bridge meets criteria for the National Register of Historic Places, prior to any construction, historical mitigation efforts will record the bridge description, history and photographs to be submitted to the National Register.</p> <p>Given the historic nature of the bridge and the realignment of the new approaches, a cultural resources inventory will be performed prior to construction to ensure no cultural resources are impacted.</p> <p>- Ryan Holm, P.E.  - Jon Axline, MDT Historian  - Damon Murdo, State Historical Preservation Office</p>



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KEY	<b>29</b>	<b>Transportation Networks and Traffic Flow Conflicts (e.g., rail; auto including local traffic; airport runway clear zones - avoidance of incompatible land use in airport runway clear zones)</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The proposed project is not anticipated to adversely affect current transportation networks and traffic flow conflicts. A new structure will increase the efficiency of the local transportation network, by ensuring that the structure is kept open and continues to offer the most direct access. It will improve access to the area for heavy trucks which currently have to detour around the bridge.</p> <p>- Ryan Holm, P.E.</p>
KEY	<b>30</b>	<b>Consistency with Local Ordinances, Resolutions, or Plans (e.g., conformance with local comprehensive plans, zoning, or capital improvement plans)</b>
<b>B</b>		<p><i>Response and source of information:</i></p> <p>The bridge design and construction methods will follow Madison County Bridge Standards. The existing bridge does not comply with the current standards.</p> <p><i>"This project is in compliance with the recommendations in the Capital Improvement Plan 2015 update and the Madison County Growth Policy (2012)."</i> - Charity Fechter, Madison County Planner</p> <p>- Ryan Holm, P.E  - Charity Fechter, Madison County Planner  - 2015 Madison County Bridge Capital Improvement Plan</p>
KEY	<b>31</b>	<b>Is there a Regulatory Action on Private Property Rights as a Result of this Project? (Consider options that reduce, minimize, or eliminate the regulation of private property rights.)</b>
<b>N</b>		<p><i>Response and source of information:</i></p> <p>The proposed project should not have any impact on private property rights. Any necessary construction agreements/easements will be secured prior to the start of work.</p> <p>- Ryan Holm, P.E.</p>

## ENVIRONMENTAL REVIEW FORM

**On a separate piece of paper, please answer the following as they apply to your proposed project:**

1. **Alternatives:** Describe reasonable alternatives to the project.

Several bridge alternatives were explored including; no action, repair, rehabilitation and replacement options. As the original structure requires substantial improvements it is in the best interest of the County to replace the bridge rather than conduct repairs or rehabilitation. A new structure would have a useful life of 75 years and require substantially less maintenance.

Precast, prestressed concrete and steel girder bridge systems were found to be the most feasible superstructure options in both single- and two-span configurations. Driven pile foundations were explored for the substructure abutments (and piers). The analysis determined that a two-span precast concrete superstructure with a driven pile foundation as the most economical and feasible option. The selected alternative will provide a number of benefits, specifically: ease of maintenance, increased hydraulic capacity, increased scour resistance, ability to carry legal vehicular loads, increased sight distance and enhanced public safety.

2. **Mitigation:** Identify any enforceable measures necessary to reduce any impacts to an insignificant level.

Contract documents for construction will require contractors to follow the requirements of obtained stream permits, any specified construction windows, necessary utility relocation, install curbing per FWP/DEQ requirements and adhere to Best Management Practices (BMP's) during construction.

The center pier will be constructed outside the active channel as long as construction doesn't occur during high flows. Piles will be driven into the ground to support the two spans. These measures will minimize turbidity caused by construction of the center pier.

Curbing will be installed on the bridge to direct any runoff to the bridge ends, preventing direct discharge into the Beaverhead River.

The Montana DEQ requires an asbestos inspection be performed by an accredited inspector prior to bridge component demolition/removal. The DEQ may exercise its right to waive the asbestos inspection requirement depending on the type of bridge structure and its components.

An independent consultant will perform a historic mitigation of the Giem Bridge. A cultural resources inventory will also be performed.

Due to the apparent presence of Ute Ladies Tresses in the greater project vicinity, a qualified botanist will perform an inventory of the anticipated disturbance area. During this time, a wetland delineation may or may not occur, depending on requirements of the Army Corps of Engineers.

Due to the apparent presence of a bald eagle nest reported by the Heritage Program within 0.5 miles of the project site, any nesting locations in the vicinity will be identified and mitigation measures taken, if necessary.

3. **Is an EA or Environmental Impact Statement (EIS) required?** Describe whether or not an EA or EIS is required, and explain in detail why or why not.

Based on our analysis, the EA is an adequate level of environmental review. An EIS is not required.

4. **Public Involvement:** Describe the process followed to involve the public in the proposed project and its potential environmental impacts. Identify the public meetings -- where and when -- the project was considered and discussed, and when the applicant approved the final environmental assessment.

The County and Great West Engineering have contacted a number of regional entities, homeowners and businesses in order to solicit comments regarding the proposed replacement project. Legal notices have been published as follows: The Madisonian on May 3<sup>rd</sup> and May 10<sup>th</sup>, 2018.

A public meeting was held on Tuesday, May 15<sup>th</sup>, 2018 to discuss the project and give opportunity for the public to express their comments. To date, there have been numerous letters of support, but no written or verbal negative comments from the general public concerning the project. The Madison County Commission will determine whether (or not) to adopt the EA during a regularly scheduled commission meeting.

5. **Person(s) Responsible for Preparing:** Identify the person(s) responsible for preparation of this checklist.

Ryan Holm, P.E. – Great West Engineering

6. **Other Agencies:** List any state, local, or federal agencies that have over-lapping or additional jurisdiction or environmental review responsibility for the proposed action and the permits, licenses, and other authorizations required; and list any agencies or groups that were contacted or contributed information to this Environmental Assessment (EA).

Other Agencies:

- Madison County
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- Montana Department of Environmental Quality
- Montana Department of Natural Resources and Conservation
- Montana Department of Fish, Wildlife and Parks

Contributors to EA:

- Montana Department of Transportation Historian
- Montana Department of Fish, Wildlife and Parks
- Montana Department of Environmental Quality
- Montana Department of Natural Resources and Conservation
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- State Historic Preservation Office
- Montana Natural Heritage Program
- Montana Sage Grouse Habitat Conservation Program
- Madison County Residents

\_\_\_\_\_  
Authorized Representative (Great West Engineering)  
on behalf of Madison County

\_\_\_\_\_  
Date

\_\_\_\_\_  
Madison County Commission

\_\_\_\_\_  
Date

Great West Engineering prepared this Environmental Assessment on behalf of Madison County as part of a contract to assist the County in applying for Treasure State Endowment Program grant funding for the Glem Bridge. The Madison County Commission entered into a contract with Great West Engineering to prepare the Preliminary Engineering Report and assist in the grant application at a normally scheduled County Commission meeting on January 16, 2018.