To: Distribution

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From: Tom Martin, P.E.
Environmental Services Bureau Chief

Date: February 24, 2022

Subject: MDT Wildlife Accommodation Recommendation Memo (WARM)
Taft - West
UPN 9487000; IM 90-1(227)0

This memo reflects the project-specific wildlife accommodations that are recommended by Environmental Services for further consideration by the Design Team. During preparation of the Biological Resource Report/ Preliminary Biological Assessment (BRR/PBA) for this study, an initial wildlife needs analysis, performed by Mark Traxler, Senior Biologist with HDR Engineering, identified various wildlife needs and presented general recommendations for consideration.

Proposed Scope of Work
The Montana Department of Transportation (MDT) is proposing to reconstruct Interstate 90 (I-90) to current MDT design standards and replace the existing plant mix bituminous surface with Portland Cement Concrete Pavement (PCCP). The project will also include drainage, traffic, and safety improvements. The project will investigate whether realigning the Lookout Pass Interchange ramps is feasible and will also look at the possibility of incorporating wildlife accommodations in the corridor.

Study Location and Limits
The project is in Mineral County on I-90 from the Idaho border at reference post (RP) 0.0 to the Taft Interchange at RP 5.7. The entire project is bordered by the Lolo National Forest. The project area is within Protracted Block 49 of Township 20 North, Range 32 West and Sections 2, 3, 4, 5, 11, and 12 of Township 19 North, Range 32 West, Montana Principal Meridian. Refer to Figure 1 for a map of the project area and vicinity.

Wildlife Needs Analysis Summary
Interstate 90 from Missoula to Lookout Pass at the Idaho state line has long been considered an important wildlife linkage zone for several species including grizzly bears (*Ursus arctos horribilis*) and lynx (*Lynx canadensis*). Servheen et al. conducted spatial analyses of habitat fragmentation within the I-90 corridor between St. Regis and Lookout Pass, which is an optimal linkage zone due to minimal development and vast federal land ownership and identified the general Taft-West project area as one of three important grizzly bear linkages within the corridor (Servheen 2001). Further, the Northwestern Land Office of the Montana Department of Natural Resources and Conservation (DNRC) identifies this same stretch of I-90 as a wildlife linkage zone in their 2010 Habitat Conservation Plan Final EIS (DNRC 2010). To better understand wildlife movements along the I-90 corridor and identify linkage zones, the USFWS used GPS radio collar tracking technology to track black bears captured near the interstate (Kasworm et al. 2017). Results from 2016 indicate

that several black bears were documented to have crossed I-90 in the Taft-West project area (Kasworm et al. 2017). The expected and documented use of the project area as a wildlife linkage area was also brought to MDT's attention recently through a state legislator who encouraged MDT to look for ways to reduce animal/vehicle collisions during design of the Taft-West project (Weigand pers. comm. 2020). One suggestion through this correspondence, which is discussed in greater detail below, is to utilize existing local access bridges as wildlife crossings.

The heavily traveled interstate roadway (approximate 2020 ADT of 7,500) combined with the intermittent concrete median barriers (jersey barriers) provide a formidable challenge to wildlife attempting to make north/south movements across I-90. The jersey barriers, especially the taller variety, are especially challenging for young of the year wildlife that are not large enough to jump or climb over the barriers.

The MDT animal carcass GIS database was reviewed for the 10-year period of 2010 to 2019 to identify any trends related to wildlife vehicle collisions (WVCs). Figure 2 attached to this report shows the 88 WVCs recorded within the project area over the past 10 years. The WVCs include 61 white-tailed deer (*Odocoileus virginianus*), 13 mule deer (*Odocoileus hemionus)*, five wolves (*Canis lupus*), one moose (*Alces alces*), two "other" (one beaver (*Castor canadensis*), one porcupine (*Erethizon dorsatum*), and one unknown. As seen in Figure 2, a cluster of WVCs is documented between RP 3.4 to 4.8, which is comprised of 45 carcasses over the 10-year period. This stretch of divided interstate includes a vegetated median and no median concrete barriers. During the July 2021 field investigation, a total of three deer carcasses were observed, one at RP 3.5 and two between RP 4.3 and 4.4, and a single elk (*Cervus canadensis*) carcass was observed at RP 4.75.

Montana Highway Patrol (MHP) records for the five years between 2012 and 2016 showed 104 total crashes within the project limits but MHP-documented WVCs were not specifically called out in the safety analysis other than to point out a concentration of WVCs in the vicinity of RP 4.0 where the interstate is divided.

The MDT carcass data is not considered all inclusive, as many animals struck on the roadway are thought to leave the ROW before dying in the surrounding forest or are picked up by other entities. The data does however show that over half of all records in the database over the last 10 years are from the 1.4-mile divided highway segment, which correlates well with MDT's traffic analysis. The data may suggest that animals have learned to avoid the concrete median barriers and are choosing to cross the interstate more frequently in the divided segment, which provides adequate cover in the forested median and does not include concrete barriers to cross. Additionally, and as illustrated in Figure 2, there are two large interstate bridges over local access roads near RP 1.9 and 5.2 (photos below). Both bridges are in undivided segments of the interstate and both were documented during the July 2021 field investigation as being used by local wildlife to cross under the interstate. Game trails and deer tracks were observed under both bridges during the field survey. Both bridges are likely serving to help reduce the overall fragmentation effect of the interstate in these road segments.

During the field survey, no wildlife crossing signs were observed that would serve to warn the traveling public of the risk of encountering wildlife on the roadway. Considering the number of downed or damaged roadway signs found in the roadside ditches during the field survey, it is possible that wildlife crossings signs have been used in the corridor but are no longer standing due to the harsh weather conditions and related snowplow activity on the pass.

Local Access Bridge @ RP 1.9

Local Access Bridge @ RP 5.2

Wildlife Needs Verification and Supporting Documentation

The following provides a summary of additional work and revisions completed following the submittal of the BRR/PBA.

Following submittal of the BRR/PBA, HDR developed a preliminary wildlife accommodation map set of the project corridor (Figures 3 through 8). The map set shows the various accommodations discussed below and includes the proposed limits of wildlife guide fence and jumpouts associated with the existing bridges at RP 1.9 and 5.2 as well as proposed locations for wildlife crossing signs in the corridor. The maps are intended to be preliminary with potential changes to include additional accommodations as they are identified through further investigation and discussions with resource agencies. A final wildlife accommodations map set will be presented in the final Wildlife Accommodation Decision Report (WADR) document when it is developed.

Wildlife Accommodation Recommendation #1: Wildlife Guide Fence

1. *Discuss the accommodation type(s) and focal species. Include rationale for the location and type (safety and/or connectivity data, agency coordination, public input, literature review, environmental commitments, logistics, opportunity, etc.). Discuss expected benefits of the wildlife accommodation to public safety and/or wildlife connectivity.*

Accommodation Type: Wildlife fence to guide animals to existing under crossings.
Focal Species: Mule deer, White-tailed deer, Elk, Moose, Black Bear, Grizzly Bear; other wildlife.
Location: Approximately one-half mile each side of existing bridges at RP 1.9 and 5.2.
Rationale/Expected Benefits: As discussed above, I-90 in the project area is considered a critical wildlife linkage zone for a number of wildlife species including grizzly bears. I-90 likely serves as a partial barrier to north/south wildlife movements and WVCs are common in the corridor. Researchers at the University of Montana studied wildlife use of the two existing bridges within the project limits between October 2007 and December 31, 2011 (Servheen & Shoemaker 2011). Results of this study documented eight different wildlife species using these bridges to pass under I-90 with white-tailed deer and mule deer being the most common species. These bridges will remain in place following construction and will continue to serve as wildlife crossings for those individual animals that choose to utilize them. The introduction of wildlife fence will

encourage more wildlife to utilize these structures to pass under the interstate highway, with the goal of reducing WVCs in the corridor and providing safe passage for a variety of species. Without fence, some wildlife will continue to use the structures, but many will not and WVCs will likely remain at current levels following construction. The existing highway corridor is currently unfenced and coordination with the U.S. Forest Service (USFS) will be important moving forward as discussed below.

2. *Discuss current adjacent land use and any documented future land use changes (platted for subdivision, etc.). Document any previous landowner and/or land management agency coordination or if additional coordination is needed, existing or potential easements or protections, etc.*

Adjacent land north and south of the highway is relatively steep coniferous forest habitat under the management of the USFS. Public recreational access to USFS lands is provided via forest roads and interstate frontage roads that parallel and in two locations cross under the interstate. There are no known proposed changes to ownership or management of Forest Service lands in the project area. Adjacent forested habitat will remain in public ownership and managed for recreational uses, wildlife habitat, and timber harvest for the foreseeable future.

As a majority of the existing interstate corridor is unfenced, coordination with the USFS will be required for the installation of wildlife guide fence being proposed under this accommodation. Aesthetics is a common concern regarding tall wildlife guide fence in an otherwise pristine national forest setting.

3. *Provide a cost estimate for the wildlife accommodation including capital investment, operation and maintenance. Coordination with the Design Team is encouraged at this stage to estimate wildlife accommodation costs. A range of costs may be appropriate if an accommodation can be constructed using different materials or methods. Identify operation and maintenance needs and anticipated schedule for the accommodation.*

Wildlife Fence (from MDT's AASHTOWARE Bid Item History)
Cost Estimate: A majority of the existing I-90 corridor in the project area is unfenced and would remain that way if not for the recommendation that wildlife guide fence be installed to guide wildlife to the existing bridge structures. All material costs associated with the wildlife guide fence would be an increase to the total project cost. As per AASHTOWARE figures, the cost for wildlife fence is approximately $9.50/ft with approximately 18,500 feet of fence required for this project. Total cost for fence would be around $175,750 with the cost of eight wildlife jumpouts being an additional $108,000. With miscellaneous associated costs, the total cost to implement the suggested wildlife fence is approximately $300,000.

4. *Discuss the need for further coordination with Resource and/or Tribal agencies, or manufacturers/vendors of wildlife accommodation technology. Identify if additional research is needed prior to issuance of the Wildlife Accommodation Decision Report (WADR).*

MDT has standard design details available (Section 607) for wildlife guide fence and no additional research is warranted. Further coordination with the USFS will be necessary to receive support and approval from that land management agency. Wildlife fence presents challenges with regard to installation and maintenance that would need to be discussed with MDT maintenance crews. Lookout Pass receives extensive snow during the winter and plowing operations may affect the long-term integrity of the wildlife fence.

Wildlife Accommodation Recommendation #2: Wildlife Crossing Signs

1. *Discuss the accommodation type(s) and focal species. Include rationale for the location and type (safety and/or connectivity data, agency coordination, public input, literature review, environmental commitments, logistics, opportunity, etc.). Discuss expected benefits of the wildlife accommodation to public safety and/or wildlife connectivity.*

Accommodation Type: Wildlife crossing signs.
Focal Species: Mule deer, White-tailed deer, Elk, Moose, Black Bear, Grizzly Bear; other wildlife.
Location: Both ends of the divided interstate section between RP 3.3 and 5.1.
Rationale/Expected Benefits: As discussed above, I-90 in the project area does not currently have wildlife crossing signs of any kind despite the moderate to high number of WVCs within project limits. The divided section of interstate between RP 3.3 and 5.1 is considered a hotspot for WVCs as compared to the rest of the project corridor, with a cluster of collisions identified near RP 4.0. Unlike the rest of the project corridor, the divided highway segment does not have concrete median barrier and wildlife likely choose to move across the interstate in this segment to avoid median barriers to the east and west. Wildlife crossing signs, especially those with flashing yellow lights, have the potential to influence driver awareness of the potential hazard in this divided interstate section, potentially reducing the number of WVCs occurring in this section. The potential benefits would be both to local wildlife and increased safety to the traveling public. Under this proposal, a single wildlife crossing sign with yellow flashing lights would be installed for eastbound traffic near RP 3.3 and for westbound traffic near RP 5.1. To avoid potential dilution of driver awareness, no other wildlife crossing signs are proposed in the corridor.

2. *Discuss current adjacent land use and any documented future land use changes (platted for subdivision, etc.). Document any previous landowner and/or land management agency coordination or if additional coordination is needed, existing or potential easements or protections, etc.*

Adjacent land north and south of the highway is relatively steep coniferous forest habitat under the management of the USFS. Public recreational access to USFS lands is provided via forest roads and interstate frontage roads that parallel and in two locations cross under the interstate. There are no known proposed changes to ownership or management of Forest Service lands in the project area. Adjacent forested habitat will remain in public ownership and managed for recreational uses, wildlife habitat, and timber harvest for the foreseeable future.

Coordination with local biologists from the USFS and Montana Fish, Wildlife & Parks (FWP) as well as coordination with MDT maintenance staff would be required to dial in the best specific location for the proposed signs on both ends of the divided corridor. Power supply for flashing yellow lights would be a critical design and maintenance consideration moving forward with solar power being the anticipated power source.

3. *Provide a cost estimate for the wildlife accommodation including capital investment, operation and maintenance. Coordination with the Design Team is encouraged at this stage to estimate wildlife accommodation costs. A range of costs may be appropriate if an accommodation can be constructed using different materials or methods. Identify operation and maintenance needs and anticipated schedule for the accommodation.*

Cost Estimate: As per AASHTOWARE figures, the cost for solar powered wildlife crossing signs with flashing yellow lights is approximately $5,428 per sign. With two signs of this type being needed for the project, total

cost for signs would be around $10,856. In comparison, standard wildlife crossing signs without solar powered flashing lights would cost $500 per sign, or $1,000 for two.

4. *Discuss the need for further coordination with Resource and/or Tribal agencies, or manufacturers/vendors of wildlife accommodation technology. Identify if additional research is needed prior to issuance of the Wildlife Accommodation Decision Report (WADR).*

MDT has standard design details available (Section 619) for wildlife crossing signs and no additional research is warranted. Signing of all types presents maintenance challenges that would need to be discussed with MDT maintenance crews. Lookout Pass receives extensive snow during the winter and plowing operations may affect the long-term integrity and maintenance of the wildlife signs and solar power supply.

Wildlife Accommodation Recommendation #3: Upsized Culverts

1. *Discuss the accommodation type(s) and focal species. Include rationale for the location and type (safety and/or connectivity data, agency coordination, public input, literature review, environmental commitments, logistics, opportunity, etc.). Discuss expected benefits of the wildlife accommodation to public safety and/or wildlife connectivity.*

Accommodation Type: Increase size of select drainage culverts to accommodate wildlife movement.
Focal Species: Mule deer, White-tailed deer, black bears, other small wildlife.
Location: Various over length of project.
Rationale/Expected Benefits: The project corridor contains numerous cross drains and drainage culverts of various size (24" to 48") that will be replaced or rehabilitated in place as part of the proposed project. An opportunity may exist to increase the size of one or more of these culverts within the project limits to accommodate the movement of wildlife up to the size of an adult deer (84" to 108"). One or more large culverts would serve to pass deer, black bears, and other small-to-medium sized wildlife in segments of the highway not included in the fenced segments discussed previously. Guide fencing would not be included in the design but rather it would be up to local wildlife to selectively utilize these culverts if they so choose. The primary benefit is the safe passage of wildlife across the interstate corridor while minimizing WVCs in these locations.

A number of challenges have been identified that greatly limits the number and location of individual crossings where this accommodation could be utilized. These challenges include:

- Culverts that occur in deep fill sections of roadway (>10 feet depth) are scheduled to be rehabilitated in place rather than replaced in order to minimize cost and constructability issues.
- Many culverts within the project limits are on steep grades (>5%) which might be difficult for local wildlife to negotiate inside the culvert.
- Some culverts occur in shallow fill sections where installation of a culvert size large enough for deer-sized wildlife to utilize is not feasible.
- Extreme culvert lengths in various sections might be prohibitive to wildlife movements.

Opportunities for this accommodation are severely limited by the constructability challenges discussed above and may prove insurmountable across the entire project. The expected benefits to wildlife and driver safety may be worth the continued effort to find opportunities in the corridor and continued discussions with the design team are warranted. MDT has been approached by the USFS about the possibility of replacing one or both of

the St. Regis River crossing culverts located within project limits (RP 1.75 and 3.0) both as a means to improve hydraulic conveyance and potentially to serve as wildlife crossings as well. While MDT understands the potential benefits to both aquatic and terrestrial resources, replacement of these culverts is not feasible under the current scope of the project because of the extreme fill depth over the top of these culverts and challenges associated with culvert replacement. MDT will continue to look for opportunities and potential private/public funding partnerships to replace these culverts in the future for the benefit of aquatic and terrestrial resources.

2. *Discuss current adjacent land use and any documented future land use changes (platted for subdivision, etc.). Document any previous landowner and/or land management agency coordination or if additional coordination is needed, existing or potential easements or protections, etc.*

Adjacent land north and south of the highway is relatively steep coniferous forest habitat under the management of the USFS. Public recreational access to USFS lands is provided via forest roads and interstate frontage roads that parallel and in two locations cross under the interstate. There are no known proposed changes to ownership or management of Forest Service lands in the project area. Adjacent forested habitat will remain in public ownership and managed for recreational uses, wildlife habitat, and timber harvest for the foreseeable future.

3. *Provide a cost estimate for the wildlife accommodation including capital investment, operation and maintenance. Coordination with the Design Team is encouraged at this stage to estimate wildlife accommodation costs. A range of costs may be appropriate if an accommodation can be constructed using different materials or methods. Identify operation and maintenance needs and anticipated schedule for the accommodation.*

Cost Estimate: All culverts in the project area are scheduled for replacement or rehabilitation with culverts in deeper fill sections falling under the rehabilitation category for constructability reasons. Corrugated metal pipe (CMP) is being proposed throughout the project wherever culverts are being replaced. If one or more locations is identified for upsizing to a culvert large enough for deer to utilize, the added cost would depend on the chosen diameter of the pipe and its length. As no specific culverts have been identified at this time, it is difficult to approximate the increased cost; however, for example, material costs for a 24-inch x 100-foot CMP would be approximately $8,500 as compared to a 108-inch x 100-foot CMP that costs $49,500. In this example, the larger culvert is roughly six times the cost of the smaller diameter culvert. There are no anticipated annual maintenance costs associated with most culverts and increasing the size of one or more culverts to pass wildlife would not change that dynamic. No wildlife guide fence is proposed at upsized culvert locations should one or more be implemented; however, the culvert at RP 1.75 is within the wildlife fencing segment associated with the existing bridge at RP 1.9 proposed in Recommendation #1.

4. *Discuss the need for further coordination with Resource and/or Tribal agencies, or manufacturers/vendors of wildlife accommodation technology. Identify if additional research is needed prior to issuance of the Wildlife Accommodation Decision Report (WADR).*

MDT has standard design details available (Section 603) for all culvert types and sizes and no additional research is warranted. Further coordination with the USFS and FWP is encouraged and will help determine the level of support from the agencies for this type of accommodation. Additional design team coordination is necessary to identify specific locations where this accommodation is feasible. If no locations are identified, the accommodation will be dropped from consideration in the WADR.

Copies:

Distribution (without attachments):

Distribution (electronic only)

cc:

REFERENCES

DNRC (Montana Department of Natural Resources and Conservation). 2010. Montana Department of Natural Resources and Conservation Forested State Trust Lands. Habitat Conservation Plan Final EIS. Volume III Appendices D through G. September 2010.

HDR Engineering. 2021. Biological Resources Report/Preliminary Biological Assessment. Taft - West. STPX 84-1(17)5, UPN 9567000. November 5, 2021.

Kasworm, W. F., T. G. Radandt, J. E. Teisberg, T. Vent, A. Welander, M. Proctor, and H. Cooley. 2017. Cabinet-Yaak grizzly bear recovery area 2016 research and monitoring progress report. U.S. Fish and Wildlife Service, Missoula, Montana. 101 pp.

Servheen C., Waller J. S. and Sandstrom P. 2001. Identification and management of linkage zones for grizzly bears between the large blocks of public land in the Northern Rocky Mountains. IN: Proceedings of the 2001 International Conference on Ecology and Transportation, Eds. Irwin CL, Garrett P, McDermott KP. Center for Transportation and the Environment, North Carolina State University, Raleigh, NC: pp. 161-179.

Servheen C. and Shoemaker R. 2011. Factors affecting wildlife use of bridges along I-90 near Lookout Pass – Year 4 Report. University of Montana, College of Forestry and Conservation, Missoula, MT. 13pp.

Weigand, J. 2020. Verbal communication between Joe Weigand, MDT Missoula District Biologist, and Mark Traxler, Senior Scientist, HDR Engineering, Helena, MT. September 3, 2020.

ATTACHMENT A: MAPS

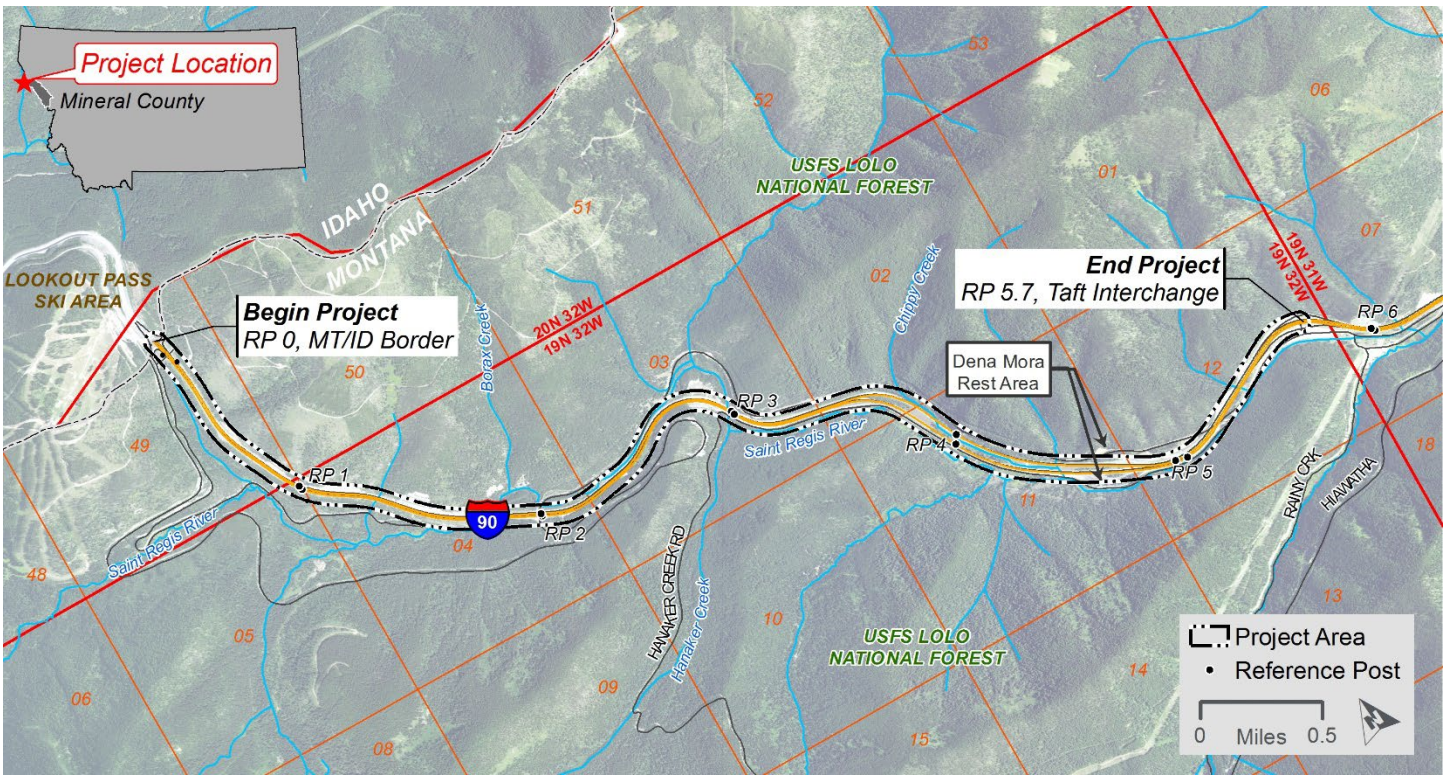

Figure 1: Project Area and Vicinity

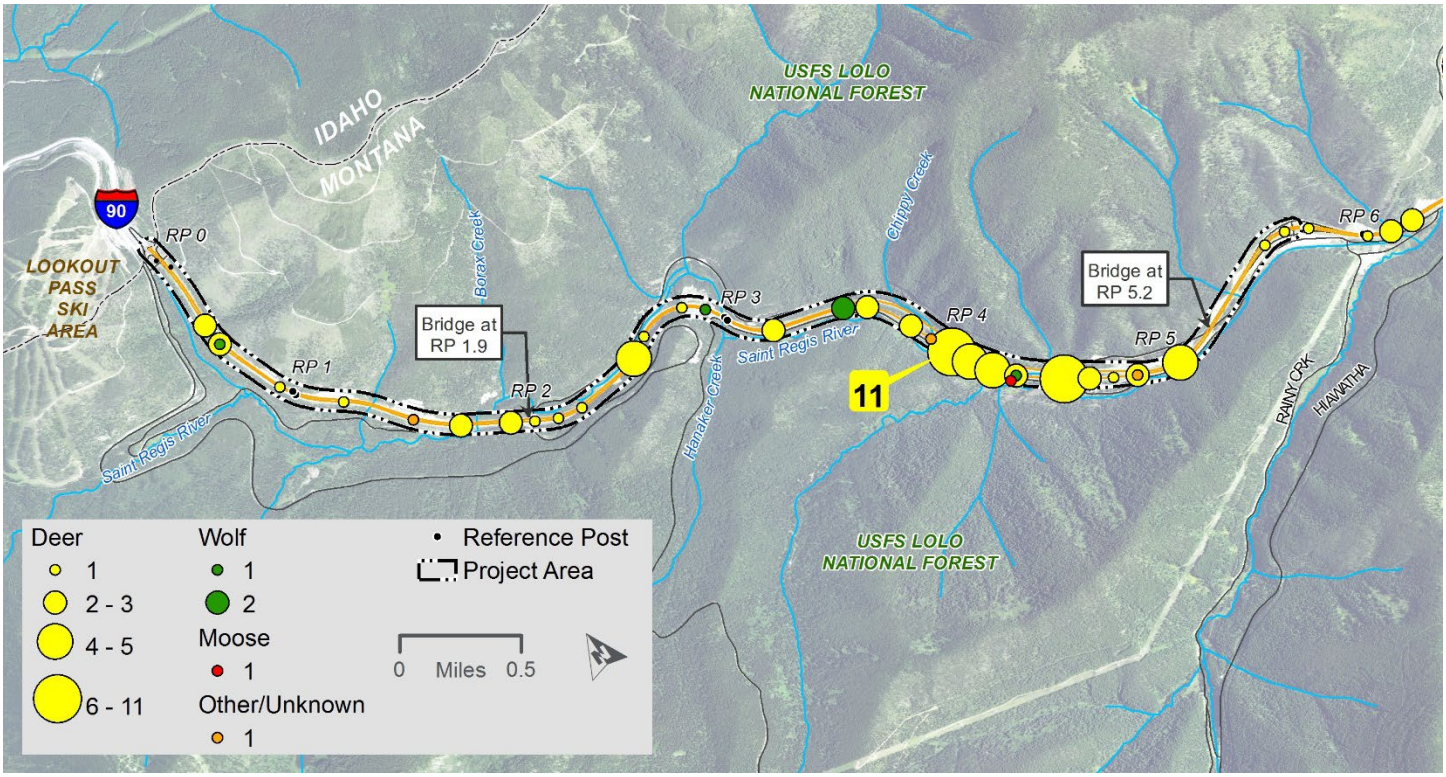

Figure 2. MDT Carcass Removal Data (2010 - 2019) for the Project Area

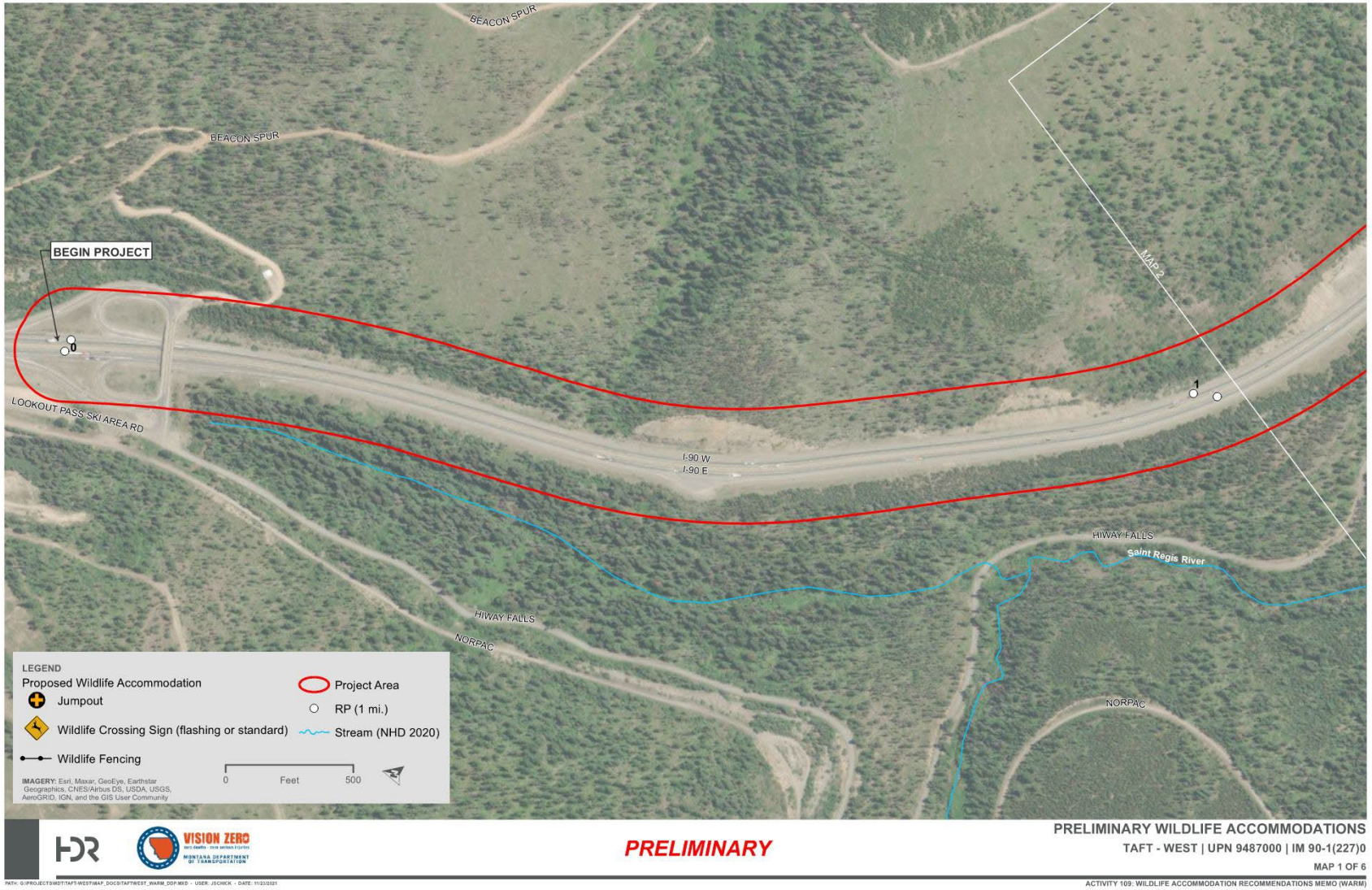

Figure 3: Proposed Wildlife Accommodations (1 of 6)

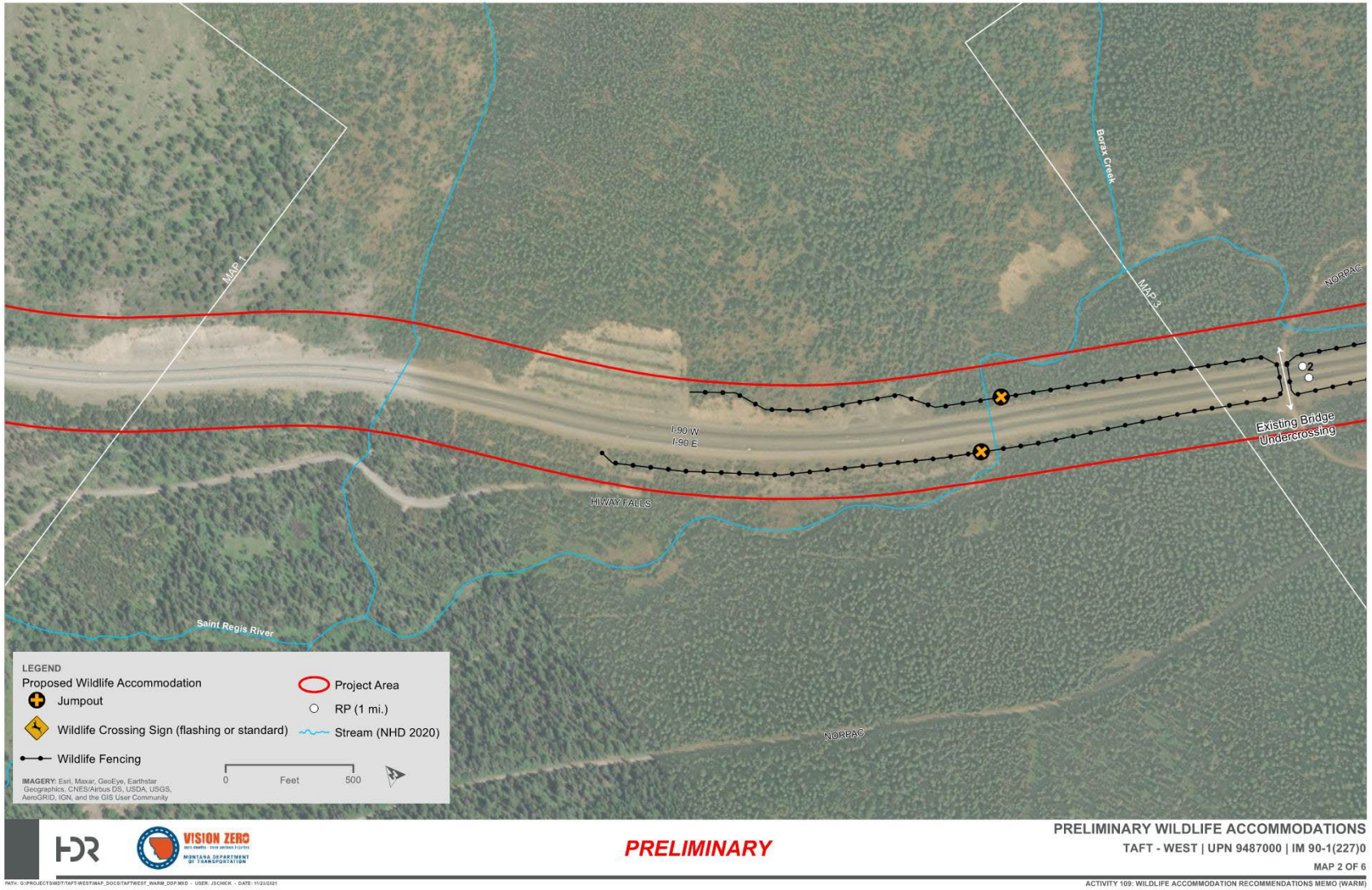

Figure 4: Proposed Wildlife Accommodations (2 of 6)

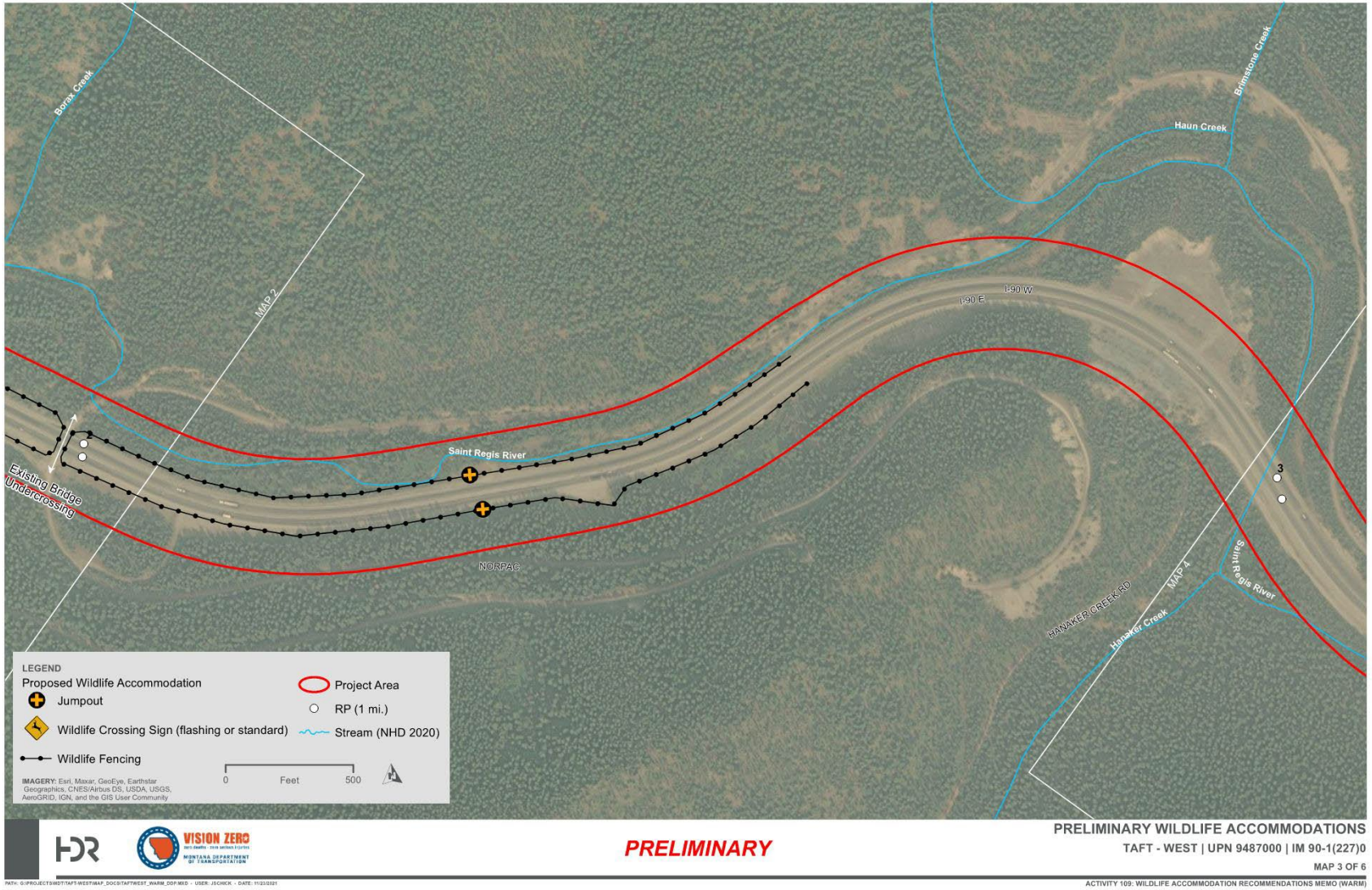

Figure 5: Proposed Wildlife Accommodations (3 of 6)

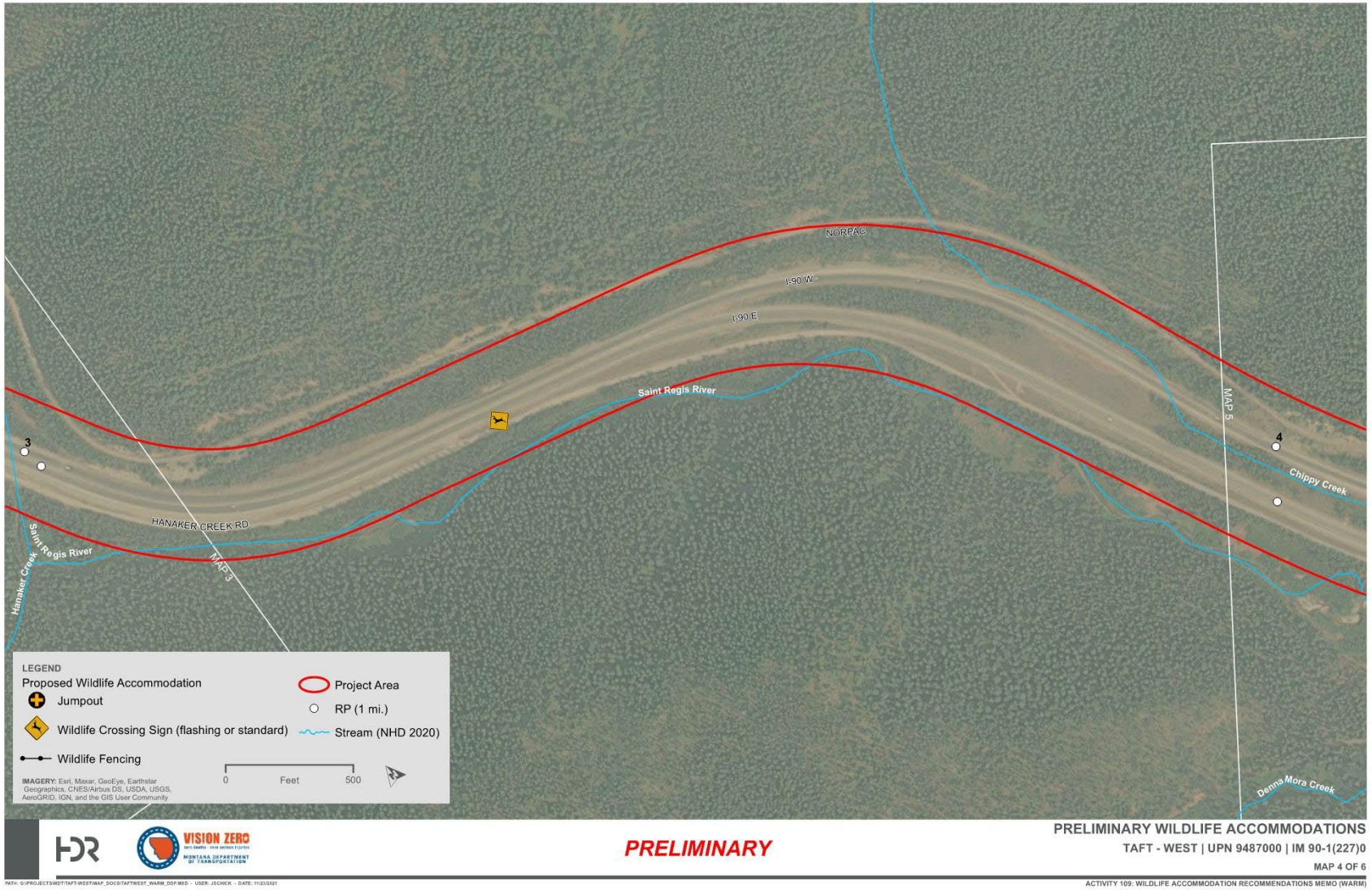

Figure 6: Proposed Wildlife Accommodations (4 of 6)

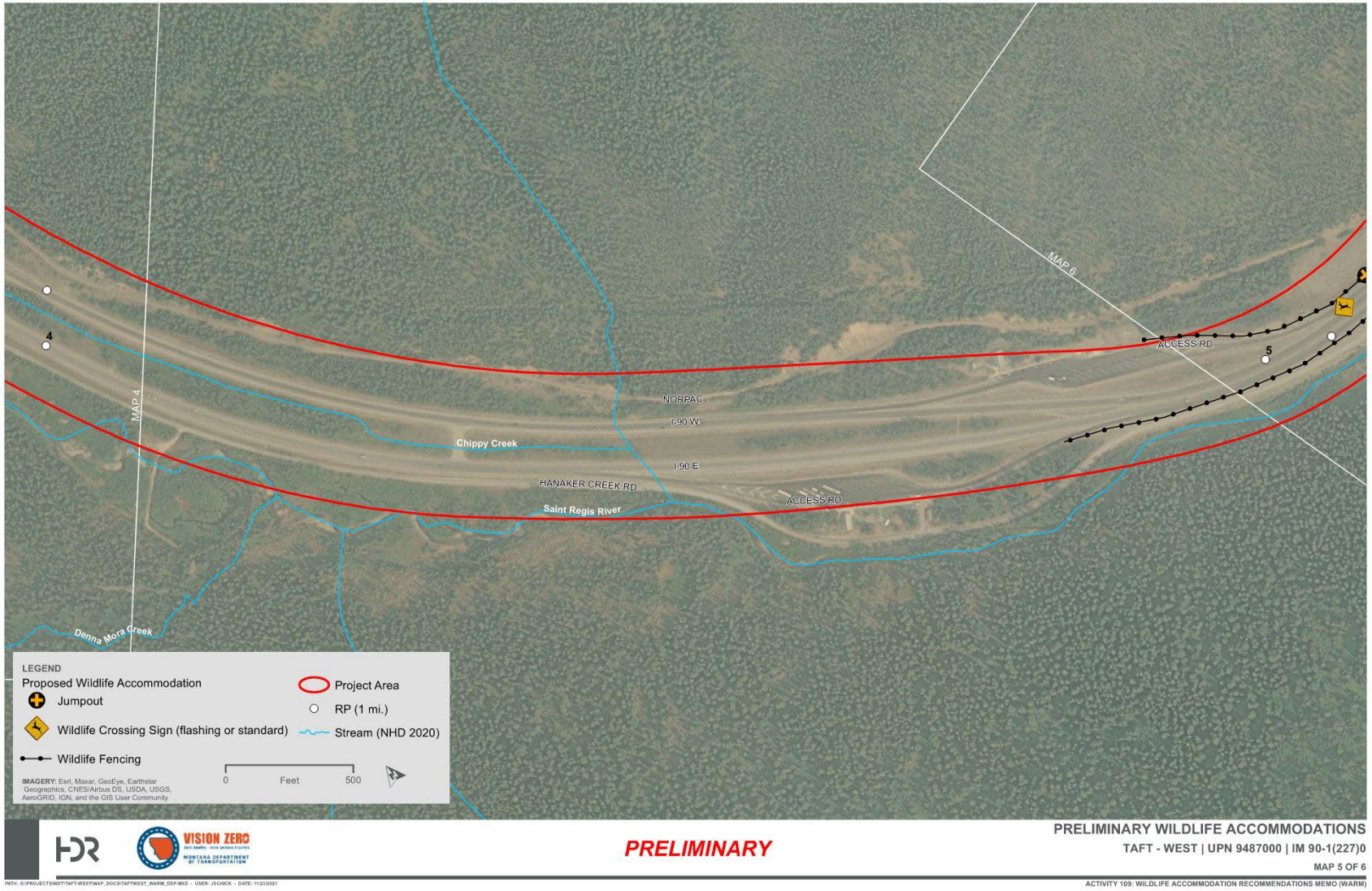

Figure 7: Proposed Wildlife Accommodations (5 of 6)

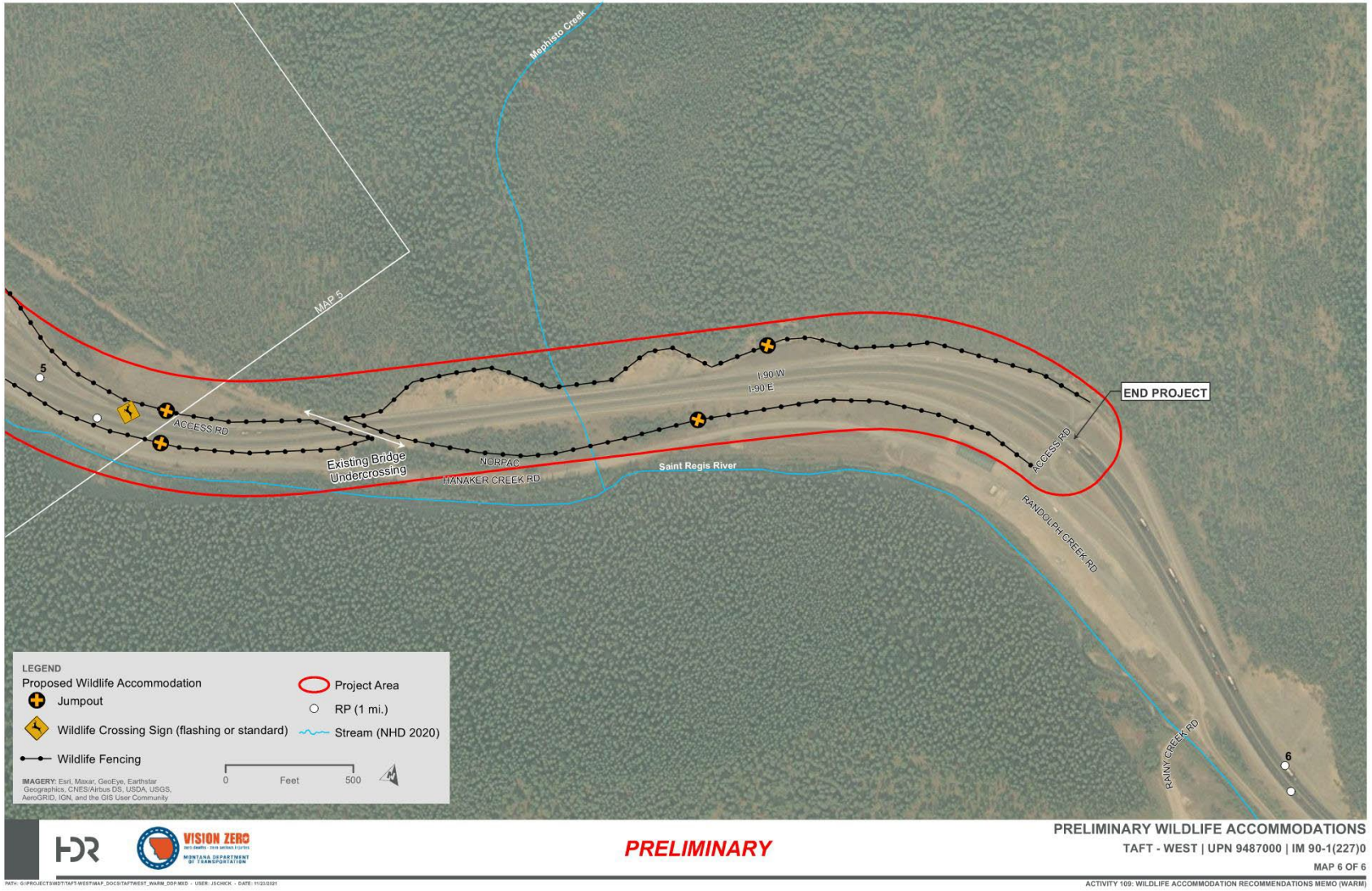

Figure 8: Proposed Wildlife Accommodations (6 of 6)