Missouri statewide wildlife vehicle collision (WVC) reduction analysis and hotspot mitigation measure feasibility study project proposal narrative

Application for Federal Highway Administration Fiscal Years (FY) 2022-2023 Wildlife Crossings Pilot Program (WCPP)

Missouri Department of Transportation

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List of Acronyms

BIL	Bipartisan Infrastructure Law
BUILD	Better Utilizing Investments to Leverage Development
CDOT	Colorado Department of Transportation
CFM	Conservation Federation of Missouri
CHBP	Competitive Highway Bridge Program
DVC	deer-vehicle collisions
EDH	Elevation-Derived Hydrography
FHWA	Federal Highway Administration
FY	Fiscal Years
HSIP	Highway Safety Improvement Program
INFRA	Infrastructure For Rebuilding America
IPaC	Information and Conservation Planning
LLF	Land Learning Foundation
MCHF	Missouri Conservation Heritage Foundation
MDC	Missouri Department of Conservation
MoDOT	Missouri Department of Transportation
MSHP	Missouri State Highway Patrol
MSP	Missouri State Parks
NGO	non-governmental organization
NOFO	Notice of Funding Opportunity
PCE	Programmatic Categorical Exclusion
RES	Request for Environmental Services
RFP	Request for Proposals
ROaDS	Roadkill Observation and Data System
SAFER	Safety Assessment for Every Roadway
SOCC	Missouri Species of Conservation Concern Checklist
STIP	Statewide Transportation Improvement Program
TAC	technical advisory committee
TIGER	Transportation Investment Generating Economic Recovery
USFWS	US Fish and Wildlife Service
VMT	vehicle miles traveled
WCPP	Wildlife Crossings Pilot Program
WVCs	Wildlife-Vehicle Collisions

1.0 Basic Project Information - Description, Location, and Parties

Introduction

The Federal Highway Administration (FHWA) posted a Notice of Funding Opportunity (NOFO) for the Fiscal Years (FY) 2022-2023 Wildlife Crossings Pilot Program (WCPP) on April 4, 2023.[1] The WCPP enables eligible entities to apply for federal funding enacted under the Bipartisan Infrastructure Law (BIL)[2], which authorizes $350 million in wildlife crossing project funding from Federal Fiscal Year 2022-2026. The objective of the WCPP is to reduce Wildlife-Vehicle Collisions (WVCs) while improving habitat connections for terrestrial and aquatic communities.

The Missouri Department of Transportation (MoDOT) in cooperation with the Missouri Department of Conservation (MDC) and Land Learning Foundation (LLF) with support from state and federal natural resources management agencies, non-governmental organizations (NGOs), and interested partners, are proposing to apply for $400,000 in WCPP grant funding. Funding obtained through this program will be used to conduct a one-year statewide WVC reduction analysis and hotspot mitigation measure feasibility study. The overall goal of the study is to conduct a statewide multi-species analysis to develop, refine, prioritize and develop recommendations to address WVC hotspots in Missouri. If successful in obtaining federal grant funding, results obtained will be used to develop, design, permit, and construct WVC mitigation projects in Missouri with the overall project goal of reducing WVCs statewide while promoting roadway safety and improving habitat connectivity.

1.1 Project Description

As stated above, the proposed study is a WVC reduction analysis and hotspot mitigation measure prioritization and feasibility study. The proposed project is a two phase study. Phase one will consist of a statewide analysis of all available data sources to develop WVC hotspots mapping. Similar studies have been conducted by DOTs such as Colorado Department of Transportation (CDOT) with the 2019 Western Slope Wildlife Prioritization Study[3] and later the 2022 Eastern Slope and Plains Wildlife Prioritization Study Report[4]. The Missouri WVC hotspot analysis will follow these models for ranking and prioritization using templates and scoring systems like that of CDOT.

Results from this Phase one analysis will be used for ranking of WVC hotspots identified based on highest number of WVC per lane mile. Phase 2 of the study will require field verification in the form of roadkill surveys, site specific data collection and prioritization of specified number of identified high priority areas. Phase two field investigations will assist development of site-specific recommendations of WVC mitigation methods for each location. Like the 2018 Teton County Wildlife Crossings Master Plan, priorities will be given to areas with high land security, political viability, key partner support, technical feasibility, viable long-term solutions, high positive human safety and wildlife mortality impacts, and positive habitat connectivity impacts[5]. Information and deliverables obtained from ranking and feasibility study will be used to develop, design, permit, and construct wildlife WVC mitigation projects aimed at reducing WVCs statewide while promoting roadway safety and improving habitat connectivity.

To date, there have been no uniform statewide WVC analysis, prioritization and feasibility studies to address the WVCs issues in Missouri. In March of 2022, MoDOT Design Environmental obtained Missouri State Highway Patrol (MSHP) data from Highway Safety and Traffic. Together with GIS staff, MoDOT conducted a preliminary hotspot analysis of WVCs in Missouri. Concurrently, MoDOT utilized the UC Davis wildlife crossing calculator to conduct a hotspot analysis. While the analysis was beneficial in locating preliminary information on WVC hotspot locations, decisions on locations to address and measures to use need to be based on a rigorous, methodological approach to ensure effective reduction in WVC. Because of widespread hotspots, needs for data and analysis refinements, and lack of current Missouri uniform ranking criteria, MoDOT is proposing to conduct further analysis of available data to effectively identify and address high WVC conflict areas. If successful the MoDOT study will pave the way for future wildlife crossing work in the state and further the FHWA Mission[6]: to deliver a world-class system that advances safe, efficient, equitable, and sustainable mobility choices for all while strengthening the Nation's economy.

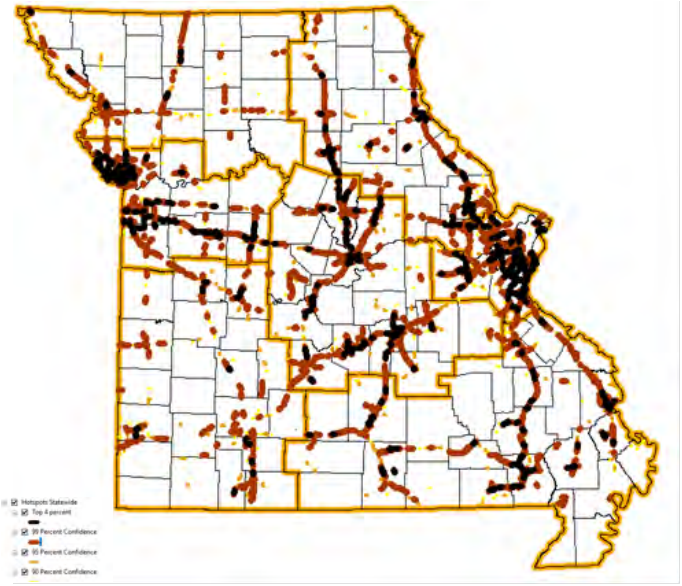

Figure 1: Preliminary Missouri Hotspot Analysis with MSHP Crash Data (2012-2021)

1.1.1 Safety

As a state agency, MoDOT is tasked with wisely stewarding state resources while providing "a world-class transportation system that is safe, innovative, reliable and dedicated to a prosperous Missouri"[7]. Safety is a top value and priority for MoDOT[8]. Missouri currently ranks 11th in the nation for highway conditions and cost-effectiveness[9], falling from 3rd in 2021. MoDOT ranks 25th in overall fatality rate[10], with 1.27 fatalities per one million vehicle miles traveled (VMT). In 2022 there were a total of 1,057 traffic fatalities in Missouri, with the highest number of fatalities occurring Kansas City and St. Louis. To address these issues, MoDOT is a leader in the Missouri Coalition for Roadway Safety[11], an alliance of safety advocates tasked with implementing strategies identified in the state's strategic highway safety plan, Show Me Zero[12]. This includes innovative and effective safety campaigns such as Buckle Up Phone Down[13] as well as infrastructure improvements through the Highway Safety Improvement Program (HSIP). The

proposed project will further reduce serious injuries and fatalities as will be later discussed in section 3.1.1 and 5.1 of this narrative.

In addition to the above mentioned safety initiatives, the proposed WVC analysis and prioritization study will align with the FHWA and MoDOT's Safe System Approach[66] and SAFER tool[67]. The SAFER tool (Safety Assessment for Every Roadway) is an innovative approach to addressing safety system-wide by incorporating safety consideration into every MoDOT project, regardless of the project's original purpose and need. SAFER is built upon the SSA approach which considers is based on six principals to ensure system-wide safety: deaths and serious injuries are unacceptable, humans make mistakes, humans are vulnerable, responsibility is shared, safety is proactive, and redundancy is crucial. Below the base principals are five critical elements of SSA: safe road users, safe vehicles, safe speeds, safe roads, and post-crash care. The SSA SAFER tool uses thought provoking questions base on project type to facilitate safety discussions beyond standard project crash history analysis. The proposed project will incorporate the SSA and SAFER approach as project areas are identified and funding obtained for future WVC mitigation project construction. Results from the proposed WCPP statewide analysis and prioritization study can also be incorporated into the SAFER tool to further facilitate MoDOT SSA discussions.

Projects that are constructed because of information obtained through the proposed WCPP statewide analysis and prioritization study ensures that MoDOT employees remain safe. MoDOT Maintenance forces are often tasked with removing hazardous roadkill from the highway system and in the process, put themselves in danger of being stuck by highway traffic. Reductions in WVCs will have a direct effect on amount of carcass removal activities MoDOT Maintenance conduct annually.

1.1.2 WVC History

According to a 2008 WVC reduction study and report to Congress, it is estimated that there are over one million WVCs per year, resulting in over $8 billion in economic costs nationally[14]. More recent estimates in a 2022 pooled fund study have shown that estimates could be up to 2 million WVC annually, with $12 billion in cost[15]. These WVC incidents result in thousands of injuries and hundreds of fatalities per year.

Based on MSHP data from 2012-2021, there were nearly 35,000 reported WVCs per year in Missouri on MoDOT owned and maintained routes alone. This number is increased to 40,184 when local, county and non-state routes data are included. The total number incidents on all Missouri roadways over the 10-year period of evaluation within the FHWA KABCO[16] crash severity rating are as follows: K – Fatal (47), A – Disabling Injury/Suspected Serious Injury (348), B – Minor/Evident Injury (3,060*), and O – Property Damage Only (36,729). Based on the federal values assigned to each KABCO rating[17], Missouri incurs on average a cost of $159 million per year (Figure 1), which is consistent with national estimates.

Table 1: Missouri Crash Cost Based on National and Missouri Adjusted Rate

Severity	National Cost	Missouri Adjusted (0.88203)	Number of WVC (10 years)	National Rate Cost	Missouri Adjusted (0.88203)
K	$11,295,400	$9,962,881.66	47	$530,883,800	$468,255,438.11
A	$655,000	$577,729.65	348	$227,940,000	$201,049,918.20
B	$198,500	$175,082.96	3,060	$607,410,000	$535,753,842.30
C*	$125,600	$110,782.97	0	$0	$0.00
O	$11,900	$10,496.16	36,729	$437,075,100	$385,513,350.45
Total	N/a	N/a	40184.00	$1,803,308,900.00	$1,590,572,549.07
*** in Missouri, Suspected Minor Injury (B) and Possible Injury (C), combined into Minor**					

1.1.3 Previous WVC Mitigation Efforts

MoDOT has three previous examples of implemented mitigation efforts to reduce WVC in respect to project specific focal species. The first is a one-mile section of exclusionary fencing constructed in the 1990s along the east side of MO Route 27 to exclude known populations of state endangered Blanding's turtle (*Emydoidea blandingii*) and Illinois mud turtle (*Kinosternon flavescens spooneri*) from crossing the roadway, thus limiting road mortality threats to these species (See Appendix A: Turtle Crossing). Project cost was estimated to be less than $200,000. The project was successfully installed, but no monitoring efforts have been undertaken to determine project effectiveness.

The next example are black bear crossings or "ballooning" areas installed in SE Missouri along US Route 60 from east of Winona, MO to just east of Elsinore, MO south of Peck Ranch Conservation Area. These areas were installed in the early 2000s and cost approximately $824,000 when US 60 was widened (See Appendix B: Bear Crossing). The widened areas are to allow an interstitial area between eastbound and westbound travel lanes limiting the bear exposure to traffic at one time. No monitoring efforts have taken place for these features.

The final project is a Wildlife median barrier project in McDonald County, Missouri. These modified jersey barriers were installed on five miles of newly constructed I-49 corridor. Sections of small 15" x 7.5" openings were incorporated into the base of the barrier to create an opening where one would not exist otherwise. MoDOT identified 13 sections of transitions between cut and fill section. At each location five WMBs were added, totaling 65 modified barriers (See Appendix C: Wildlife Median Barrier). Total installation cost was $1,950. MoDOT is currently using a contractor to study the effeteness of the modified jersey barrier through the MoDOT Construction and Materials Research section[18]. The study is utilizing camera traps, track plates, roadkill, and cover board surveys to identify species in the project area as well as species which utilize the barrier openings. The initial proposal amount was $200,000. A final report is expected November 1, 2024.

1.1.4 Project Conservation Context

In the broader conservation context, the WVC analysis and prioritization study is expected to have far reaching implications across a broad array of species in Missouri. Despite the vast

majority of collected data (96%) being deer-vehicle collisions, there are substantial amounts of underutilized data available to inform WVC hotspots and potential mitigation efforts. Data from MDC Natural Heritage database shows records related to road mortality for 11 species. There are 67 terrestrial and 65 aquatic fish species in the Missouri Species of Conservation Concern Checklist (SOCC)[58] that may benefit from the project. US Fish and Wildlife Service (USFWS) Information and Conservation Planning (IPaC)[19] tool identified 42 federally listed, proposed, or candidate plants and animal species within the state of Missouri (See Appendix D: IPAC Report). Of these 42 species, five are expected to benefit from implementation of WVC mitigation measures at locations identified by the proposed analysis project. USFWS species status assessment lists roadway mortality as a threat for two species. Additionally, personal communication with USFWS resources staff indicates roads as a threat for two species under review for listing. Roadway aquatic organism passage is listed as a threat to two fish species. Mammal seed dispersal is likely the means required for the federal protected pondberry (*Lindera melissifolia*) shrub. Finally, iNaturalist Global Roadkill[20] dataset curated by UC Davis shows 298 records for 50 terrestrial species within the state of Missouri. It is expected that work related to reduction of WVCs and habitat connectivity in the state of Missouri will facilitate positive impacts for the species that are threatened by roadway mortality.

Table 2: Species to benefit from the proposed WVC analysis and prioritization study

Road Mortality Threat or Documented		
Federally protected or under listing review	**MDC Heritage Data showing "Roadkill"**	**MO Species of Conservation Concern**
Alligator Snapping turtle	American Badger	American Badger
Indiana Bat	Bald Eagle	Eastern Massasauga Rattlesnake
Blanding's turtle	Black-tailed Jackrabbit	Kirtland's Snake
Western chicken turtle	Franklin's Ground Squirrel	Northern Leopard Frog
Aquatic Organism Passage Issues	Great Plains Toad	Eastern Tiger Salamander
	Indiana Myotis	13-Lined Ground Squirrel
Niangua Darter	Least Weasel	**MDC Focal Species**
Topeka Shiner	Long-tailed Weasel	
T&E Plants Dispersed by Mammals	Plains Spotted Skunk	Whitetailed Deer
	Western Foxsnake	American Blackbear
Pondberry	Western Mudsnake	Elk

According to SOCC checklist[58], using habitat types listed in The Terrestrial Natural Communities of Missouri[21], there are 86 documented habitat types in Missouri that are tracked for inventory, distribution trends, and protections to help meet land management and protection goals in Missouri. Due to the widespread nature of Missouri roadways, there are likely cases where state or local roads cross these habitat types. Consideration of these communities throughout the proposed WVC reduction analysis and hotspot mitigation measure prioritization and feasibility study will ensure alignment with current conservation plans listed below.

In Missouri, MDC has developed conservation plans aimed at fulfilling the agency mission: To protect and manage the fish, forest, and wildlife resources of the state; to facilitate and provide opportunities for all citizens to use, enjoy, and learn about these resources[22]. These include The Missouri Comprehensive Conservation Strategy[23], the Wetland Planning Initiative[24], Missouri White-Tailed Deer Management Plan[25], Missouri Black Bear Management Plan[26], and the Missouri Elk Management Plan[27]. The MoDOT WVC hotspot analysis, prioritization, and

feasibility strongly aligns with these strategic plans by promoting ecosystem health and survival of wildlife and habitats while ensuring that human-wildlife conflicts are minimized. By reducing WVCs, promoting habitat connectivity, and ensuring natural wildlife travel corridors are identified, prioritized and protected, the proposed project will ensure that Missouri's natural resources remain a staple of the Midwest landscape.

1.1.5 Future Economic Development

As future economic development driving projects continue to be planned and constructed, WVC reduction will be imperative to incorporate into those processes. Planning and implementation of the information gathered through the WCPP funded proposed study will ensure that human-wildlife conflicts are mitigated where possible. In Missouri specifically, transportation investments in the Interstate 70 widening project will generate large scale construction across the state of Missouri. $2.8 billion has been dedicated to expanding and rebuilding I-70 across the state from Kansas City to St. Louis. Additionally, $379 million has been added to augment the nearly $11 billion five year Statewide Transportation Improvement Program (STIP)[28]. As the projects within the next five-year STIP[29] cycle are designs and permitted, WVC areas can be evaluated, and feasible mitigation measure implemented. With the level of federal investment in the state, it is undoubtedly a crucial time to invest in projects that promote the FHWA priorities of WVC mitigation and habitat connectivity. Currently in the state of Missouri about $1.124 million has been spent on WVC mitigation as described in the above-mentioned bear crossing, turtle fencing and WMB modification projects. MoDOT staff time devoted to WVC mitigation analysis is estimated to be between $5,000 and $10,000.

1.2 Project Location Information

As stated above in Section 1.1, the WVC analysis is a Missouri statewide project to identify locations of WVC hotspots for mitigation measure prioritization and future application. Missouri land area is approximately 69,736.59 square miles (See Appendix E: Missouri Map) and is home to more than 6.1 million people[30], making the average statewide population density 88.5 people per square mile. However, larger metropolitan areas have higher population density, with the highest being the city of St. Louis with a density of 714.2 per square mile[31]. The average annual income for the state is $59,225[32] for all public and private industries, with a 2.4 percent unemployment rate[33].

1.2.1 Missouri Roads and Urban/Rural Divide

Missouri ranks 7th in the US with 33,825 miles of state highways in Missouri (See Appendix F: Missouri Roadway Map). MoDOT owns and maintains: 1,385 miles Interstate highways, 3,412 miles of U.S. routes, 8,266 miles of state routes, 19,010 miles of lettered routes, and 1,752 miles of other (outer roads, business, etc.) routes. There are 5,554 miles of major routes that carry 75% of traffic; 17,848 miles of minor routes that carry 23% of traffic; and 10,423 miles of low-volume routes that carry 2% of traffic. Additionally, MoDOT owns and maintains 10,387 bridges and culverts[34]. All routes in the state will be considered for the WVC hotspot analysis and mitigation measure feasibility study.

According to the latest Decennial Census by the Bureau of Census, the definition of urban area is "at least 2,000 housing units or have a population of at least 5,000[35]." There are 158 mapped

urban areas in the state, comprising a total land area of 1782.13 square miles. Below is a breakdown of roadways within urban and rural Missouri[36]. According to the NOFO, FHWA will award 60 percent or more of available funds for projects located in rural areas. Approximately 2.5% of Missouri's landcover is urban in the context of this proposal.

Table 3: Missouri Roadway Miles - Urban and Rural

Missouri Roadways (in Miles)								
	Interstate	Freeways and Expressways	Major Arterial	Minor Arterial	Major Collector	Minor Collector	Local	Total
Rural	3,426	4,545	4,360	8,196	32,882	12,529	154,526	220,464
Urban	3,124	2,230	3,302	5,820	5,671	1,162	35,730	57,039
Total	6,550	6,775	7,662	14,016	38,553	13,691	190,256	277,503

It is anticipated that all areas of the state will likely have priority hotspots to be address. Once the project principal investigators are awarded after the Request for Proposals (RFP) process, scoring criteria a study plans will be finalized to ensure adequate and uniform analysis parameters for statewide application.

1.2.2 Geographical Description

Missouri land area is approximately 69,736.59 square miles (See Appendix E: Missouri Map). Missouri is unique in that it is centrally situated within the US and eastern boundary is bordered by the largest river in the US. Additionally, the Missouri River flows easterly through the northern 2/3rd of the state. Missouri is divided into four distinct geographical regions: The central dissected till plains, Osage plains, Ozark's plateau, and the Mississippi alluvia plain[37]. The central dissected till plains makes up approximately 33.3% of the total landcover, covering the northern part of the state extending from the western boarder all the way east to the Mississippi River. The Osage plains covers approximately 9% of the western central part state south of the Missouri River. The Ozark's plateau region is the largest landform in Missouri, comprising 52% of the state, south of the Missouri River and west of the Mississippi River. This area is known for cave and karst feature formations due to underlying soluble limestone and dolomite bedrock[38]. The final and smallest landform in Missouri is the Mississippi alluvia plains, covering only 6% of the state. This landform is in the extreme southeast "bootheel" region and is known for fertile farm ground and historic wetland complexes.

1.2.3 Community Development Zones

As requested in the NOFO, the project area of Missouri is partially located within all federally designated community development zones: Opportunity Zones, Empowerment Zones, Promise Zones, or Choice Neighborhoods. As projects are developed as future funding becomes available, these areas will be identified in greater, project specific detail.

1.3 Parties: Lead Applicant and Expected Roles

As stated above in Section 1, the MoDOT is the lead applicant in applying for funding under the FY 2022-2023 WCPP. MoDOT is very experienced in receipt and timely expenditure of FHWA funds as part of daily program delivery activities. For the 2022 $2.9 billion dollar budges, MoDOT received approximately $995 million in federal revenue (reimbursements and grants)

with $826 million going towards State Roads and Bridges MoDOT funding[39]. Additionally, MoDOT has a grants section who specialize in finding and applying for competitive federal grants to go towards transportation projects where applicable[40]. Applications have been submitted and successfully awarded through programs such as INFRA, TIGER, BUILD, and Competitive Highway Bridge Program (CHBP).

1.3.1 Lead Applicant

MoDOT, as the lead applicant, will be supported by MDC and in the application process. MDC and LLF have committed funds towards the 20% non-federal funding requirements. MDC has committed to assisting with funding for $40,000 of the required $80,000 non-federal match for the $400,000 project. LLF is committing $5,000 towards the non-federal match required and MoDOT will contribute $35,000. Additionally, MDC will provide project reviews, comments, and recommendations as technical advisory committee (TAC) team members. In addition to funding non-federal match requirements, team members from state and regional Resource Management and Science branch will likely contribute staff time to review project deliverables.

1.3.2 Project Partners

The Missouri statewide WVC analysis has also received letters of support from multiple state and federal natural resources management agencies, NGOs, and interested partners (See Appendix J: Letter of Support). Missouri State Parks (MSP) has expressed interest in supporting the Missouri wildlife crossing program. On July 14, 2023, MoDOT and MSP met via videoconferencing to discuss the program and possible applications with planning and project coordination. The Rock Island Trail Missouri Route 52 and US Route 65 bridge construction projects were identified, but due to lack of WVC data at that location, mitigation measures discussions were not continued. General project support was offered. Coordination will continue as projects develop from the WVC analysis hotspot mitigation study. This project aligns with the MSP mission which is “to preserve and interpret the state's most outstanding natural landscapes and cultural landmarks, and to provide outstanding recreational opportunities compatible with those resources[41].”

MoDOT had phone and email conversations Missouri Conservation Heritage Foundation (MCHF) in July 2023. MCHF could not support the effort monetarily at this time as it does not align with current project priorities but offered general project support. As a supporting partner, the MoDOT WVC project aligns with MCHF mission[42] to “advance the conservation and appreciation of forest, fish and wildlife resources by applying financial resources to the priorities of the Missouri Department of Conservation in collaboration with donors and other partners.”

The Conservation Federation of Missouri (CFM) was contacted about support but could not assist in the non-federal match. CFM had discussed with National Wildlife Federation regarding devoting staff time to project specific Phase two roadkill surveys or data collection. More information was requested on amount and time that could be committed to this. If a commitment cannot be determined prior to WCPP applicant, this will likely be incorporated in the “scalable project” options.

LLF was contacted due to their extensive experience with conservation easements, wetland and stream mitigation, and general conservation oriented work in Missouri. LLF committed $5,000 in funds towards the proposed project and offered general project support. LLF also has a high level interest as projects are constructed to assist with conservation easement of habitat preservation near future WVC mitigation projects.

1.3.3 Expected Roles

MoDOT anticipates forming a TAC from above mentioned parties for this study to review and provide technical insight in the project through all stages of project progression (RFP, applicant review, project meetings, phase 1 and phase two implementation, priority areas addressed). As the WVC reduction analysis and hotspot mitigation measure prioritization and feasibility study are conducted, partnership agreements will be developed in accordance with conditions of the WCPP in using WCPP funds (23 U.S.C. 171(f)(3)).

2.0 Budget Narrative - Grant Funds, Sources, and Uses of all Project Funding

Overall, MoDOT is requesting $320,000 in WCPP grant funds as part of a $400,000 project. MoDOT will be funding $35,000. LLF will be contributing $5,000 towards the project and MDC will be providing $40,000 from FY24 state expense dollars coming from MDC Statewide Resource Management Branch budget to meet the required 20% non-federal match. More detailed information can be found in the attached Standard Form 424A (Budget Information for Non-Construction Programs). MoDOT is in the process of drafting Financial Services Division Cost Participation Agreement for LLF and MDC to sign once funds from the WCPP have been awarded. Please see Appendix I: MDC and LLF financial support letters.

Table 4: Project Budget

Overall Project Cost			Phase 1		Phase 2	
Source of Funds	**Amount**	**Percent**	**Amount**	**Percent**	**Amount**	**Percent**
WCPP Grant Request	$320,000.00	80	$160,000	40	$160,000	40
MoDOT	$35,000.00	8.75	$17,500	4.375	$17,500	4.375
MDC	$40,000.00	10	$20,000	5	$20,000	5
LLF	$5,000.00	1.25	$2,500	0.625	$2,500	0.625
Total	$400,000.00	100	$200,000	50	$200,000	50

As discussed in Section 1, the project is two phases. The first phase will be a WVC hotspot analysis of updated MSHP data as well as other relevant data sources such as from MDC Heritage database and iNaturalist. This phase will consist of a base analysis that integrates statewide crash/carcass data and identifies high WVC road segments. Phase one is expected to cost no more than $200,000. Additional analysis could include identifying road segments that are creating barrier effects due to high traffic volumes and species sensitivity to traffic and paved roadways[43].

Phase two is expected to include ranking of priority area, field roadside roadkill survey, field data collection, and a feasibility study with final report detailing site-specific recommendations of cost effective WVC mitigation measures. Recommendations are to be based on current and relevant WVC mitigation recommendations from the 2008 Wildlife Vehicle Collision Reduction

Study: Best Practices Manual[44], 2011 Wildlife Crossing Structure Handbook[45], 2022 Wildlife Vehicle Collision Reduction and Habitat Connectivity Pooled Fund Study[46] and other various and relevant sources. The phase two project field investigations and recommendations will be determined upon review of phase one data analysis of hotspot data. Emphasis will be placed on recommendations and solutions that incorporate wildlife fencing to existing grade separated crossings (i.e., bridges with substantial riverine corridors). Below is a sample budget to base percentage of funding sources for each phase of the WVC reduction analysis and hotspot mitigation measure prioritization and feasibility study.

A final report will be required as part of phase two project activities. Additional items budgeted for include public outreach campaign, website development, data integration with Roadkill Observation and Data System (ROaDS)[47], iNaturalist Global Roadkill Observation dataset, or other various mapping efforts. Amounts dedicated to each relevant activity may be different according to review of proposal budget. For example, time and resources devoted to data formatting in phase one may not use 8% of total project funding and thus could be applied to extending field activities and mitigation recommendations in phase 2 of the study.

Table 5: Project Phase 1 and Phase 2 Budget Sources in Amount and Precents

Phase 1 budget funding sources									Phase 2 budget funding sources								
Phase 1 Activities	WCPP		MoDOT		MDC		LLF		Phase 2 Activities	WCPP		MoDOT		MDC		LLF	
	Amount	%	Amount	%	Amount	%	Amount	%		Amount	%	Amount	%	Amount	%	Amount	%
Data Acquisition from various sources: MSHP, iNaturalist, MDC Heritage, MDC Regional and local resource staff	$32,000	8.00	$3,500	0.88	$4,000	1	$500	0.125	Priority Area Ranking and Mapping	$32,000	8	$3,500	0.88	$4,000	1	$500	0.125
Data Formatting	$32,000	8.00	$3,500	0.88	$4,000	1	$500	0.125	Field Activities	$32,000	8	$3,500	0.88	$4,000	1	$500	0.125
WVC Analysis using UC Davis Widlife Crossing Calculator	$32,000	8.00	$3,500	0.88	$4,000	1	$500	0.125	Feasibility study	$32,000	8	$3,500	0.88	$4,000	1	$500	0.125
ArcGIS Analysis	$32,000	8.00	$3,500	0.88	$4,000	1	$500	0.125	Final report with reccomendations	$32,000	8	$3,500	0.88	$4,000	1	$500	0.125
Hotspot ranking	$32,000	8.00	$3,500	0.88	$4,000	1	$500	0.125	Public Outreach, website, and mapping integration	$32,000	8	$3,500	0.88	$4,000	1	$500	0.125
Total	$160,000	40	$17,500	4.375	$20,000	5	$2,500	0.625	Total	$160,000	40	$17,500	4.375	$20,000	5	$2,500	0.625

As requested in the WCPP NOFO, contingency amounts will be budgeted for and detailed in the RFP so that no overages are encountered during the duration of the project. MoDOT will require preliminary budget to be submitted by applicable project investigators during the RFP process. A standard MoDOT Construction and Materials Research section research RFP will be drafted. MoDOT has included an example RFP for the Wildlife Median Barriers research project which is ongoing (See Appendix G: Wildlife Median Barriers RFP).

3.0 Project Merit Criteria

As previously discussed in Section 1 and as will be discussed in the following section, the statewide WVC reduction analysis and hotspot mitigation measure prioritization and feasibility study will strongly align with the main goal of the WCPP: reduction of WVCs and improvements in habitat connectivity across the landscape. As project are scoped and planned for incorporation into the STIP, information on WVC hotspots can be referenced. WVC hotspots identified early in the planning process near planned project improvements can be can be evaluated for WVC hotspots, ensuring projects do not have any negative impacts on WVCs and if possible can implement measures to reduce overall WVCs within a given project area.

3.1 Primary Merit Criteria

FHWA seeks to award both "Non-Construction" and "Construction" projects that meet the Wildlife Crossing Pilot Program's primary goals of
reducing wildlife-vehicle collisions (WVCs) and improving terrestrial and/or aquatic habitat connectivity. *The MODOT proposal closely aligns with several non-construction projects identified by FHWA as eligible for funding, including examples 2-7 below:*

1. Research on safety innovations to reduce WVCs;
2. Research and monitoring on the effectiveness of WVC mitigation; (See Section 1.1.2)
3. Development of mapping tools to document WVCs
4. Analysis of impacts of WVCs and best practices to reduce WVCs;
5. Planning studies to identify terrestrial and aquatic wildlife migration corridors and roadway barriers to habitat that lead to WVCs;
6. Tracking wildlife and mapping WVCs; or
7. Outreach activities to educate the public on the hazards of WVCs.

3.1.1 Criterion # 1.1: Reduction of Wildlife Vehicle Collisions.

The analysis will inform decisions with long range transportation improvement programs. By allowing wildlife considerations to be identified early during pre-project planning, the proposed analysis will help ensure that the need for mitigation measures (and associated funding) will be identified early and programmed into the initial project budget.

Data from 2012-2021 shows there are on average approximately 3,500 reported WVCs per year in Missouri on state routes. The average number of yearly incidents on state routes within the FHWA KABCO crash severity rating are as follows: K – Fatal (4.2), A – Suspected Serious Injury (29.1), B – Minor/Evident Injury (269.1), and O – Property Damage Only (3195.2). Based on the federal values assigned to each KABCO rating, Missouri incurs on average a cost of $159 million per year as stated above in Section 1.1.2.

Table 6: 2012-2021 WVC - KABCO Ratings and Cost on MoDOT Roads

Year	Fatal (K)	% Fatal (K)	Cost of Fatal	Disabling Injury (A)	% Disabling Injury (A)	Cost of Disabling Injury	Minor Injury (B)	% Minor Injury (B)	Cost of Minor Injury	Property Damage Only (O)	% Property Damage Only (O)	Cost of Property Damage Only	Total Incidents	Total Crash Cost
2012	5	0.14184397	$56,477,000	44	1.24822695	$28,820,000	267	7.57446809	$52,999,500	3209	91.035461	$38,187,100	3525	$176,483,600
2013	0	0	$0	21	0.67545835	$13,755,000	215	6.91540688	$42,677,500	2873	92.4091348	$34,188,700	3109	$90,621,200
2014	2	0.05959476	$22,590,800	32	0.95351609	$20,960,000	257	7.6579261	$51,014,500	3065	91.3289631	$36,473,500	3356	$131,038,800
2015	3	0.08787346	$33,886,200	23	0.67369654	$15,065,000	254	7.43995313	$50,419,000	3134	91.7984769	$37,294,600	3414	$136,664,800
2016	5	0.14450867	$56,477,000	27	0.78034682	$17,685,000	273	7.89017341	$54,190,500	3155	91.1849711	$37,544,500	3460	$165,897,000
2017	7	0.18557794	$79,067,800	27	0.71580064	$17,685,000	282	7.47613998	$55,977,000	3456	91.6224814	$41,126,400	3772	$193,856,200
2018	6	0.16273393	$67,772,400	34	0.92215894	$22,270,000	285	7.72986168	$56,572,500	3362	91.1852455	$40,007,800	3687	$186,622,700
2019	5	0.1283697	$56,477,000	22	0.5648267	$14,410,000	325	8.34403081	$64,512,500	3543	90.9627728	$42,161,700	3895	$177,561,200
2020	6	0.17980222	$67,772,400	25	0.74917591	$16,375,000	245	7.34192388	$48,632,500	3061	91.729098	$36,425,900	3337	$169,205,800
2021	3	0.08769366	$33,886,200	36	1.05232388	$23,580,000	288	8.41859106	$57,168,000	3094	90.4413914	$36,818,600	3421	$151,452,800
Average:	4.2	0.11779983	$47,440,680	29.1	0.83355308	$19,060,500	269.1	7.6788475	$53,416,350	3195.2	91.3697996	$38,022,880	3497.6	$157,940,410
Totals:	42		$474,406,800	291		$190,605,000	2691		$534,163,500	31952		$380,228,800	34976	$1,579,404,100

From 2007 to 2016 vehicle miles traveled has increased from approximately 60 billion annual miles traveled to over 74 billion[48]. With increasing statewide average daily traffic, these trends with WVCs will continue to increase. Additionally, to fuel this increasing traffic volume, increased project demands will be required to ensure motorists do not experience undue delays. With projects such as Interstate 70 widening from Blue Springs to Lake St. Louis and overall increases in budgeted amounts in the STIP as discussed in Section 1.1.5, considerations of WVC

hotspot mitigation efforts will ensure highway safety and wildlife survival by reducing wildlife strikes in cases where mitigation projects can be constructed.

Undoubtedly there are seasonal trends in WVCs in Missouri due to factors such as whitetail deer breeding season and rut activity[49] as well as doe fawning activities and habitat selection[50]. Breeding activity tends to peak in early to Mid-November in Missouri with whitetail bucks' home ranges nearly doubling to find suitable mates[51]. If successful in breeding, after a 7-month gestation period[52], fawning season tends to show a lower amplitude increase in deer-vehicle collisions DVCs in May through June. These trends are well documented and shown in the below diagram. Regardless of seasonal considerations, the WVC hotspot analysis can identify both seasonal variations as well as year-rounds WVC conflicts due to local wildlife travel corridors or habitats needs changing throughout the year.

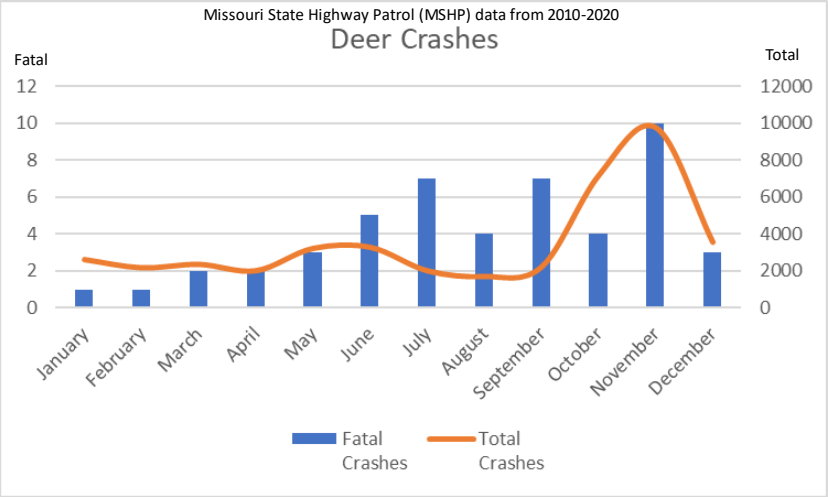

Figure 2: Seasonal changes in deer-vehicle collisions (DVCs)

The estimated number of annual reductions of WVC with respect to DVCs is approximately 446.9 annually if all areas within the current analysis data for the top 4% of hotspots can be addressed. If only the top 20 areas can be addressed with future mitigation measure implementation, the annual WVC reduction would be 31.6. Site specific recommendations and methods for addressing WVCs will be developed as part of this project. But it is anticipated that projects constructed will require long term maintenance to ensure structures are functioning as designed. MoDOT believes this project has strong alignment with Criterion # 1.1 and will significantly protect motorists and wildlife by reducing WVCs.

3.1.2 Criterion #1.2: Improvement of Terrestrial and Aquatic Habitat Connectivity

As discussed in section 1.2.1, there are 33,825 miles of state highways in Missouri. Within the highway segments there are additional barriers for wildlife crossings. MoDOT owns and maintains over 1,400 jersey barrier segments, totaling 522 miles across the state of Missouri. 99 of these segments are over a mile long and 21 are five or more miles long (MoDOT TMS Report, 2021). Additionally, the newly constructed I-49 corridor added five additional miles of median barriers that have yet to be added to the TMS database, which were mitigated with the addition

of WMBs discussed in Section 1.1.2. Because of the vast distribution of transportation infrastructure across Missouri, small and large animals alike encounter structural barriers when approaching roadways. It is also documented that roadways alone can induce behavioral modifications in small mammals[44]. Larger animals will exhibit vigilance and flight behavior in the presence of traffic, further reducing likelihood that animals will cross transportation infrastructure compared to unaltered surrounding landscape[53].

Because of the increased severity of WVCs with larger bodied animals, the analysis project to be funded by the 2022-2023 WCPP will provide focused efforts for WVC reduction and habitat connectivity for these larger animals. There are multiple species of large mammals such as deer, elk and black bear and small bodied mammals that may be impacted by the project areas identified through this analysis and prioritization study. The estimated deer population in Missouri is 1.4 million[54]. Elk populations in Missouri have expanded from 108 from the first reintroduction effort in southeast Missouri 2013 to approximately 240[55]. The goal for the elk program population size is 500. Black bear populations are estimated to be between 540-840 and is growing approximately 9% annually.[56]. With growing populations of black bears and elk in southeast Missouri, collisions with these wildlife are a growing concern for Missouri Motorists. Since the analysis is statewide, it is anticipated that the whole Missouri population of deer, elk, and bears could potentially be impacted, however actual project construction in future funded projects will only be a subset of the statewide hotspots.

As well as larger mammals, the project will also provide positive benefits to smaller wildlife habitat whose home ranges cross or are near the footprint of transportation infrastructure. As the prioritization portion of phase two is commenced, SOCC[57] will be consulted for species potentially present within the project areas. Additionally, projects within or near habitat for state or federally protected animal of fish species listed in the table in Section 1.1.4 will be given special consideration. As mentioned in Section 1.1, ranking will also incorporate various factors listed in the 2018 Teton County Wildlife Crossings Master Plan[5]. MoDOT believes the proposed project application demonstrates strong alignment with Criterion #1.2: Improvement of Terrestrial and Aquatic Habitat Connectivity.

3.2 Secondary Merit Criteria

As outlined in the NOFO, the MoDOT WVC analysis and hotspot mitigation measure prioritization and feasibility study has been evaluated for alignment with the following six categories of secondary merit criteria: Leveraging Investments, Economic Development and Visitation Opportunities, Innovation, Education and Outreach, Monitoring and Research, and Survival of Species.

3.2.1 Criterion #2.1: Leveraging Investments.

MoDOT believes the abovementioned proposed WCPP project strongly aligns with leveraging investments. The proposed project has received multiple levels of financial and general project support within MoDOT as well as from multiple state and federal natural resources management agencies, NGOs, and interested partners as described in Section 1.3 and 2.0. MDC will be contributing $40,000 of funds from FY24 state expense dollars coming from MDC Statewide Resource Management Branch budget. LLF will contribute $5,000 towards the project and

MoDOT will cover the other $35,000 to receive the required 20% non-federal match share. The requested amount from FHWA for the WCPP is $320,000 to fund a $400,000 project.

3.2.2 Criterion #2.2: Economic Development and Visitation Opportunities.

Missouri is known for scenic beauty and outdoor recreation opportunities. With a total of 11.2% of land being publicly owned, there are many opportunities for visitation and recreation on MDC conservation and natural areas, state parks and federally designated national wildlife refuges. MDC owns approximately 1,045 properties, totaling over one million acres statewide[58]. Missouri department of Natural Resources owns approximately 92 state parks, totaling over 160,000 acres[59]. Mark Twain National Forest comprises 1.5 million acres of public land across 29 counties in Missouri. Additionally, the National Parks Service Ozark National Scenic Riverway system is the first congressionally designated river system protection in the US, covering over 80,000 acres around the Current and Jacks Fork River. In addition to these public lands, there are 12,401.9 acres of Corps of Engineers lands surrounding Corps of Engineers lakes and navigation projects. Together these publicly owned lands comprise a system of unique and protected lands to visit and enjoy throughout the state.

Not only are the public lands a source of attraction for travelers, but the wildlife within these areas provides wildlife viewing, hunting or fishing opportunities. Protections of these wildlife populations on public lands will ensure visitors in Missouri can view and enjoy these resources in perpetuity. According to the 2022 Wildlife Vehicle Collision Reduction and Habitat Connectivity Pooled Fund Study[47], it's estimated that a single elk's passive value in Yellowstone National park is approximately $18,325 per animal. Although the populations of Missouri elk are not as prominent as those in western states, the growing population and recreation or hunting opportunity's will only in continue to add to the passive use as well as active pursuit (hunting) values of these animals.

Less roadkill on the roadways will make for a sightlier traveling experience. In addition to this, wildlife protected by wildlife crossing infrastructure will be available for wildlife viewing, hunting, and recreation opportunities. MoDOT believes the WCPP proposed project will strongly align with Criterion #2.2: Economic Development and Visitation Opportunities.

3.2.3 Criterion #2.3: Innovation.

MoDOT anticipates that this WVC analysis proposal will Align or Strongly Align with this merit criteria as the project plans to incorporate two key innovations in phase two of the proposed project. The proposal will first incorporate Missouri updated Elevation-Derived Hydrography (EDH) dataset to identify locations where existing roadway and bridge stream crossings may be modified or incorporated into WVC mitigation project area. Floodplains and riparian corridors are often correlated with wildlife travelways[60] and may be able to be used in lieu of construction of wildlife specific crossings when paired with appropriate sized wildlife fencings[61]. The second innovation the proposal will seek to incorporates is the Vermont ROaDS app[48]. Data can be collected across agencies to allow for coordination and shared efforts regarding statewide WVC data management. Additionally, data collected can be cross populated with relevant datasets such as the iNaturalist Global roadkill dataset[21].

3.2.4 Criterion #2.4: Education and Outreach.

MoDOT plans to incorporate education and outreach of this WVC project through internal and external communication channels. In Missouri, the magnitude of impacts of WVCs to safety, wildlife mortality and habitat connectivity is woefully underreported. The plan is to highlight these issues and potential solutions for internal and external parties. MoDOT Communication Division regularly produces communication pieces for internal employee newsletters as a channel for MoDOT employee and partner awareness. As well as internal communication, MoDOT conducts interviews with external news media and interested members of the public. Communication and reporting pieces will also be broadcasted through social media platforms that the department regularly uses to communicate project updates and relevant information. Additionally, with future project areas identified with the proposed WCPP grant funded project, MoDOT will ensure adequate public involvement[62] as part of the NEPA process.

Findings of the WVC analysis will also be shared with Local Public Agencies, MPOs, and transportation planners to highlight the benefits of WVC hotspot consideration in the project planning process. MoDOT anticipates that the proposed WVC reduction analysis and hotspot mitigation measure prioritization and feasibility study will strongly alight with Criteria 2.4.

3.2.5 Criterion #2.5: Monitoring and Research.

As was described in section 1.1.2, MoDOT is conducting WMB monitoring and research through the Construction and Material Division's research Section. A final report of this project is expected in November 2024. Similarly, the research and monitoring efforts associated with this proposed WCPP WVC analysis project will be incorporated into a final report and made publicly available for MoDOT, Local Public Agencies, MPOs, transportation planners, above mentioned partnering agencies, and others to reference and use as necessary. As shown in a diagram below from chapter 4 of the 2022 Wildlife Vehicle Collision Reduction and Habitat Connectivity Pooled Fund Study[47], there is much importance to be placed on monitoring as it not only determines success of failures of WVC mitigation efforts, but also informs future projects through the iterative process of evaluation, management action, monitoring, cont..

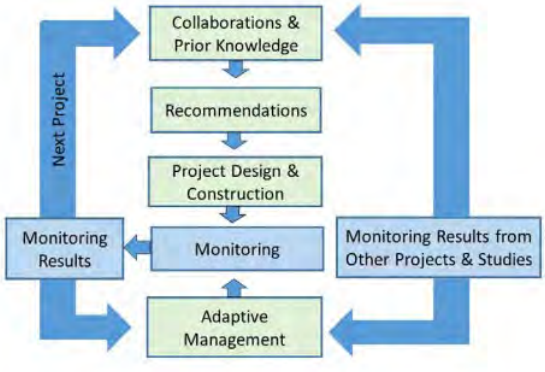

Figure 3: iterative process for decision making and adaptive management

As defined hotspot identification processes are described and documented within the proposed project's final report, the methods described can continued to be used to identify future trends

and changes with new WVC data as it becomes available from the above-mentioned data sources. The proposed WVC reduction analysis and hotspot mitigation measure prioritization and feasibility study will strongly align with Criteria 2.5.

3.2.5 Criterion #2.6: Survival of Species.

As stated above in Section 1.1.4 USFWS IPaC tool identified 42 federally listed, proposed, or candidate plants and animal species within the state of Missouri. Five of these species will may directly benefit from the proposed project. Additionally, evaluations of the 86 documented habitat types in Missouri in proximity to roadways as they relate to WVC will ensure that species relying on these unique habitat types near roadways are protected along with their crucial habitat.

4.0 Project Readiness

In addition to Primary and Secondary Merit Criteria, applications will be assessed for Project Readiness based on a three-part evaluation, as outlined below. Because this is a non-construction project, and MODOT has a long history of receiving and expending Federal highway funds under Title 23, U.S.C., it is anticipated that this project will receive an overall rating of High or Medium on Project Readiness.

Table 7: Project Readiness Risk Scoring

Category	1	2	3
Technical Assessment	***Uncertain:*** Review team is not confident of applicant's capacity and capability to deliver project	***Somewhat Certain:*** Review team is moderately confident of applicant's capacity and capability to deliver project	***Certain:*** Review team is confident of applicant's capacity and capability to deliver project
Environmental Review & Permitting Risk	***High Risk:*** Known environmental concerns associated with the project that would preclude timely implementation	***Moderate Risk:*** Potential environmental review or permitting concerns, but these can likely be addressed without significant delays	***Low Risk:*** NEPA and other environmental reviews completed, or it is highly likely NEPA and other reviews will be completed in the necessary timeframe
Financial Completeness	***Incomplete:*** Lacks definitive funding from other sources and sound fiscal management	***Partially complete:*** Funding appears stable and highly likely to be available to meet the project schedule	***Complete:*** Funding is fully committed and available to cover contingencies and cost increases

4.1.1 Technical Feasibility/Assessment

The proposed project strongly exhibits high feasibility as shown in the above narrative. As outlined in Section 2 regarding past research contract currently underway with the WMB monitoring project, MoDOT has demonstrated technical feasibility of the proposed project by being competent in applying standard design criteria and project design for administration and success. Please reference Section 1, 2, and 3 regarding project description, cost estimates, and merit criteria met by the proposed project to ensure the project is feasible and likely to produce the desired goals of the WCPP.

Through daily operations, MoDOT as an organization has demonstrated success in compliance with all applicable federal, state, and local requirements, laws and regulations. These include but are not limited to: NEPA[63], Title VI/Civil Rights[64], applicable requirements in Title 23, U.S.C.,

and Title 23 of the CFR, as well as those outlined in Section F.2.e-j of the NOFO. Additionally, as demonstrated in Section 1.3, applications have been submitted and successfully awarded to MoDOT through programs such as INFRA, TIGER, BUILD, and CHBP. MoDOT Financial Services Division and Contractual Payments group therein regularly handles funding from federal program sources. Adequate track and recording keeping are required for reporting, project administration, and project management.

In addition to being equipped and able to deliver a successful project, MoDOT sought guidance, recommendations, project specific examples, and insights from nationally recognized experts in the field of wildlife crossings, natural resources, and conservation. These include, but are not limited to: Missouri Department of Conservation, US Fish and Wildlife Service, Missouri State Parks, UC Davis Road Ecology Center, ARC Solutions, Oregon Department of Transportation, Colorado Department of Transportation, Jacobs Engineering, ECO Resolutions, Missouri Conservation Heritage Foundation, Conservation Federation of Missouri, National Wildlife Federation, and Land Learning Foundation. As Missouri's wildlife crossing program expands, this list of supporting entities is expected to follow.

4.1.2 Environmental Review and Permitting Risk

The proposed statewide WVC hotspot analysis and prioritization study exhibits low risk with environmental permitting. Due to being a non-construction project, there are no NEPA impact assessment or environmental reviews currently required for project completion. Additionally, according to MoDOT's Programmatic Categorical Exclusion (PCE) agreement with FHWA (See Appendix H: MoDOT PCE Agreement) shown in Appendix A of the agreement: 23 CFR 771.117 (c) and (d) "The following actions meet the criteria for CEs in the CEQ regulations (40 CFR 1508.4) and §771.117(a) and normally do not require any further NEPA approvals by the FHWA: 1.) Activities that do not involve or lead directly to construction, such as planning and research activities…." Because of this, no further NEPA review is required. As potential WVC mitigation projects are identified from the proposed WCPP study, MoDOT will ensure that all projects comply with applicable NEPA regulations set forth in 23 CFR 771.

4.1.3 Financial Completeness

As demonstrated above in Section 1.3.1, 2.0, and 3.2.1, MDC will be contributing $40,000 of funds from FY24 state expense dollars coming from MDC Statewide Resource Management Branch budget. LLF will contribute $5,000 towards the project and MoDOT will cover the other $35,000 to receive the required 20% non-federal match share. The requested amount from FHWA for the WCPP is $320,000 to fund a $400,000 project (See Appendix I: MDC financial support letter).

4.2 Project Schedule

Proposed start for the project will be January 1, 2024, pending FHWA grant agreement execution and funding obligations. Once funds are obligated, MoDOT will solicit through the standard RFP process. Applicants will be evaluated with alignment to the project goals set forth in this narrative, the RFP, and the WCPP. MoDOT will require submittal of project proposal, project budget with contingencies, and a project schedule. Concurrently with the development of the RFP process, MoDOT will solicit partnering agency resource managers to participate on the

TAC as mentioned in Section 1.3.3. The TAC will be responsible for project proposal evaluations, providing feedback through the duration of the project, data review, review of reports and providing technical expertise thought-out the project duration. As the project is awarded, MoDOT will require regularly bi-weekly progress update meetings to ensure project goal are being met. Below is an example of the conceptual project schedule.

Figure 4: Project Schedule

As planned, MoDOT anticipates phase one of the project will take no more than six months to one year to complete, with priority being placed on completion of hotspot analysis, ranking. Phase 2 priority location identification roadside surveys, data collection, and documentation could take longer than 6 months to complete but no more than one year. Due to flexibility of funds not expiring, field activities and WVC mitigation measure feasibility and recommendations development and final report could continue until funds are expired. However, MoDOT will make it a priority to receive a final report, feasibility study, and WVC mitigation recommendations as soon as practicable to apply for future WCPP and other federal grant funding for construction of WVC mitigation projects.

4.3 Required approvals

As stated above, NEPA evaluation is not required per MoDOT PCE agreement with FHWA. However, if it is later determined an initial NEPA screening is required for the proposed statewide WVC reduction analysis and hotspot mitigation measure feasibility study, MoDOT can submit a Request for Environmental Services (RES) which provides MoDOT Design ability to screen projects for environmental impact and secure approvals and clearances from FHWA and the resource agencies. The anticipated response for all RES sections is N/a as this project in non-construction.

Aside from required approvals mentioned above, the proposed WVC analysis and feasibility study and subsequent mitigation project implementation will likely be more successful with broad public support. Roadkill and WVC are often reported as a public concern in the form of phone calls, emails, and news media outlets inquiring about these issues and what MoDOT is doing to resolve them. It is likely that the public will see the effort as a positive step in the right

direction by fulfilling the goals of the WCPP by reducing WVCs and improving habitat connectivity .

5.0 Administration Priorities, Policies, and Procedures

By aligning with the overarching goals set forth in the FHWA WCPP, which aligns with current Administration Priorities listed in the WCPP NOFO, the proposed project also aligns with these priorities which are highlighted below.

5.1 Safety

The project strongly aligns with this priority of safety due to by seeking to reduce WVC. These collisions can result in serious injuries and fatalities. There are on average over 4 fatalities, 298 injuries, and 3195 property damage only crashes per year in Missouri from WVCs. By identifying and prioritizing WVC hotspots, effort can be focused on reducing wildlife vehicle conflict at high priority areas. By reducing WVCs, and subsequent serious injuries, disabling injuries, and fatalities, the proposed WVC hotspot analysis and mitigation measure feasibility study aligns with Administration priorities outlined in the FHWA Safe System Approach[65] and SAFER document[66] Further discussion about safety can be found in Section 1.1.1 and Section 3.1.1.

5.2 Climate Change and Sustainability

Because the proposed statewide WVC hotspot analysis and prioritization planning study is a non-construction project, there will be no impacts to the environment. However, once priority areas are identified and funding is secured, environmental permitting and NEPA evaluations will be required for future WVC reduction projects. If project will have unavoidable impacts to habitat types that provide ecosystem functions, such as wetlands, streams, and forests, mitigation will be proposed in accordance with regulations such as the Clean Water Act, Endangered Species Act ,and other applicable environmental regulations.

5.3 Equity

Because the proposed project has statewide implications, it also aligns with the Administrations priority of equity specifically in EO 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*; and EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.

5.4 Workforce Development, Job Quality, and Wealth Creation

The proposed project aligns with the Administrations priorities of workforce development, job quality, and wealth creation by providing opportunities for jobs in an underdeveloped area of focus in Missouri. Positions created within or attracted to the state are likely to conform to high standards of training, and placement into programs that will support the proposed project. Additionally, MoDOT has certification programs for Disadvantaged Business Enterprises[67], Minority-owned Businesses, and Women-owned Businesses as well as links to resources and M/WBE directory[68] through the Missouri Office of Equal Opportunity.

6.0 Other Requirements

Scalable project options will be considered if insufficient funding is available to fund an application at the full requested amount through the WCPP. Further discussion between FHWA

WCPP administrators and MoDOT will be required if project scaling is required. If full funding is not provided portions of the proposed project Phase 2 will be removed. Final reports will still be required, however field activities such as site documentation and carcass data collection will be scaled back or eliminated to whatever degree funding is not sufficient. Remote and desktop reviews will still prove beneficial for the final report and mitigation recommendations and feasibility study. However, site verification and data collection for hotspot verification will still be required prior to any construction project proposal with future WCPP grant funding requests.

Appendix List

Appendix A: Turtle Crossing

Appendix B: Bear Crossing

Appendix C: Wildlife Median Barrier

Appendix D: IPAC Report

Appendix E: Missouri Map

Appendix F: Missouri Roadway Map

Appendix G: Wildlife Median Barriers RFP

Appendix H: MoDOT PCE Agreement

Appendix I: MDC and LLF financial support letter

Appendix J: Letters of Support

Appendix A:

Turtle Crossing


Turtle Fence Map
Legend
Turtle Fence
Turtle Fence
Wayland
Des Moines St
Hagerman St
S Main St
Turner St
Cooper St
US Hwy 136
136
B
27
Fore Dr
Outer Rd 27
US Hwy 136 Spur
Turtle Fence
Fox River
Google Earth
N
3000 ft

MISSOURI DEPARTMENT OF CONSERVATION

Headquarters
2901 West Truman Boulevard, P.O. Box 180, Jefferson City, Missouri 65102-0180
Telephone: 573/751-4115 ◆ Missouri Relay Center: 1-800-735-2966 (TDD)

JERRY J. PRESLEY, Director

April 2, 1996

Mr. Craig Chumbley
Rust Environmental and
Engineering Infrastructure
501 Sycamore Street
Suite 222
Waterloo, IA 50704-1497

Dear Mr. Chumbley:

D-115

I am sending this letter as a follow up to our phone conversation we had on March 29. We discussed two issues related to the proposed right-of-way for the Highway of the Saints. The current proposal is align the highway between Wayland and a wetland (Goose Pond) in Clark County, Missouri. Our Department is concerned about impacts the proposed four-lane highway and right-of-way will have to two state-Endangered turtles. Populations of both the Blanding's turtle, Emydoidea blandingii, and the Illinois mud turtle, Kinosternon flavescens spooneri, are limited to a few small, natural wetlands in northeast Missouri. Any impact to their wetland habitat and associated sand grasslands may be devastating to their numbers and their long-term survival in Missouri.

The following specific requirements are provided to help minimize the damage to the turtles or their natural wetland (Goose Pond). Every effort must be made to reduce turtle mortality on the new section of highway, or cause direct or indirect damage to the natural marsh. Moving the proposed highway right-of-way to within one-half mile of Goose Pond has initiated the following requirements:

1. (1. Construct a concrete or metal barrier, a minimum of 15 inches in height, along the eastern edge of the highway right-of-way to keep turtles from crossing the highway in that area. The barrier would be constructed at the intersection of US 136 and extend a minimum of one mile to the south. Both turtle species are known to wander from Goose Pond to other wetlands; some will attempt to cross the proposed highway. With the increase in vehicular traffic along this area, a turtle-excluder barrier would reduce mortality.

2. The increased size of the proposed highway, plus an increase in traffic, will mean an increase in the use of road salt during north Missouri's harsh winters. This material must be kept from draining into the natural wetland. A highway drainage system that diverts highway oil and salt-tainted runoff away from the wetland should be constructed. This may require an increase in the use of culverts and ditches to insure that highway runoff will not flow into the wetland.)

1. See the following response letter.

Please contact me in writing if you have any questions or comments related to the above wetland protection measures. Thank you for taking the time to discuss these matters with me on the phone.

Sincerely,

Tom R. Johnson
Herpetologist

TRJ/djm
c: Kathy McGrath
Don Kurz
Dennis Figg
Janet Sternburg
Dick Jones (MHTD)

RUST Rust Environment & Infrastructure Inc.

A Rust International Company
501 Sycamore Street, Suite 222
Waterloo, IA 50703
P.O. Box 1497
Waterloo, IA 50704-1497

Phone 319.232.6531
Fax 319.232.0271

October 24, 1996

Mr. Thomas Johnson
State Herpetologist
Missouri Department of Conservation
P.O. Box 180
Jefferson City, Missouri 65102-0180

Re: Mitigation of Potential Turtle Mortality at Goose Pond
Avenue of the Saints
MoDOT Job No. J3P0521
FHWA Project No. DPS-61-4(71)
Rust Project No. 50763

Dear Mr. Johnson:

Thank you for your letter of April 2, 1996, and for the follow-up telephone conference call of August 13, 1996, regarding possible mitigation measures for Missouri endangered turtles at Goose Pond. The purpose of this letter is to request your feedback on other possible measures that could reduce the likelihood of increased roadkill mortality in the area where the proposed east bypass of Wayland passes near Goose Pond.

As indicated in your April 2, 1996, letter, a solid metal or concrete barrier placed near the highway right-of-way would be one means of preventing turtles from crossing the roadway. We have estimated that constructing such a barrier south from U.S. Highway 136 for about one mile south along the Selected Alternative would cost about $200,000.

We suggest that you consider an alternative type of barrier consisting of concrete riprap. Such a barrier would be about 1 1/2-feet high, 5- or 6-feet wide and one-mile long, with an estimated construction cost of about $30,000. It has been shown that riprap impedes the movements of riverine turtles, such as the common and false map turtles, as they attempt to move to nesting areas (Van De Walle and Christiansen, in press). Such a barrier would need to be placed far enough from the traveled part of the road to keep the barrier from posing a hazard in the event of a traffic accident, possibly outside the proposed right-of-way limit. To prevent vegetation from overgrowing such a barrier, periodic spraying with herbicide could eventually become necessary.

Other types of barriers to be considered could include wire poultry mesh or plastic silt fencing placed at the eastern right-of-way limit. These types of barriers could be constructed at low cost, but would require periodic replacement as the fencing materials deteriorate, perhaps at ten-year intervals. In addition, such fences might not fit tightly enough to the land surface to form an effective barrier against turtle movement onto the road.

We also propose exploring the possibility of purchasing some of the land between Goose Pond and the Selected Alternative for use as a wetland mitigation site. Such land could also include areas where the turtle habitat could be enhanced by building nesting mounds. The goal of preventing turtles from wandering onto the roadway might be accomplished either by the barrier mentioned above or the enhanced habitat areas, or possibly a combination of the two measures.

As indicated in our telephone conference, secondary development including a truck stop could occur on any privately-owned land at the proposed interchange location with U.S. 136 on the east side of Wayland. Using the land as a wetland mitigation site would be one means of limiting development near the wetland. On August 13, 1996, you indicated that none of the landowners adjacent to Goose Pond have been interested in selling any land to allow enhancement of the existing wetland. However, the proposed roadway would split several farm parcels adjacent to the wetland, thereby leaving remnants between the highway and Goose Pond which would require out-of-distance travel to access for farming. Given this situation, landowners might be willing to sell such parcels. One possibility would be for the Missouri Department of Transportation to purchase the land as a combination borrow area and wetland mitigation site, which could then be turned over to the Missouri Department of Conservation for management.

Enclosed is a copy of the Draft Environmental Impact Statement for the project. The aerial photographs in Appendix B show the current project plans in the area near Goose Pond. We understand that telemetry studies were done on the Goose Pond turtle populations, and we would appreciate receiving any information you have pertaining to this.

Please contact us if you have any questions about this matter. We look forward to receiving your comments.

Sincerely,

Charles E. Spicher, P.E.

Reference: Van De Walle, T. and J. Christiansen. A relationship between river modification and species richness of freshwater turtles in Iowa. Journal of the Iowa Academy of Science. (In press).

Enclosure: As Noted

c: Mr. Dick Jones, MoDOT
Mr. Terry Van De Walle (w/ enclosure)

L:\WORK\WP\50763000\ADM\JOHNSON.WPD

MISSOURI DEPARTMENT OF CONSERVATION

Headquarters
2901 West Truman Boulevard, P.O. Box 180, Jefferson City, Missouri 65102-0180
Telephone: 573/751-4115 ◆ Missouri Relay Center: 1-800-735-2966 (TDD)

JERRY J. PRESLEY, Director

November 20, 1996

Mr. Donald Neumann
FHWA Division Office
PO Box 1787
Jefferson City, MO 65102

Dear Mr. Neumann:

1. In an October 24, 1996, letter from Rust Environment and Infrastructure Inc., our Department was asked to comment on the proposed Avenue of the Saints Road project. The specific focus of the request related to possible mitigation measures to reduce roadkill mortality of two state listed endangered turtles, Blanding's turtle (Emydoidea blandingii) and Illinois mud turtle (Kinosternon flavescens), known to occur in the vicinity of Goose Pond. We do believe these state listed endangered turtle species need special consideration during design and construction of the proposed project. An important point to consider is that addressing potential measures to prevent roadkill mortality may only be a small step to ensure viable future populations of these species. Efforts to prevent impacts to critical habitat like Goose Pond, must first be fully addressed.

D-118

Goose Pond is a unique natural community. It has been identified by the Missouri Natural Features Inventory as the best permanent marsh in Missouri, based on its high natural quality and species diversity.

The Goose Pond system is as rare to Missouri as some of the biological components it supports. The Draft Environmental Impact Statement identifies that the preferred alternative occurs east of Wayland. This alternative could have significant adverse impacts to the Goose Pond system. In addition to the proposed road project, the Draft Environmental Impact Statement identifies anticipated secondary impacts (i.e., truck stop) at the proposed interchange with U.S. 136. The Environmental Impact Statement should fully evaluate effects on Goose Pond and identified sensitive species resulting from these secondary impacts. Because the most effective mitigation, for both Goose Pond and sensitive species, is avoidance, our Department supports a western bypass alignment around Wayland.

We believe that a detailed hydrology study of the east alternative around Wayland is needed. Information in the Draft Environmental Impact Statement, associated with describing the local hydrology, places too much value in the words "probably," "presumed," "unlikely," and "not anticipated." This is not sound science or management of a valuable natural resource. The Goose Pond system is dependent on seeps and subsurface hydrology flows.

Regardless of the alternative selected, roadway runoff should be contained and directed out of the Goose Pond watershed. This step will help ensure unwanted/unexpected contaminants (e.g., road salt, herbicides, oil and heavy metals, hazardous spills) associated with highway systems do not enter this unique natural community.

1. (CONT)In the aforementioned correspondence, the possibility of the Department of Transportation purchasing land around Goose Pond was identified as a mitigation option that might prevent or minimize secondary impacts resulting from development activities. We appreciate your willingness to provide buffer lands around Goose Pond. However, we are reluctant to support development/disturbance of this area or associated sand grasslands (e.g., commercial, borrow area, wetland mitigation) until a detailed hydrology study has been completed and reviewed. The existing natural resources are too valuable.

A letter addressed to Rust Environmental and Infrastructure Inc. dated April 2, 1996, identified MDC's recommendation of a concrete or metal barrier, between the proposed road and Goose Pond, to eliminate or reduce turtle movement across the proposed east alternative. This barrier would be constructed, at least 15 inches in height, from the intersection of U.S. 136 to a minimum of one mile south. Other options for barrier construction (e.g., concrete rip-rap, wire poultry mesh, and plastic silt fencing) focus on economics rather than reducing turtle mortality. Spaces within a rip-rap barrier make turtles very vulnerable to being trapped. Furthermore, wire poultry mesh and plastic silt fencing would be short-lived, high maintenance items. Maintenance would likely be required after heavy rains, mowing of the rights-of-way, or traffic accidents. A concrete or metal barrier to eliminate turtle movement seems most appropriate.

Thank you for the opportunity to provide comments on this proposed activity. Members of my staff are available to address any questions you may have.]

Sincerely,

JERRY J. PRESLEY
DIRECTOR

c: Joe Mickes - Mo Dept of Transportation
Craig Chumbley - Rust Environmental & Infrastructure Inc.

1. On January 21, 1997, a coordination meeting was held between MoDOT, MDC and MDNR regarding potential turtle mortality and possible indirect impacts to the wetland. MDC and MoDOT agreed that further coordination will be required during the design phase of the project. MoDOT also indicated that it will investigate the use of various types of fencing to exclude turtles from the roadway, but ruled out the construction of a concrete barrier for such a purpose.

Missouri
Department
of Transportation

MoDOT

Joe Mickes, Chief Engineer

105 West Capitol Avenue
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Jefferson City, MO 65102
(573) 751-2551
Fax (573) 751-6555

DATE: January 30, 1997

TO: Memorandum to File

FROM: Buck Brooks
Wetland Specialist

SUBJECT: Preliminary Studies
Route 61 (Avenue of the Saints), Clark/Lewis Counties
J3P0521
Goose Pond Meeting Minutes

A meeting concerning the potential environmental impacts to Goose Pond from the proposed construction of the Avenue of the Saints, near Wayland, Missouri was held at the MoDOT, Environmental Studies team office location in Jefferson City on January 21, 1997. The following individuals attended the meeting: Gene Gardner, Tom Mings, and Buck Brooks, (MoDOT), Craig Chumbley and Joan Underwood, (RUST Environment & Infrastructure), Norm Stucky, Tom Johnson, and Kathleen Hultgren, (MDC), and Jim Vandike, (DNR/DGLS). The purpose of this meeting was to specifically address two issues (hydrology/water quality and state-endangered turtles) that MDC felt had not been adequately addressed in the DEIS (MDC letter dated 2/29/96) or by coordination.

Chumbley began the meeting by summarizing the natural setting of Goose Pond and outlining the two issues raised by MDC related to indirect impacts posed to Goose Pond by the project. He pointed out some physical characteristics in the vicinity of the pond that included what appears to be a point bar located just south and east of the railroad bed. Drainage from the pond flows through a concrete outlet in the railroad bed that bounds the pond to the north. In approximately 1960, excavation activities were undertaken in Goose Pond along the western portion of the marsh, and the spoil was used in construction of an earthen levee between two adjacent property owners. This excavated area was reportedly used as a watering source for cattle, as it was supplied by a steady supply of water from the seeps. The soils surrounding the wetland (on the sand ridges and adjacent flats) are primarily Plainfield sandy loam that is characterized by a high infiltration rate. The sand ridge that parallels the west side of the wetland is a continuous feature that is present from Goose Pond to St. Francisville. Several wetland areas are present along this "shelf" that are believed to have formerly composed a contiguous wetland complex. He also stated that the two proposed road constuction alternatives included the "preferred existing" along the east side of Wayland, which would be located approximately 700 feet west of Goose Pond, and the west alternative that would pass on the west side of Wayland.

Based on well log data for the Kahoka city well (located approximately 500 feet southeast of the Highway 136/ Route B intersection), Chumbley stated that the top of the clay layer is at a depth of approximately 480 feet below ground surface (BGS). The clay layer apparently confines the aquifer and forms a hydraulic head of approximately 44 feet. The well log data supports the conclusion that the shallow and deep aquifers are not interconnected. The shallow surface ground water flow is believed to supply the seeps within Goose Pond. The localized ground water flow direction appears to be to the south and east toward the Mississippi River. Chumbley said that the seeps within the wetland were at an elevation of approximately 503 feet. In addition, the top elevation adjacent to the west side of the pond is about 530 feet, and the water table is located at an approximate elevation of 500-503 feet.

Chumbley explained that the findings of the DEIS supported the "preferred existing" location for the expressway east of Wayland. The west route exhibited several constructability problems that included the following: no future development along the west side of Wayland (i.e., no apparent need for highway access), the proposed location of the west interchange would be within the 100-year floodplain, and many more businesses and residents would be displaced. The east alternative would provide a safer and improved access for Wayland residents and better serve the traffic flow around the city of Wayland. The environmental impacts posed by the preferred existing location indicated that approximately 7.7 acres of wetlands would be filled versus impacts to 11.5-16.8 acres of wetlands for the west alternative.

Stucky inquired about shifting the "preferred existing" location slightly more to the west toward Wayland (e.g., more closely following existing Route B) to increase the distance from Goose Pond. Chumbley stated that due to the location of the Kahoka city well and potential impacts to this water source, this would not be a feasible alternative. Also, there was some evidence that a second Kahoka city well could have been installed near the existing city well. Both Chumbley and Vandike concurred that the Kahoka city wells serve the cities of Kahoka and Wayland, as well as providing water for the Clark County Rural Water District. Another significant barrier to shifting the "preferred existing" alternate closer to Route B is the presence of a large federally-subsidized housing complex located east of Route B. This complex was built as alternative housing for the residents of Alexandria, Missouri

following the devastating floods of 1993. Shifting the alternate west of its present location would severely impact this housing complex.

Mings stated that MoDOT had received notification from the U.S. Army Corps. of Engineers (COE) that the "preferred existing" location met the 404 (b) requirements of the Clean Water Act and the 401 Water Quality Certification. He said that there were no water quality issues identified by the COE. Likewise, a letter (2/23/96) from DNR was provided to MDC which stated that water quality impacts to Goose Pond would be avoided and that MoDOT had satisfactorily addressed the concerns related to Goose Pond.

Stucky stated that MDC only supported the west alternative. He emphasized that his primary concern was the approximate limits of the watershed draining into Goose Pond. Gardner explained that topographic elevation data had been gathered by MoDOT to better understand the surface drainage patterns. Based on the survey data points, it appears that little if any surface drainage from the surrounding sand terrace flows into Goose Pond.

Vandike indicated that the shallow alluvium underlying the project area was relatively tight and that Wayland wells were situated in a pre-glacial channel. He said that there are no shallow boreholes to illustrate water movement specific to that aquifer. However, the generalized flow appears to be from the north and west based on the topography. He stated that calcium chloride would probably be the only contaminant of concern, however, because of the limited application of this compound, any significant potential migration to the underlying shallow aquifer was thought to be minimal to nonexistent. Gardner discussed the past occurrence of hazardous spills (based on DNR spill reports) along highways in Missouri and indicated that according to the records these incidents were very rare. He also stated that because of the presence of secondary containment in many tanker trucks on the road today, the likelihood of a catastrophic release was minimal. Gardner also suggested there was a possibility of seeding the right-of-way with plants that could act as filters for calcium chloride and other potential contaminants. Stucky indicated that MDC might prefer warm season grasses and he encouraged MoDOT to coordinate with Tim Smith, MDC, to decide on appropriate plantings.

Johnson expressed his concern about the potential environmental impacts posed to Goose Pond and questioned MoDOT about the lack of previous notification to MDC officials about the project. Johnson was made aware that both he and other officials of the MDC had been notified of the proposed project as early as 9/24/93 and that they had been invited to numerous coordination and public meetings. Johnson questioned if a west alternate had all but been ruled out, and again restated his concern about the potential negative impacts to Goose Pond. Gardner indicated that the proposed west alternate would also impact Indiana bat habitat, a federally-listed species, as well as having greater socioeconomic impacts to the local community, wetlands, floodplains, etc.

Stucky again reiterated that the MDC's position on the proposed highway location was only for the west alternate. Batenhorst stated that the "preferred existing" location was not final (i.e., had not been selected by the Missouri Highway and Transportation Commission) and that MDC could provide additional comments prior to the completion of the Final EIS. Chumbley said that the Final EIS was scheduled for circulation during mid-April to May 1997 and that MDC's comments would be incorporated into and addressed in that document.

Stucky stated that his main concern was not so much the percolation of contaminants into the shallow aquifer supplying Goose Pond, but rather the potential for overland surface water drainage into the area. Gardner expained the survey elevations and their relevance to the surface water drainage aspects. Vandike said that the problem is that no definitive hydraulic gradient has been established and the hydrologic connections are unknown for Goose Pond. He indicated that it was likely that a low velocity gradient could be expected. Vandike said that the seeps in Goose Pond were likely resultant from a perched aquifer in shallow alluvium and that there was no telling how far out the aquifer extended. He said that dye tracing was not feasible at this location due to the underlying geology, and recommended that if a water quality comparison were undertaken that it should be between monitoring wells installed near the existing highway and wells installed 5-10 feet below the elevation of Goose Pond. Such a study would be costly and time consuming and may not provide meaningful results.

Vandike suggested contacting the USGS, for copies of 1975 aerial overfight maps (stereo pairs) with 2-5 foot contour intervals. Gardner indicated that MoDOT photogrammetry lab could produce maps with one foot contour intervals from similar aerial photography. Stucky requested that this information be gathered and provided to MDC to resolve the concerns that MDC had about surface drainage to the wetland.

The members of the meeting then took a short recess and began the second half of the meeting discussing the potential impacts of the proposed highway construction on the two state-listed turtles indigenous to Goose Pond (e.g., Illinois mud turtle and Blanding's turtle). Stucky again reiterated MDC's position that the west alternative was preferred, which would result in avoidance to Goose Pond habitat and reduce the potential impacts on the turtles. He stated that a record of a Blanding's turtle occurred on Route 61, indicating the overland travel of the turtles outside of Goose Pond. Johnson corroborated this information and stated that the record of occurrence was for a single live female specimen in April, 1990 which he had photographed and released.

Gardner explained that the concrete turtle barrier (approximately 15 inches high) proposed by MDC (letter dated 4/2/96) was not feasible because of the

potential safety and liability problems involved and that it was cost prohibitive. The estimated cost of the barrier was approximately $200,000. Johnson stated that he did not like the other alternative turtle barrier that was previously suggested- the ditch lined with concrete rubble. He said that he did not feel that this would restrict the turtles' access to the highway. The idea of fencing was discussed, and Vandike suggested the use of a woven wire fence in conjunction with metal sheeting (approximately 6 inches in height) along the entire length of the bottom portion of the fence. Stucky suggested that the use of aluminum might be a better alternative than steel. The aluminum would provide long-term protection against corrosion and would provide an adequate turtle barrier from the highway. It was proposed that the aluminum strip be buried at a depth of about 4 inches. The proposed fence would parallel the highway along the entire length of Goose Pond (approximately 1.5 miles). Stucky stated that although both of the turtle species were state-listed and did not have to be directly evaluated under NEPA, they are, however, candidates for federal listing. He also mentioned that section (7)(a)(1) of the Endangered Species Act directs federal agencies to utilize their authority to further the purposes of the Act by carrying out conservation measures which may preclude the need to list the species as threatened or endangered.

Johnson presented a comment on behalf of Jim Wilson, Ornithologist, (MDC), related to the section on habitat fragmentation on page 3-49 of the DEIS. Johnson stated that contrary to the text in the DEIS, most wildlife biologists agree that fragmentation does not enhance wildife habitat. This statement, however, did not lend credence to MDC's position on supporting the west alternate, as forested wetland and forested upland impacts would result in increased habitat fragmentation, whereas an eastern alignment would not.

Batenhorst again reminded the MDC personnel in attendance that they could submit their perspectives during the comment period prior to the Final EIS. It was mutually agreed upon by all parties that the turtle barrier and wetland hydrology issues needed to be resolved prior to the Final EIS. Gardner concluded the meeting by summarizing the topics that required further attention. He stated that the emphasis would be on submitting additional surface contour information (MoDOT survey information) and on coordination for the design of a turtle barrier fence with MDC, MoDOT's Distict 3 office, and the FHWA. In closing, Gardner also said that the meeting minutes would be summarized and mailed to each of the attendees.

Copies: Tom Batenhorst-3
Mike Stelzleni-de
Craig Chumbley-RUST
Joan Underwood-RUST
Norm Stucky-MDC
Tom Johnson-MDC
Kathleen Hultgren-MDC
Jim Vandike-DNR

Missouri
Department
of Transportation

MoDOT

Joe Mickes, Chief Engineer

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February 4, 1997

Mr. Norm Stucky
Planning Division
Missouri Department of Conservation
P.O. Box 180
Jefferson City, MO 65102-0180

Dear Mr. Stucky:

Subject: Preliminary Studies, Route 61, Clark/Lewis Counties, St. Francisville to 2.0 Miles N/O Canton (Avenue of the Saints), Job No. J3P0521, Environmental Coordination

I have enclosed some additional information per your request at our meeting of January 21, 1997. The enclosed Figures 1 and 2 were developed using a combination of datum from two U.S. Geological Survey 7.5 minute series topographics (Wayland and Kahoka SE quadrangles) and site specific survey data collected by our Department's District 3 survey crew.

Figure 1 is a composite of the two quadrangles illustrating the surface contours in the vicinity of Goose Pond and the "improve existing" alternative for the above referenced project. Figure 1 also shows the locations of four transects. Figure 2 is a cross sectional representation of the surface elevations along each of these four transects at a given distance. The 500 ft. contour along the western edge of Goose Pond (right-hand side of Figure 2) was chosen as the "0" distance mark from which the distances of select topographic features to the west were measured.

These data are provided to support the conclusions that we reached during our meeting of January 21, 1997; surface water drainage and any potential roadway contaminants from the proposed roadway would not drain directly into Goose Pond given the surface topography, the porosity of the sandy soils, and the lack of evidence to indicate that a definitive hydraulic gradient exists between the location of the proposed alternative and Goose Pond. Surface drainage north of the abandoned Burlington Northern railroad embankment cannot directly enter Goose Pond.

I had suggested during the meeting that my Department's photogrammetry team could produce a surface contour map from existing aerial photography which would be accurate to the nearest foot. However, we cannot produce such a map from existing aerial photography. The area would have to be re-flown at a much lower elevation and new photography taken. Given the busy schedule of our

photogrammetry team, the location of the study area, and the photographic requirements for certain atmospheric and surface conditions, this process could take six to eight months. Coupled with these limitations, we do not feel that such an additional level of effort and expense would yield data that would differ substantially from the data illustrated in Figures 1 and 2, particularly since our District 3 survey crew substantiated the accuracy of this data through field surveys conducted on January 8, 1997.

Jim Vandike (Geologist and Groundwater Section Chief, Division of Geology and Land Survey, Missouri Department of Natural Resources) suggested at our meeting (1/21/97) that 1975 aerial photography (stereo pairs) might be available from the U.S. Geological Survey. This source photography, which was used to produce the two quadrangles combined in Figure 1, could be used to produce a map with 2-5 foot contour intervals. Although this approach would be more cost beneficial, it is very unlikely that such an additional analysis would yield results which differ substantially from the data illustrated in Figures 1 and 2.

We acknowledge that your Department is officially opposed to an alternative east of Wayland, Missouri. However, we feel that we have taken every means possible to avoid and minimize direct impacts to wetlands (including Goose Pond) through the development of the "improve existing" alternative. We would welcome any further recommendations and coordination related to additional measures to minimize harm to Goose Pond or any other wetlands specifically related to this proposed action.

Sincerely,

Gene Gardner

Gene Gardner
Biological Specialist

gg/sw

Enclosures

Copies: Mr. Tom Batenhorst-3
Mr. Mike Stelzleni-de
Craig Chumbley-RUST
Jim Vandike-DNR

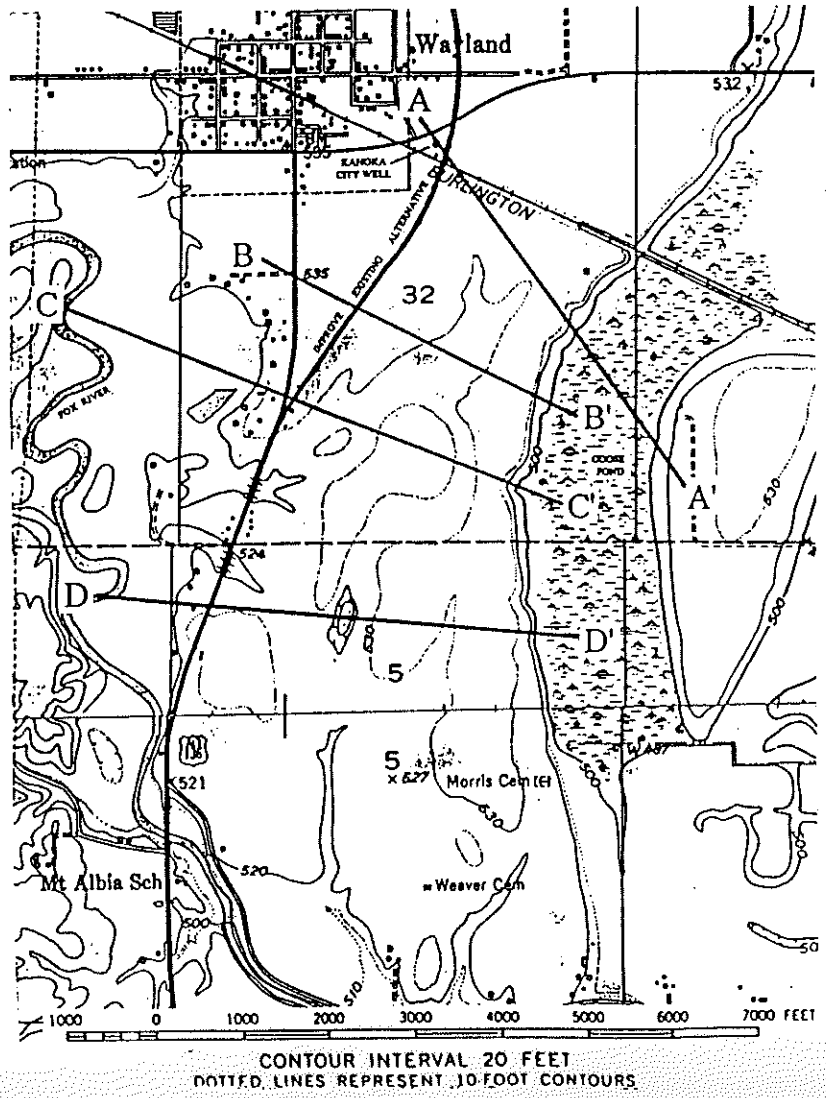


Figure 1. The location of elevation profiles and surface contours (NGVD 1929) in the vicinity of Goose Pond, Clark County, Missouri, in relation to the proposed "improve existing" alternative for Rt. 61, Clark/Lewis Counties, Job No. J3P0521 (Avenue of the Saints).

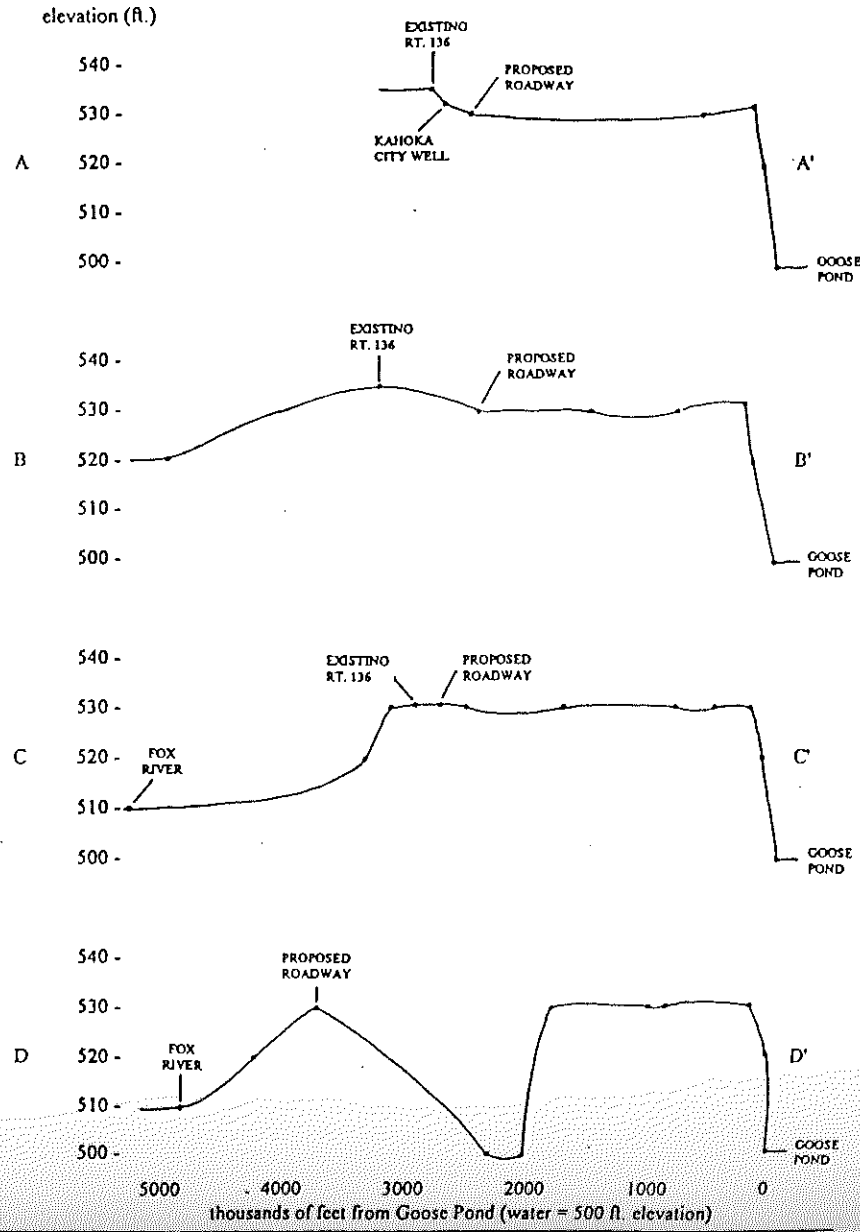


Figure 2. Cross section elevations (feet) for profile locations illustrated in Figure 1.

Appendix B:

Bear Crossing

Billy E Graham/SC/MODOT
02/23/2005 10:36 AM

To Gene.Gardner@mdc.mo.gov
cc Alan Leary/SC/MODOT@MODOT
bcc
Subject Bear crossings

History: This message has been forwarded.

Gene,
Sorry it's taken me so long to pull together this information, but I think I have a better handle on it now. I'll be sending you plan sheets and a copy of the white paper on the various proposed crossings through the mail. Sometime after you and Dave Hamilton digest all this, we can plan to meet on site with the district folks.

Areas C and E: Addressed in EIS for the J9P0455 job; NW of Freemont Tower. The area is located within current job no. J9P0359B. This project is being designed. The district is planning to modify the alignment in the vicinity of Area C. The alignment presented in the EIS was to build four new parallel lanes that had a 300' undisturbed median. What we are thinking of doing now is to build only the westbound lanes and use the existing route as the eastbound lanes. This would increase the width of the median to over 1000' in places and would result in construction cost savings by only building two lanes instead of four. This alignment modification has not been presented to the public yet, and we'll need to prepare a reevaluation of NEPA for this this modification. We plan to use the existing triple box in place at Windes Creek on the eastbound lane, which was designated in "An Evaluation of the Needs for Scenic Variety and Wildlife Crossings Through Public Lands on Route 60 from Willow Springs to Poplar bluff, Missouri, with Recommendations for Location and Design" (bear crossing evaluation) as Area D.

Area F: Addressed in the EIS for the J9P0455 job, and located east of Freemont and Little Pike Creek. This one was eliminated from further consideration, due lack of feasibility (see page IV-38, Final EIS, Route 60, East of Willow Springs to West of Van Buren, May 2001).

Area L: Located SE of Ellsinore near the Carter/Butler Co. line, addressed in the EIS for J9P0455Z, and now is included in Job No. J9P0359. Area L is under construction now. The roadway cuts and fills are complete and the pavement should be placed this summer.

Area N: Located W/O Cane Creek in Butler Co., addressed in the J9P0455Z EIS, and now included in Job No. J0P0573. According to the bear crossing evaluation, as stated in the "objectives and guidelines" number seven, states a median minimum width of 328' from edge of pavement to edge of pavement and a length minimum of 984 is to be provided'. We used 210' for the median width and a length of 4300' for the design on Area N (the median varies from 60' to 210'in 4300'). The reason we did not meet the minimum width was due to the additional costs associated with grade difference between the driving lanes and the right of way costs. This area is constructed and open to traffic but the contractor is still doing minor grading in the area.

Bill Graham
Environmental Compliance Coordinator
Design Division
MoDOT
(573) 526-2909 phone
(573) 522-1973 fax

FINAL REPORT

AN EVALUATION OF THE NEEDS FOR SCENIC VARIETY AND WILDLIFE CROSSINGS THROUGH PUBLIC LANDS ON ROUTE 60 FROM WILLOW SPRINGS TO POPLAR BLUFF, MISSOURI, WITH RECOMMENDATIONS FOR LOCATION AND DESIGN (MoDOT Job Numbers J9P0455 and J9P0455Z)

PREPARED BY
AN INTERAGENCY TEAM;
Missouri Department of Transportation
Missouri Department of Conservation
Federal Highway Administration
U.S. Department of Agriculture, Forest Service

SEPTEMBER 9, 1997

INTRODUCTION

The Missouri Department of Transportation (MoDOT) is currently evaluating a proposed four-lane improvement to existing Route 60 from Route U in Howell County to Route 67 north of Poplar Bluff in Butler County. Separate environmental documents are being prepared which describe the environmental conditions and evaluate the potential impacts of project alternatives. A Draft Environmental Impact Statement (DEIS) for the portion of the proposed improvements from the Van Buren bypass east of Van Buren to Route 67 north of Poplar Bluff (Job No. J9P0455Z) was approved by the Federal Highway Administration (FHWA) on March 3, 1997. Completion of the Final Environmental Impact Statement (FEIS) and its subsequent Record of Decision (ROD) is anticipated by December, 1997. A preliminary DEIS for the portion of the proposed improvements from Route U in Howell County to the west end of the recently completed improvement of Route 60 over the Current River in Van Buren (Job No. J9P0455) was reviewed by FHWA on August 21, 1997; approval of the DEIS is anticipated early in October, 1997.

Several agencies have stated that impacts to the movements and migrations of wildlife could result from construction of the proposed improvements. In their letter of November 20, 1995, the Missouri Department of Conservation (MDC) provided MoDOT with a report, entitled "Effects of Route 60 Development on Black Bears and Recommendations to Provide Wildlife Crossings." The MDC proposed that a number of wildlife crossings be incorporated into the design of the proposed new facility between Winona and Poplar Bluff, Missouri. Fifteen locations were identified as potentially viable crossing locations for American black bear (*Ursus americanus*) and other wildlife species sensitive to highway design and traffic (Table 1; see also Appendix A, Figures 1 and 2). Similar comments were received from the Mark Twain National Forest (MTNF; U.S. Department of Agriculture, Forest Service), a cooperating agency in the development of these projects, and from the U.S. Fish and Wildlife Service and the Ozark National Scenic Riverways.

Two basic designs of wildlife crossings were proposed by MDC; wildlife underpasses and highway ballooned areas or parkways. The use of underpasses (i.e., enlarged culverts and span-type bridges) as crossings by wildlife would be more predictable at creek and stream crossings as they coincide with preferred avenues of travel for some wildlife. The use of highway ballooned areas (where the two lanes of traffic are separated by an enlarged median of thick, natural vegetation) could be incorporated into the design of the improvements where the topography does not provide for adequate underpass construction alone. Vegetated medians would allow wildlife to traverse one narrower lane of traffic at a time and take advantage of concealment cover before crossing the next lane.

Although correspondence and other communication between MoDOT and MDC followed MDC's initial comment letter of November 20, 1995, a course of action to resolve this issue remained ineffective until recently. In their letter of May 19, 1997, MDC recommended that an interagency coordination meeting be convened to reach a final resolution of the wildlife crossings issue. On July 31, 1997, such a meeting was held at MoDOT's District 9 Office in Willow Springs, Missouri. The resolution of the issues at that meeting (Appendix B, meeting minutes)

Table 1. Fifteen proposed wildlife crossing locations (identified by the Missouri Department of Conservation) along Route 60 between Winona and Poplar Bluff, Missouri. [Modified from Table 3 in MDC's 1995 report, entitled "Effects of Route 60 Development on Black Bears and Recommendations to Provide Wildlife Crossings."]

SITE	TYPE	PRIORITY	APPROX. PROJECT MILE MARKER*
Site A	Balloon	Medium	57
Site B	Underpass	Medium	58-59
★ Site C	Balloon	High	61
Site D	Underpass	High	62-63
★ Site E	Balloon	Highest	63-67
★ Site F	Balloon	High	72-75
Site G	Balloon	Medium	78
Site H	Balloon	Medium	93-95
Site I	Balloon	Medium	96-97
Site J	Balloon	High	98-101
Site K	Underpass	Medium	110.5
★ Site L	Balloon	High	111-113
Site M	Underpass	Medium	115.5
★ Site N	Balloon	High	120-121
Site O	Underpass	High	121

* Mile markers estimated from project starting point near Willow Springs (MHTD newsletter - June 1995)

★ Selected for development of conceptual plans as highway balloned areas during the interagency meeting of July 31, 1997.

resulted in the formation of an interagency team that was directed to quickly develop specific conceptual plans and information for five of the original fifteen areas proposed by MDC as wildlife crossings. The team met at MoDOT's Resident Engineer office in Rolla, Missouri, on August 4 and 19, 1997, and developed specific concepts for wildlife crossings. The findings and final recommendations of that team are presented in this report.

OBJECTIVES AND GUIDELINES

A very important first task of the team was to develop an objective statement. Simply stated, the team's primary objective was as follows:

To optimize the compatibility of the proposed improvements with the region's scenic qualities and wildlife movements without compromising cost, function, or public safety.

During the meeting of July 31, 1997, the interagency representatives agreed upon several criteria which would guide the team in the development and evaluation of specific wildlife crossing concepts (Appendix B, meeting minutes). The following specific objectives are a combination of those criteria and the team's perception of their primary considerations in the development of recommendations:

1. Maintain the highest possible level of safety to the traveling public (i.e., no substandard design criteria would be allowed). Ballooned areas will not include at-grade intersections (i.e., crossovers) of designated state routes, precluding any hazardous situations where the separated lanes of traffic are not visible to approaching motorists. This design consideration should diminish the risk of head-on collisions;

2. Develop specific conceptual plans and associated information for scenic vistas and wildlife crossings at areas C, E, and F, (for Job No. J9P0455), and at areas L and N (for Job No. J9P0455Z) which were originally identified in MDC's 1995 report (Appendix A, Figures 1 and 2);

3. Maintain the functionality and economy of the proposed improvements including the implementation of any scenic vista or wildlife crossing recommendations.

4. Develop an estimate of construction and other costs related to each recommendation so that they can be evaluated from an economic viewpoint;

5. Public lands (i.e., MTNF lands) must occur on both sides of the proposed improvement where potential crossing areas have been identified;

6. Optimize opportunities for scenic vistas, particularly within the vicinity of public lands, through enlarged, naturally-vegetated medians and elevated roadway designs while maintaining landscape diversity.

7. Accommodate a minimum of 100 m (328 ft) of median width from edge of typical right of way to edge of typical right of way for a minimum length of 200-300 m (656-984 ft). However, avoid creating additional costs associated with deep cuts and steep fills, which could also impede or prevent wildlife movement across such sections;

8. Incorporate designs which would avoid or minimize the possibility of adverse interactions between wildlife and automobiles. Safer crossings for wildlife could greatly reduce the probability of collisions with wildlife, thereby avoiding personal injury or fatality to motorists and damages to private property;

9. Develop vegetation establishment and management recommendations for enlarged median areas and additional potential wildlife crossing locations such as culverts and span-type bridges;

10. Identify and evaluate additional environmental impacts (e.g., cultural resources, wetlands, hazardous waste sites, etc.) which might result from the implementation of any recommendations.

BASIC ASSUMPTIONS

The team operated under the assumptions below which were formulated from MDC's 1995 report, a critical examination of the best scientific information available, consultation with known experts on black bear/highway issues, other biologists, and transportation officials from other states which have addressed similar issues. These assumptions were reviewed by the agency participants prior to the interagency meeting of July, 1997, were presented by MoDOT during that meeting, were adopted by agency representatives, and are considered MoDOT's official position on this issue. However, it should be noted that other agencies may not fully endorse, or even agree with, the following assumptions due to differences in the opinions of their resource professionals.

1. The needs for improvements to Route 60 include meeting future transportation demands, safety considerations, and the need to improve the overall efficiency of the transportation system to both local and through traffic. However, there are long-term benefits to developing a roadway design which meets these needs without compromising the visual values of the natural region through which these improvements will extend. The environmental setting for this project is the "Ozarks," an area composed of steeply sloped valleys and tapering ridges which, from panoramic vantages, appear to be uniformly wooded rolling hills with occasional clearings or glades. Physiography, topography, vegetation, and land use in this rural Ozark area are strong determinants of the visual environment and considerations must be given in planning and

designing an improved facility that enhances the visual experiences that contribute to the attraction of tourism and minimizes disruption to the natural scenery. Maintaining a high level of scenic quality is particularly important where the improvements pass through public lands.

2. The proposed improvements traverses a region of Missouri which is mostly rural with significant links to cities (e.g., Poplar Bluff) in terms of population growth, economic activity, and employment. However, much economic value is placed on the region's natural resources (e.g., production of lumber, charcoal, other forest-based industry), which include revenue brought in through tourism. [Note: Evidently, wildlife is viewed as an important natural resource within the study area, because when Judge David J. Hedspeth levied the maximum fine possible ($500) to a Van Buren resident for illegally shooting a black bear, Mr. Bradshaw Smith (Carter County Prosecuting Attorney) was quoted as saying "Most folks who live here enjoy seeing wildlife, and wildlife is important to local tourism business. We've got a good thing in Carter County, and we intend to take care of it" (Jefferson City News Tribune, Sunday, August 17, 1997)].

3. Providing wildlife crossing structures at critical crossing areas is important, particularly in areas where interstate highways have created a serious barrier to animal movements and where many animals are killed as they attempt to cross the highway. However, there is no evidence (i.e. road kills, radio-tracking data, traditional corridors of movements, etc.) to substantiate the additional costs of constructing underpass structures (e.g., culverts, half pipes, bridges) within the Route 60 study area solely for the purpose of providing crossings for black bears or other species of wildlife.

4. Several other states (e.g., Florida, North Carolina, Tennessee) are experimenting with enlarging or otherwise modifying the design of culverts which were originally located and designed specifically to convey water beneath the highway. However, a review of the literature and consultation with professionals in other states indicate that black bears are very infrequent users of culvert crossings, even when such structures are constructed properly (i.e., adequately sized) and are placed at well-documented travel corridors within areas of high black bear density. The extremely low density of black bears within the Route 60 study area, combined with the likelihood that black bears only occasionally cross existing Route 60 where it is convenient for them and probably at night during low traffic levels, does not justify any additional expense associated with enlarging or modifying culvert structures.

5. Highways, particularly interstate-type facilities, have been shown to affect the daily and seasonal movements of black bears, limit their dispersal into areas of new habitats, and otherwise fragment existing populations in certain areas of states that have a high density of black bears. However, widening and improving the existing route throughout much of its location, rather than substantially cutting across new areas of habitat on a completely relocated facility, will greatly minimize any potentially harmful effects. This reasoning was adopted by the U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service and other resource or regulatory agencies in Wyoming related to improvements to U.S. Highway 14/16/20 through the Yellowstone National Park and two wilderness areas known to be extremely significant habitat for the federally threatened grizzly bear.

6. Research findings on the behavior and movements of black bears, and most other large species of wildlife, indicate that watercourses are important travel corridors. Heavy vegetation cover, particularly conifers, undoubtedly enhances the use of such travelways by black bears. For these reasons, an improved facility should incorporate a crossing environment that would be more conducive (i.e., attractive) to black bears and other wildlife through the establishment and maintenance of a thick cover of vegetation (e.g., shrubs, trees). Such landscape enhancements should coincide with locations where topography and drainages necessitate the design of span-type bridges and box culverts. A vegetation plan should be developed for all recognized crossing locations, including span-type bridges and box culverts.

7. The "highway ballooning" concept recommended by MDC as an approach to minimizing any potential effects that Route 60 might have related to black bears and other wildlife is a valid one. In this case, increasing the amount of right of way required for ballooning only within areas owned by USDA and managed by MTNF should not result in an increase in the project's rights of way costs. Pending their approval of the environmental documents and any recommendation that the interagency team might make, rights of way will be granted to FHWA as federal highway easements. The MTNF supports the highway ballooning concept if the concept is recommended as the optimal solution for wildlife crossings. Since the enlarged median area does not have to be maintained, there would be no significant additional costs for long-term maintenance.

Creating an enlarged median area will only be considered where the proposed improvements pass through public lands (i.e., MTNF lands) for the following reasons:

A. As stated in the literature, wildlife crossings should only be considered where public lands occur on both sides of the highway to ensure the long-term success of these animal crossings. In the case of this project, the MTNF would be responsible for maintaining the integrity of the adjacent habitat on their lands on each side of the crossing areas; the median area will also be managed to provide natural concealment cover for wildlife.

B. Motorist safety is paramount to the improvement of any highway facility. Therefore, by ballooning only within MTNF lands, points of access could be severely limited, thereby greatly reducing the risk to motorist which might become confused and begin traveling the "wrong" direction upon entering the facility.

C. Placing ballooned sections within MTNF lands would also preclude or greatly reduce the possibility that secondary development would occur in the vicinity of the wildlife travel corridors. Gordon Warburton (bear biologist, North Carolina Wildlife Resources Commission) stated that secondary and cumulative impacts which may result from development are probably more detrimental to bear movements and other activities, since bears tend to completely avoid developed areas.

RESULTS AND RECOMMENDATIONS

At the first meeting of the team on August 4, 1997, team members examined maps titled Route 60 location study and other documentation illustrating the general locations of the five areas to be evaluated for development of scenic variety and as potential wildlife crossings (i.e., highway ballooning) in relation to the project alternatives, the surrounding landscape, and a broad scope of environmental parameters (e.g., wetlands, known cultural resource sites, etc.). Maps from MDC's 1995 report, which illustrate the general locations of the proposed wildlife crossing areas C, E, and F (for Job No. J9P0455), and areas L and N (for Job No. J9P0455Z) are provided in Appendix A (Figures 1 and 2).

Upon becoming familiar with the "environmental settings" of the wildlife crossing locations, the feasibility of designing enlarged median areas, from a visual, engineering, and biologically significant perspective was discussed. Opportunities for incorporating scenic variety became obvious for some areas and were included in the conceptual discussions. A table was developed to aid in the evaluation of the potential wildlife crossings (Table 2). The criteria used in the development of Table 2 encompassed the scope of those objectives defined under the Objectives and Guidelines section of this report. Some data for Table 2 (i.e., estimated additional construction and right of way costs) had to be calculated after the conceptual plans were developed. Areas C and E were combined during the evaluation process due to their proximity to one another.

In the interim period before the second meeting of the team on August 19, 1997, conceptual plans (e.g., scaled illustrations) for the location and design of the wildlife crossings were developed by District 9 (Appendix C; Figures 3 - 6) and served as the basis for estimates of additional construction and right of way costs. A draft version of this report was also prepared and circulated to team members for their review so that specific revisions could be discussed and implemented during the second meeting. During this interim period, confirmation of certain elements of the data included in Table 2, relating to potential additional environmental impacts, was made through additional field investigations within the proposed crossing locations.

During the second team meeting (August 19, 1997) the conceptual plans were examined and their feasibility was discussed in detail. All the elements of Table 2 had been completed and their evaluation weighed heavily in the development of the following recommendations:

1. Areas C and E (combined; for Job No. J9P0455), and areas L and N (for Job No. J9P0455Z) are considered feasible and prudent and it is recommended that their design be incorporated into the design of the proposed improvements to Route 60 for the following reasons:

    A. These conceptualized crossing designs meet or exceed the evaluation criteria established during the interagency meeting of July 31, 1997 (Table 2).

B. The locations of these areas could potentially reduce the risks attributed to head-on collisions and collisions with wildlife attempting to cross the facility, thereby reducing the risks of injuries, fatalities and damages to personal property.

C. The locations of enlarged median areas provide scenic variety through areas of concentrated public lands in a region of Missouri where resident and non-resident motorists traveling through the high quality "natural" landscape expect scenic opportunities.

D. Since the locations of enlarged median areas were only included within areas where public lands (i.e., MTNF lands) occur on both sides of the proposed improvement, there is negligible additional impacts to private lands. No alternative can completely avoid taking of private lands for the required rights of way. However, $\leq$2 ac (0.8 ha) of additional right of way through private property is required for Areas C and E (combined), approximately 5 ac (2 ha) for Area L, and 8 ac (3 ha) for Area N.

E. The designs of these crossing areas maximize opportunities for wildlife to safely cross the proposed new facility while ensuring a greater connectivity of habitat areas that serve as important corridors of travel for wildlife.

F. The estimated additional construction costs relative to the total costs for the proposed improvements are minimal. These estimates were based upon 6 m (20 ft) additional length for Area N, 151 ft (46.5 m) for Area L, and 553 ft (170 m) for Areas C and E combined.

G. The estimated additional construction costs of $100,000 for Areas C and E combined are particularly cost-effective, since this combined crossing area incorporates MDC's original request for the establishment of a wildlife crossing corridor at Area D (existing triple box culvert at Windes Creek). Likewise, the $20,000 additional costs for Area N will incorporate MDC's original recommendation for the enhancement of a crossing corridor at Area O (span-type bridge over Cane Creek). The $30,000 estimated additional costs for Area L are equally cost-effective and represent an insignificant deviation from the alternative which was previously conceived for this location.

2. While the conceptual design for an enlarged median within Area F is considered engineeringly feasible, it is also considered highly problematic from a wildlife crossing viewpoint. The necessity for deep roadway cuts and steep fill slopes through this area of steep terrain could conceivably create significant barriers to the movement of wildlife across the facility. This potential problem would be further compounded by the possibility (i.e., AASHTO design standards) of guard rails along the filled portions of the roadway. To compound these problems, the additional construction costs ($600,000) associated with this crossing concept are the results of creating a widened median area for a four-lane relocation that deviates substantially from the alternative

being studied; the only alternative under study by MoDOT's consultant completely parallels the existing route.

3. The enlarged median areas between the limits of typical right of way are to receive no additional maintenance and they should be allowed to develop a thick vegetation cover. The absence of maintenance activities will preclude the necessity for a developed access to these median areas and public access should be prohibited. [Note: Specific agency responsibility for maintenance of the median areas has yet to be decided.]

4. The MoDOT should develop specific designs for the establishment of native vegetation in association with crossing locations within stream corridors to provide concealment cover for wildlife. An advisory team, which could include resource specialists from the MDC and MTNF, could develop such plans during the design phase of project development. Such native species that are already commonly encountered in stream corridors within the project limits include sassafras (*Sassafras albidum*), dogwood (*Cornus florida*), hawthorn (*Crataegus sp.*), smooth sumac (*Rhus glabra*), fragrant sumac (*Rhus aromatica*), Ozark witch hazel (*Hamamelis vernalis*), big bluestem (*Andropogon Gerardi*) and other native grasses, deerberry (*Vaccinium stamineum*), farkleberry (*Vaccinium arboreum*), coralberry (*Symphoricarpos orbiculatus*), and sensitive brier (*Schrankia uncinata*).

5. The MTNF should manage their lands in the vicinity of the crossing locations to provide long-term habitat connectivity and to maintain the effectiveness of the crossings.

Table 2. Evaluation of potential scenic opportunities and wildlife crossings at areas N, L, C and E (combined), and F within the proposed improvement corridors for Route 60.

CRITERIA	AREAS			
	Job No. J9P0455Z		Job No. J9P0455	
	N	L	C/E	F
Engineering Feasibility	Yes	Yes	Yes	Not Likely
MTNF on Both Sides	Yes	Yes	Yes	Yes
Evaluation of Connecting Roads	(1) MTNF trail; (2) need to close median area before County Road 411	No Roads	(1) Private Drives (2) Route W on west end; (3) County Rd. 165 on east end	(1) Major FS road goes south; (2) County Rd. 134 on east end
Additional Impacts to Private Lands	Yes - 8 ac (3 ha) at east end near Cane Creek	Yes - 5 ac (2 ha) at west end	Likely - about 2 ac (0.8 ha) near Windes Creek	Yes -could total >30 ac (12 ha) at west end
Meets or Exceeds Minimum Median Width (328ft/100m) and Length (656-984ft/2-300 m)	Yes >328 ft (100m) width ~2373 ft (730m) length	Yes >328 ft (100m) width 1495 ft (460m) length	Yes >328 ft (100m) width 7930 ft (2440 m) length	Yes >328 ft (100m) width 3738 ft (1150m) length
Estimated Additional Construction Costs	$20,000 (minimal deviation from existing alt.)	$30,000 (minimal deviation from existing alt.)	$100,000 (minimal deviation from existing alt.)	$600,000 (substantial deviation from existing alt.)
Estimated Additional Right-of-Way Costs	$16,000	$10,000	$3,000	$45,000
Assessment of Cut/Fill (problematic?)	Unlikely	Unlikely	Unlikely	Highly Likely
Meets AASHTO Design Standards	Yes	Yes	Yes	Yes

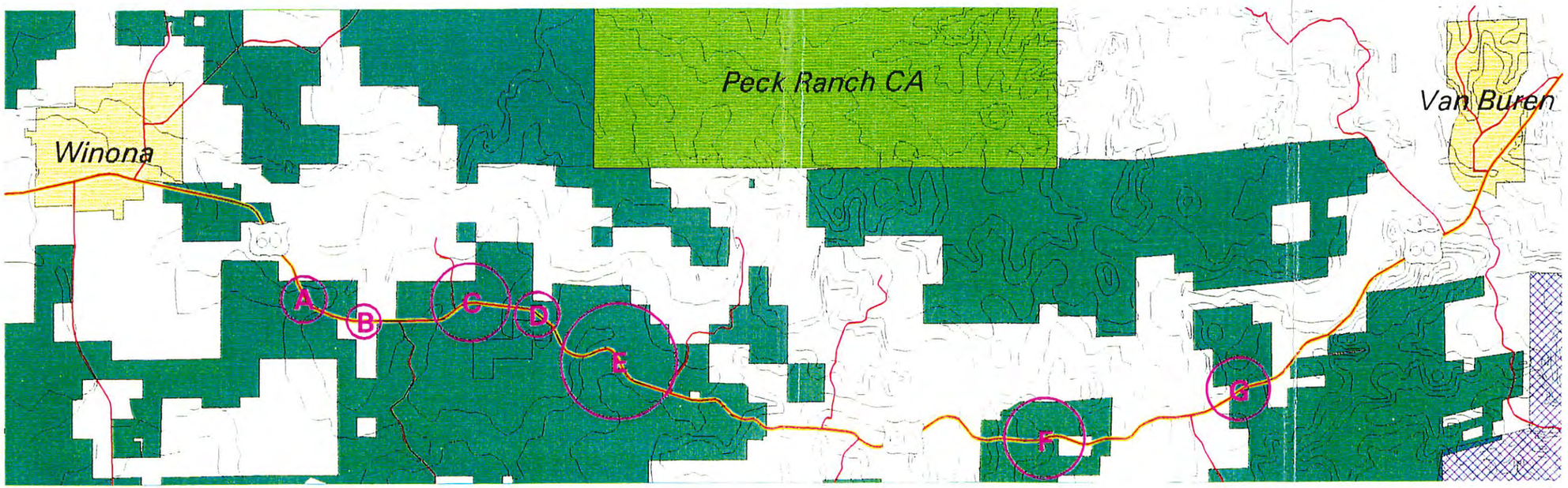
Table 2. continued

Preliminary Evaluation of Potential Additional Environmental Impacts				
TOPIC	**AREAS**			
	Job No. J9P0455Z		Job No. J9P0455	
	N	L	C/E	F
4(f) or 6 (f)	No	No	No	No
Aesthetics	Plus	Plus	Plus	Plus
Significant Geologic Features	No	No	Sinkhole (not water-filled)	No
Wetlands	1 PEMA (likely not juris.); 1 PFO1A (intmt. stream crossing)	No	No	No
Significant Ecological Cover	No	No	No	No
Additional T & E	No	No	No	No
R9	No	No	Yes	No
Cultural	No	No	No	No
Hazardous Materials	No	No	No	No
Disrupts Access to Trails or Other Developed Recreational Facilities	No	No	No	No

APPENDIX A

Route 60 Location Study

Winona to Van Buren



Missouri Department of Conservation

Mark Twain National Forest

Ozark National Scenic Riverways

Municipal Areas

A — Site Letter

Potential Wildlife Crossing Avenues

N
W
E
S

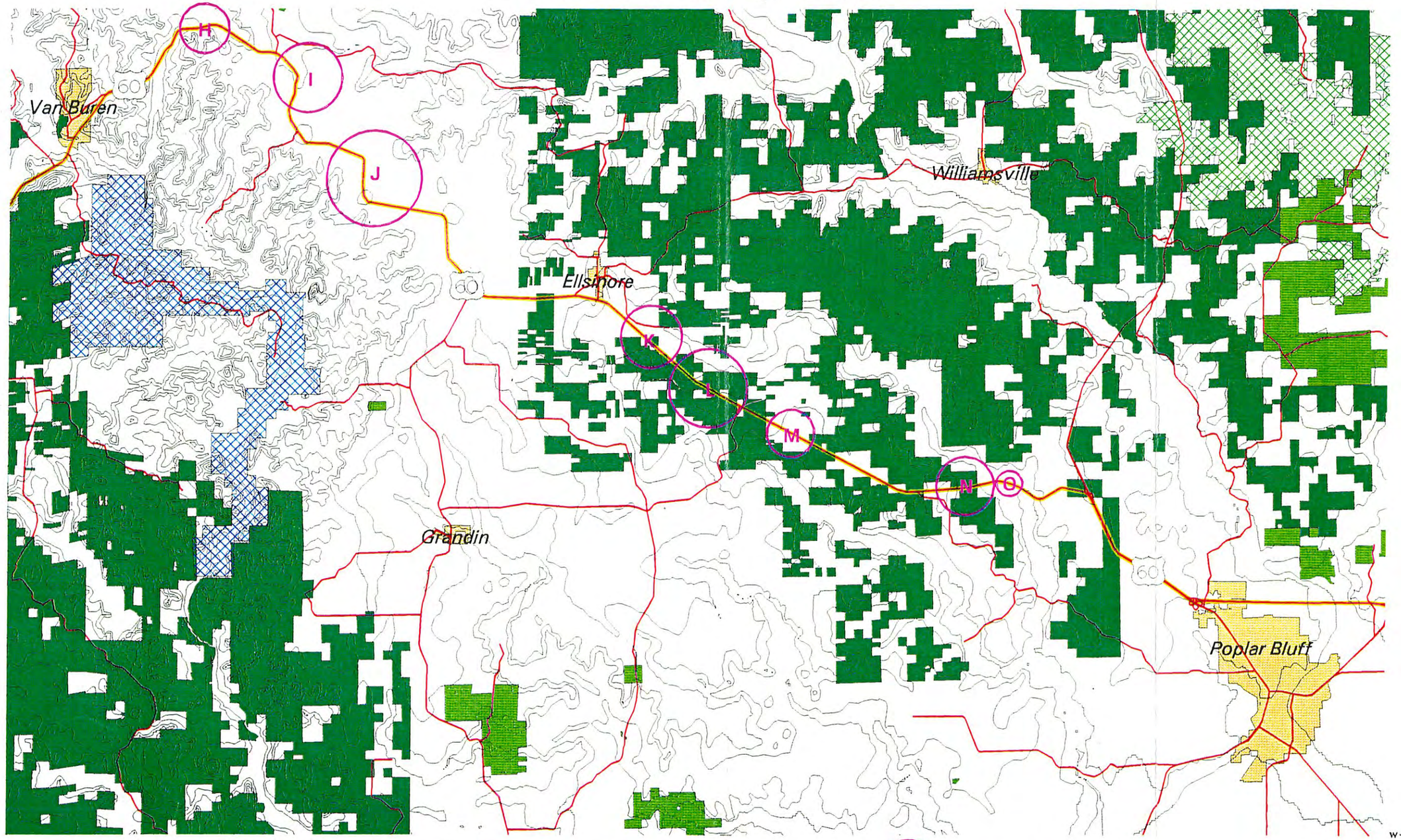
Sources: Missouri Highway and Transportation Department, United States Geological Survey, Missouri Department of Conservation

Cartography: Tony Spicci - August 1995

Figure 2

Route 60 Location Study

Van Buren to Poplar Bluff



Missouri Department of Conservation
Mark Twain National Forest
Ozark National Scenic Riverways
US Army Corps of Engineers
Municipal Areas

A — Site Letter

Potential Wildlife Crossing Avenues

Sources: Missouri Highway and Transportation Department, United States Geological Survey, Missouri Department of Conservation

Cartography: Tony Spicci - August 1995

APPENDIX B

FINAL MINUTES
INTERAGENCY COORDINATION MEETING
RELATED TO THE NEEDS FOR SCENIC VARIETY AND WILDLIFE MIGRATION AND MOVEMENT THROUGH PUBLIC LANDS

August 20, 1997

An interagency coordination meeting was held at Missouri Department of Transportation's (MoDOT) District 9 Office in Willow Springs, Missouri, on July 31, 1997. The issues at hand pertained to the proposed improvements to Route 60 from Willow Springs to Poplar Bluff (Job Numbers J9P0455 & J9P0455Z). A list of attendees is attached to these minutes; a copy was provided to each attendee before the close of the meeting.

Tom Stehn, District Engineer, opened the meeting with welcoming remarks and emphasized the following points:

-these projects have been under location and environmental study for four years; it is time to complete the environmental documents and move forward with the design and implementation of the projects;

-one project, from 0.2 mile east of Route 21 North to 1.3 miles east of Route 21 South (J9P0282), is part of the overall plan to build Route 60 into a four-lane highway. This improvement is a Short Term Action Plan (STAP) project and will received the highest priority to complete. It is imperative that the location and environmental studies (J9P0455Z) which includes this project location be completed on time;

-the issues at hand need to be resolved quickly so the environmental documents can be completed;

-the target date for completion of design plans ready for project letting is December 31, 1998 (note: completion of the Final Environmental Impact Statement (FEIS) for the Van Buren to Poplar Bluff portion (J9P0455Z) and subsequent Record of Decision is anticipated by December 31, 1997).

Gene Gardner (Preliminary Studies, MoDOT) briefly defined the issues at hand and the objectives of the meeting. An agenda was presented and each agency was allotted an adequate amount of time for their representatives to speak.

Missouri Department of Conservation (MDC)

David Hamilton provided an overview of the status and location of Missouri's black bear population. He also stated MDC's professional opinion of the potential effects of the planned improvements to Route 60 on the migration and movements of black bear and other species of wildlife. Copies of MDC's report, entitled "Effects of Route 60 Development on Black Bears and Recommendations to Provide Wildlife Crossings," were made available during the meeting. The report identified 15 areas for wildlife crossing locations through a combination of enhancements to underpasses (i.e., culverts and span-type bridges) and the development of "ballooned areas" (i.e. widened medians or parkways to provide natural cover). During the course of the meeting David provided a site-by-site description and a recommendation.

U.S. Forest Service, Mark Twain National Forest (MTNF)
The MTNF wished to reserve their comments and potential commitments to the resolution of this issue until their "line officers" (District Rangers) and the supervisor's office have had a chance to review specific information (i.e., exact amount of land required for granting the federal highway easement, additional costs, total environmental impacts, and other factors). The transfer of federal highway easements would be from USDA to FHWA, but the MTNF would retain fee title. Therefore, there are no right-of-way costs where the proposed facility crosses MTNF lands. Once their NEPA requirements have been completely fulfilled, the MTNF would issue a Statement of Findings (i.e., decision notice); their document would state that the USDA has formally concurred with the findings of the FEISs for these projects, allowing the right-of-way easement granting to occur.

FHWA/MoDOT
FHWA and MoDOT expressed their concerns for safety and the need to minimize associated project costs, while avoiding or minimizing environmental impacts. A summary of MoDOT's position (attached to these minutes) related to the wildlife crossings issues and MDC's recommendations was presented during the meeting. Briefly, that position summary stated the following:

-no construction of culverts designed exclusively as wildlife crossings.

-no over sizing, lengthening, or otherwise structurally modifying culverts designed to convey drainage,

-no lengthening or otherwise structural modifications to span-type bridges, however, slight modifications in grading beneath these structures (i.e., level bench of earthen material) would be given consideration during the design of these structures in order to accommodate wildlife passage.

-there was no opposition to the development of landscape enhancement plans (i.e., vegetation management) to provide adequate cover within the right-of-way near the openings of culverts and beneath span-type bridges which would favor the passage of wildlife

-further consideration would be given to the conceptual development of "ballooned" areas that would promote the retention of adequate vegetation cover for the safer passage of wildlife across Rt. 60, provide scenic vistas for the traveling public, reduce construction costs, and maintain the highest level of safety possible.

There was considerable discussion related to the resolution of the issues at hand. However, a group consensus was reached and the following specific recommendations (action items) were adopted as the preferred course of action:

1. An interagency team was formed which will develop specific conceptual plans and information for five areas proposed as "ballooned" wildlife crossings (i.e., enlarged median areas with dense vegetation) within the project limits. Members of the team include Gene Gardner (MoDOT Preliminary Studies biologist), Mike Staggs (FHWA engineer), Mike Wake (MoDOT District 9 engineer), David Hamilton (MDC research biologist), John Harty (MoDOT District 10 engineer), and Garry Houf (MTNF biologist/planner).

The environmental consulting firms of QST Environmental and TransSystems Corporation are preparing the EISs and were acknowledged as authorities on the proposed action and the area of impact; although not serving directly on the team, they will be an invaluable resource for information.

2. The five wildlife crossing areas where conceptual plans will be developed were C, E, F, L and N.

3. The following criteria include, but were not necessarily limited to, developing a concept for and evaluating the suitability of each of the five areas proposed as crossings:

-predominance of public lands (i.e., MTNF land) on both sides of the proposed area and determine a value as a "strategic wildlife movement corridor"

-description and classification (ranking) of roads connecting to the proposed area to address safety issues

-accommodate a minimum of 100 meters (328 feet) of median (i.e., ballooned) width from edge of typical right of way to edge of typical right of way for a minimum length of 200-300 meters (656-984 feet), but a mile is preferred by MDC

-develop an estimated construction cost and other associated costs

-estimate at-grade crossing potential and avoid creating additional problems such as steep cuts or slopes that might create barriers to wildlife movements

-incorporate American Association of State Highway and Transportation Officials (AASHTO) standards (e.g., clear zone standards for safety)

-develop a vegetation management objective for the median area and surrounding lands within the crossing corridor

-determine additional environmental impacts (e.g., archaeological or other historical resources, wetlands, hazardous waste, residential displacements, etc.)

4. The first meeting of the interagency team will be August 4, 1997, in Rolla, Missouri. The development of preliminary concepts for the five areas are anticipated to be available for agency reviews by late August, 1997.

ATTENDEE LIST

INTERAGENCY COORDINATION MEETING

JULY 31, 1997

NAME	AGENCY	PHONE NUMBER
Tom Hambelton	MoDOT-D9	417-469-6236
Mike Wake	MoDOT-D9	417-469-6237
Willie Johnson	MoDOT-D9	417-469-3134
Brent McClane	QST Environmental	314-567-4600
Scott H. Stone	MoDOT-Van Buren	573-323-4310
Mike Staggs	FHWA	573-636-7104
Peggy Casey	FHWA	573-636-7104
Dave Ahlvers	MoDOT-D9	417-469-3134
Bob Willis	USFS-Rolla	573-364-4621
Phillip Weston	USFS-Poplar Bluff	573-785-1475
Jay Waggoner	MoDOT-D9	417-469-6237
Dave Hamilton	MDC	573-882-9880
Gary Christoff	MDC	573-751-4115
Jim Armstrong	MoDOT	417-469-6241
Jeff Johnson	MoDOT	417-469-6243
Shari Cannon-Mackey	TranSystems	816-561-9800
Kris Ericson	QST Environmental	314-561-4600
Gene Gardner	MoDOT-PS	573-526-5644
John Howland	MoDOT-PS	573-526-5645
Jody Eberly	MTNF-Doniphan/Eleven Pt. R. D.	573-325-4233
Terry Miller	MTNF-Doniphan/Eleven Pt. R. D.	573-996-2153
Pepper Martin	MTNF-Poplar Bluff R. D.	573-785-1475
Tom Stehn	MoDOT-D9 Engineer	417-469-3134
Roy Altermatt	MoDOT	417-469-2589

APPENDIX C

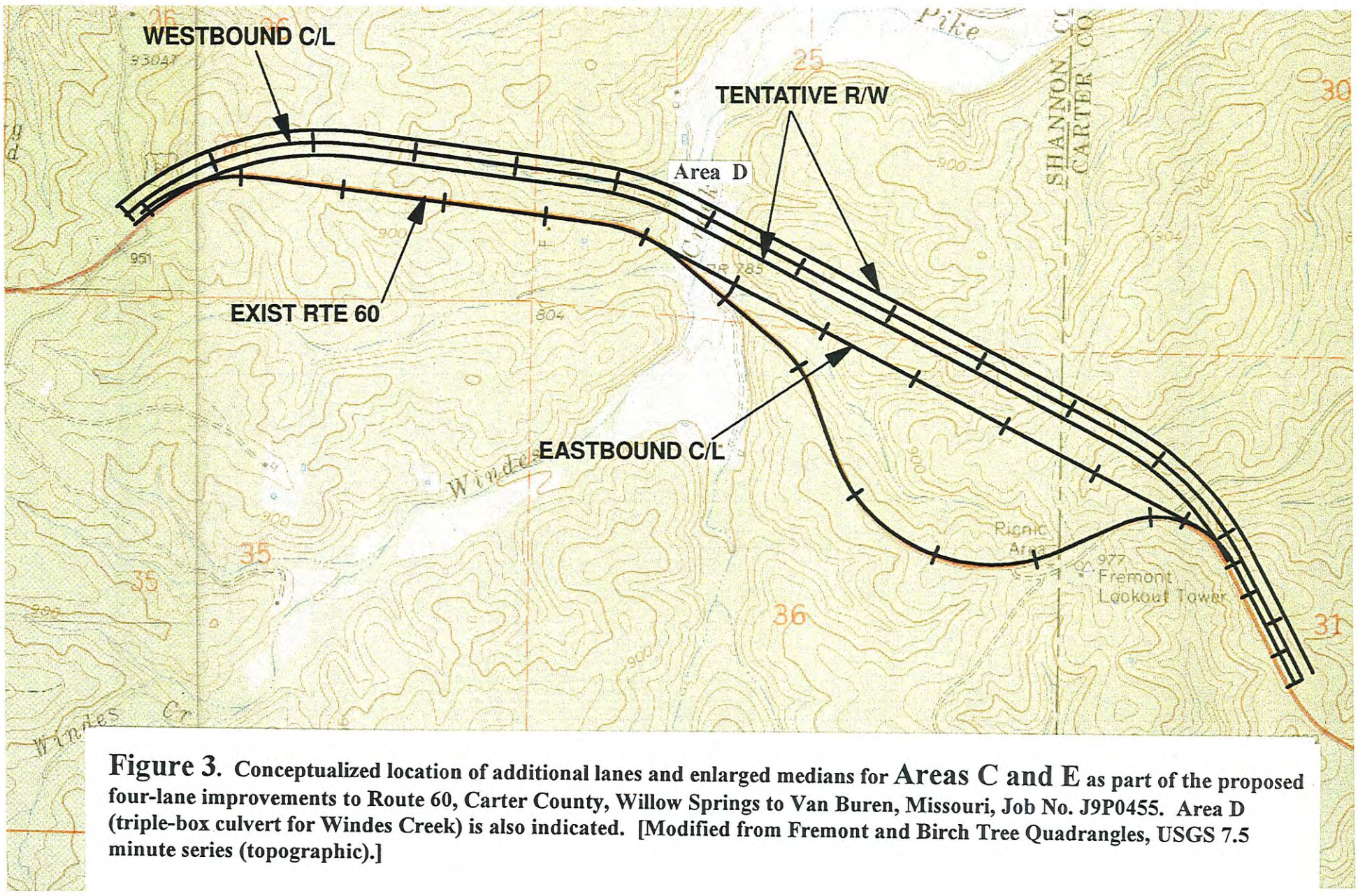


Figure 3. **Conceptualized location of additional lanes and enlarged medians for Areas C and E as part of the proposed four-lane improvements to Route 60, Carter County, Willow Springs to Van Buren, Missouri, Job No. J9P0455. Area D (triple-box culvert for Windes Creek) is also indicated. [Modified from Fremont and Birch Tree Quadrangles, USGS 7.5 minute series (topographic).]**

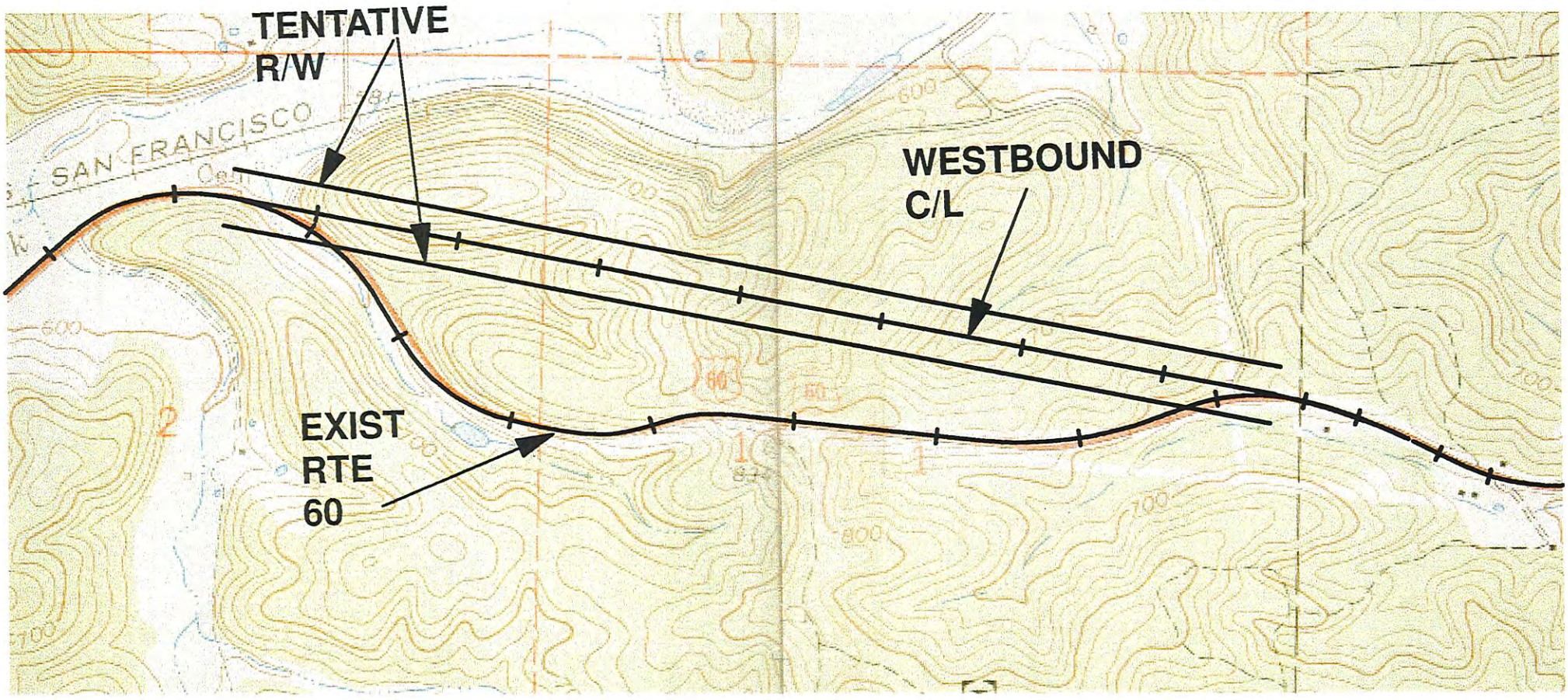


Figure 4. **Conceptualized location of additional lanes and enlarged median for Area F as part of the proposed four-lane improvements to Route 60, Carter County, Willow Springs to Van Buren, Missouri, Job No. J9P0455. [Modified from Fremont and Van Buren South Quadrangles, USGS 7.5 minute series (topographic).]**

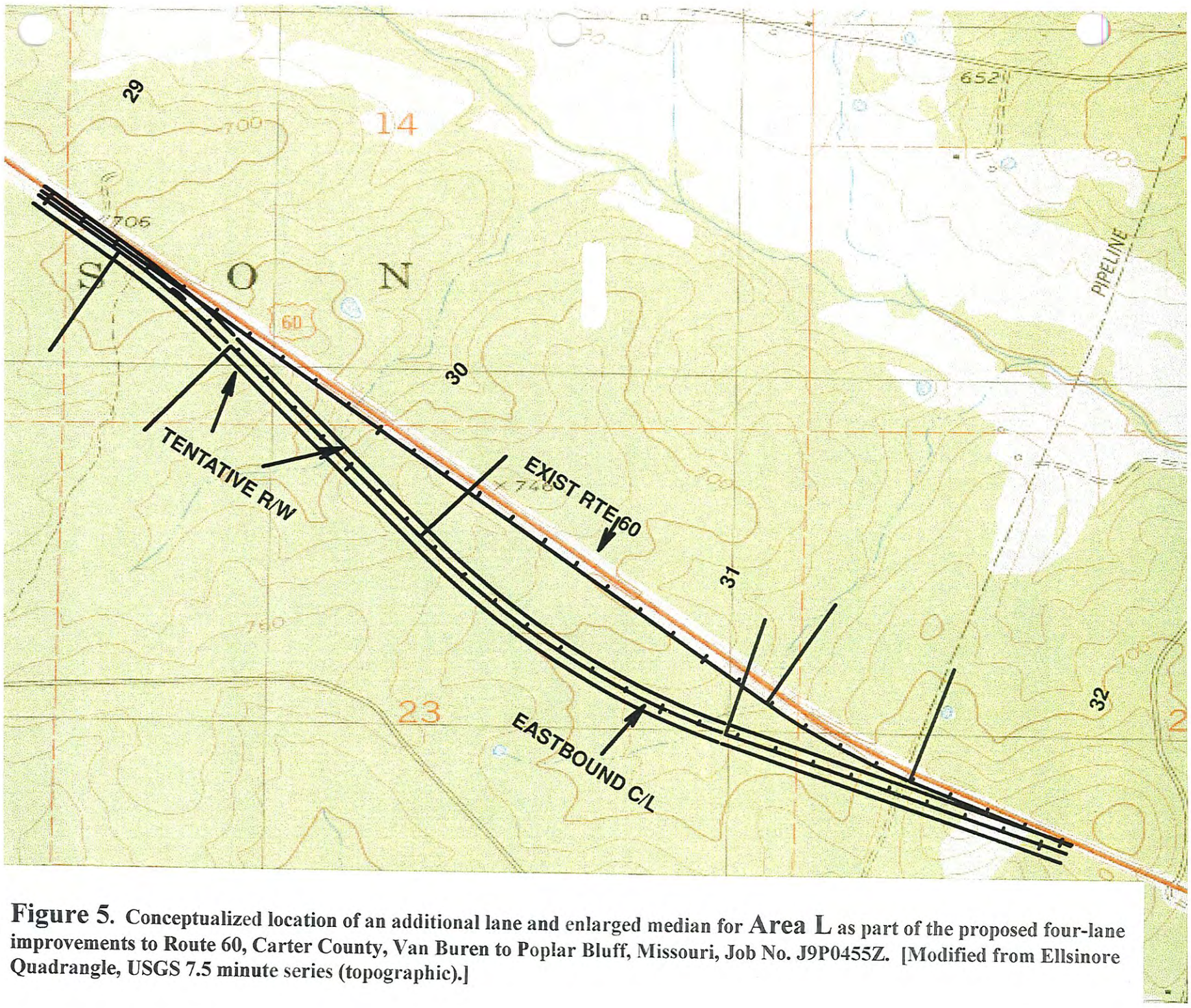


Figure 5. **Conceptualized location of an additional lane and enlarged median for Area L as part of the proposed four-lane improvements to Route 60, Carter County, Van Buren to Poplar Bluff, Missouri, Job No. J9P0455Z. [Modified from Ellsinore Quadrangle, USGS 7.5 minute series (topographic).]**

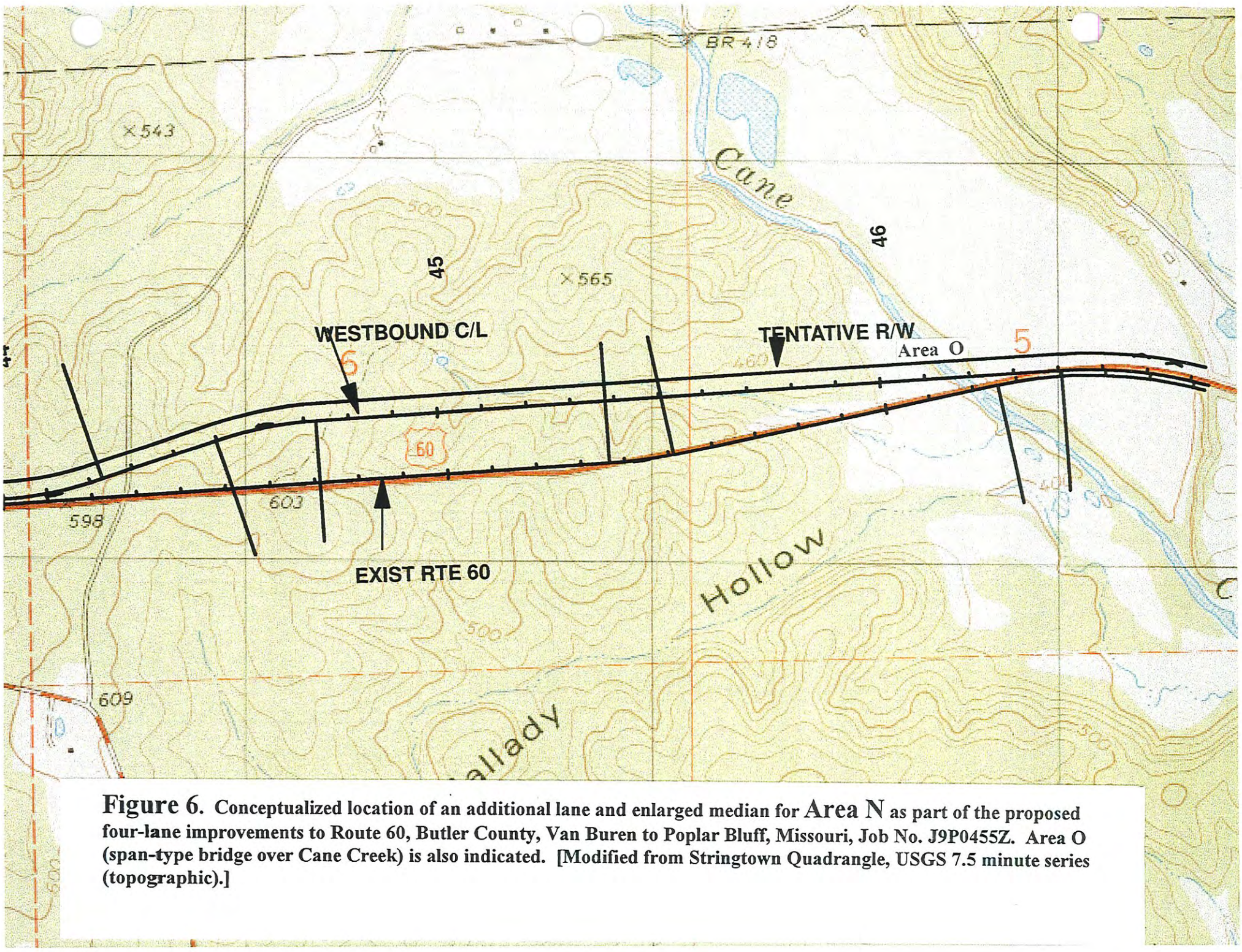


Figure 6. **Conceptualized location of an additional lane and enlarged median for Area N as part of the proposed four-lane improvements to Route 60, Butler County, Van Buren to Poplar Bluff, Missouri, Job No. J9P0455Z. Area O (span-type bridge over Cane Creek) is also indicated. [Modified from Stringtown Quadrangle, USGS 7.5 minute series (topographic).]**

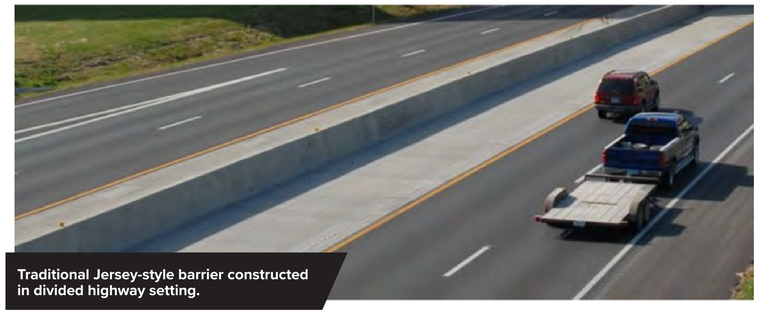
Appendix C:

Wildlife Median Barrier

WILDLIFE MEDIAN BARRIER

Safe

Traditional concrete Jersey style and cable median barriers prevent vehicles from crossing over into opposite directions of traffic, reducing head-on crashes by 90 percent (FHWA, 2005). Nationally, multiple vehicles opposite direction, cross-median and head-on crash fatalities have been reduced by 92, 93, and 94 percent, respectively (FHWA, 2017).



Traditional Jersey-style barrier constructed in divided highway setting.

Mission

As a state agency, MoDOT is tasked with wisely stewarding state resources while providing “a world-class transportation system that is safe, innovative, reliable and dedicated to a prosperous Missouri” (MoDOT Mission). Ranking 3rd in the nation for highway conditions and cost-effectiveness, MoDOT is making the most of every dollar spent on the state transportation system. MoDOT’s Wildlife Median Barrier (WMB) innovation blends the mission statement with environmental stewardship, while using innovative and cost-effective ways to benefit wildlife and promote safety of the traveling public.

Early cable barrier separating traffic from embankment to the Elk River, Noel, Missouri.

History

Traditional concrete Jersey style and cable median barriers date back to their earliest use on the US Highway system in the 1930s and 1940s.

Innovative

Although little research exists on the effects of Concrete median barriers, it is generally accepted that solid jersey barriers stop small animal passage on divided highways, effectively fragmenting habitat and eliminating connectivity, leading to reduced biological diversity, changes in animal communities and increase threat of extinctions (Alexander and Waters, 2000); Clevenger and Kociolek, 2013). It has been shown that even paved roadways alone can cause a behavioral change in animal movement, reducing the likelihood small-bodied animals will cross roadway (USGS, 2013). To combat these negative effects, MoDOT Environmental Section has implemented the WMB innovation.

Design and Implementation

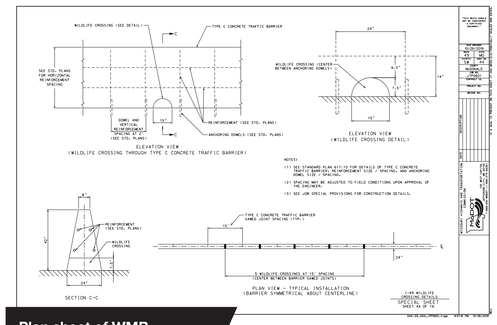
WMB is a modified design Jersey barrier with a small 7.5” x 15” opening at the base providing a way for small-bodied mammals, reptiles, and amphibians to cross a divided highway corridor where one didn’t exist previously. On the I-49 corridor (Bellavista Bypass), totaling $59 million in project costs, areas of transitions between cut/fill were chose for the WMB with the assumption that these would be places more likely to have animal movement.

Overview of WMB.

Map of Wildlife Median Barriers constructed on the I-49 corridor (Bellavista Bypass), McDonald County, Missouri.

Showing transition between cut/fill section of I-49.

Close up of opening in WMB.



Plan sheet of WMB.

Cost Effective

The cost of each WMB is approximately $30, totaling $2,100 for the I-49 project. According to TMS database reports, it is estimated that MoDOT owns and maintains over 1,400 barrier segments, totaling 522 miles across the state of Missouri, with 99 of these segments are over a mile long and 21 are five or more miles long (MoDOT TMS Report, 2021). As barriers are replaced, the WMB can be incorporated into MoDOT’s transportation system.

Map of traditional jersey barriers in Missouri.

Benefits for Wildlife

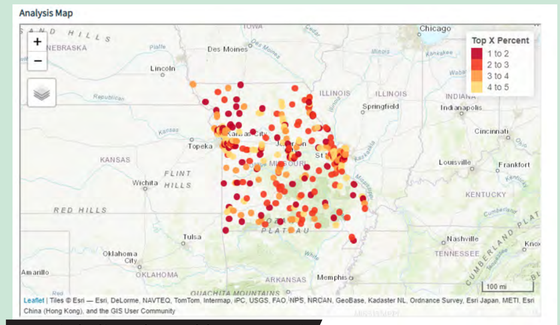
By allowing small-bodied mammals, reptiles, and amphibian a passable route across the median barriers on the new I-49 corridor and other future projects, MoDOT is ensuring that vulnerable wildlife do not become trapped on divided highways. Not only does the WMB innovation increase safety for the traveling public who often swerve to avoid animals or stop to assist them across, but it potentially increases safety for MoDOT MT forces that are often tasked with removing hazardous roadkill from the highway system. Additionally, the WMB openings provide an option for small vertebrates to cross the roadway where it wouldn’t exist otherwise, connecting populations on each side of the road.

Summary

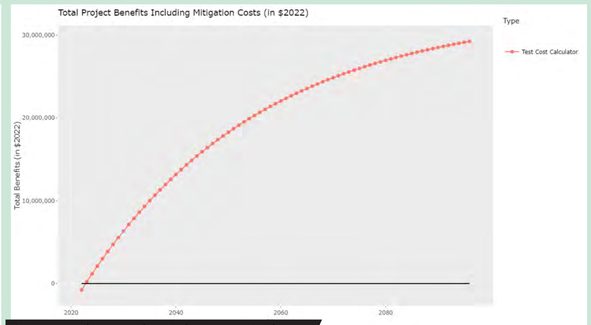
In summary, the WMB innovation increases safety for MoDOT staff and the traveling public; provides connection for wildlife to divided habitats; and is a cost effect option to embody MoDOT mission statement while stewarding natural and monetary resources wisely. Please contact MoDOT’s Environmental section to learn more or notify the Environmental section about projects involving new or replacement median barriers so these innovations can become part of MoDOT’s great transportation system.

Moving Forward

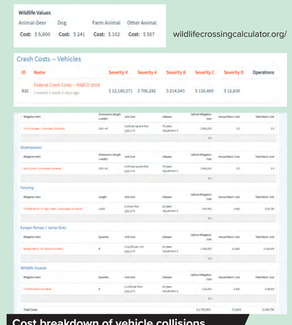
Wildlife crossings projects for large bodied wildlife have been a hot topic lately in the transportation sector. The WMB is just the start of wildlife friendly infrastructure in Missouri. MoDOT Environmental, Traffic Safety, and Central Office GIS Specialists are looking into modeling what other states have done and are trying to implement similar tools, such as the UC Davis Wildlife Crossing Calculator (WCC). This tool uses crash history data to help in identifying wildlife/vehicle collision hotspots as well as provides cost/benefit analysis of different types of mitigation projects. These projects can range from wildlife fencing that funnels animals to existing grade separated crossings all the way to large wildlife underpasses or overpasses. The WCC estimates the time the project would take to pay for itself by calculating the cost per crash type eliminated with new mitigation projects. This joint effort has been undertaken to look at and identify projects that could be constructed with wildlife crossing specific funding through the new Transportation Bill. By implementing innovative ideas, tools and planning, MoDOT is fulfilling its mission “to provide a world-class transportation system that is safe, innovative, reliable and dedicated to a prosperous Missouri” (and wildlife!).



Map of wildlife vehicle collision “hotspots” in Missouri (preliminary analysis).



Cost-benefit analysis. Project pays for itself after the first year (preliminary analysis).



Cost breakdown of vehicle collisions, wildlife collisions, and mitigation project (preliminary analysis).

Appendix D:

IPAC Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181

In Reply Refer To: July 12, 2023
Project Code: 2023-0103496
Project Name: FY 2022-2023 Wildlife Crossings Pilot Program - Statewide Wildlife Vehicle Collision (WVC) Analysis

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).
New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. **Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days.** The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Refer to the Midwest Region S7 Technical Assistance website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects:

projects in developed areas, HUD, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Federally Listed Bat Species

Indiana bats, gray bats, and northern long-eared bats occur throughout Missouri and the information below may help in determining if your project may affect these species.

Gray bats - Gray bats roost in caves or mines year-round and use water features and forested riparian corridors for foraging and travel. If your project will impact caves, mines, associated riparian areas, or will involve tree removal around these features – particularly within stream corridors, riparian areas, or associated upland woodlots –gray bats could be affected.
Indiana and northern long-eared bats - These species hibernate in caves or mines only during the winter. In Missouri the hibernation season is considered to be November 1 to March 31. During the active season in Missouri (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥5 inches diameter at breast height (dbh) for Indiana bat, and ≥3 inches dbh for northern long-eared bat, that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Tree species often include, but are not limited to, shellbark or shagbark hickory, white oak, cottonwood, and maple. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, Indiana bats or northern long-eared bats could be affected.
Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas;
- Trees found in highly-developed urban areas (e.g., street trees, downtown areas);
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees; and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.

2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see #3 below) – then project proponents can conclude the proposed activities **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species through the Species website.
3. If IPac returns a result that one or more federally listed bat species (Indiana bat, northern long-eared bat, or gray bat) are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** these bat species **IF** one or more of the following activities are proposed:
    a. Clearing or disturbing suitable roosting habitat, as defined above, at any time of year;
    b. Any activity in or near the entrance to a cave or mine;
    c. Mining, deep excavation, or underground work within 0.25 miles of a cave or mine;
    d. Construction of one or more wind turbines; or
    e. Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on listed bat species. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.
If any of the above activities are proposed in areas where one or more bat species may be present, project proponents can conclude the proposed activities **may affect** one or more bat species. We recommend coordinating with the Service as early as possible during project planning. If your project will involve removal of over 5 acres of suitable forest or woodland habitat, we recommend you complete a Summer Habitat Assessment prior to contacting our office to expedite the consultation process. The Summer Habitat Assessment Form is available in Appendix A of the most recent version of the Range-wide Indiana Bat Summer Survey Guidelines.

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA

to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

Next Steps

Should you determine that project activities **may affect** any federally listed species or trust resources described herein, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.
We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

John Weber

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
(573) 234-2132

PROJECT SUMMARY

Project Code: 2023-0103496
Project Name: FY 2022-2023 Wildlife Crossings Pilot Program - Statewide Wildlife Vehicle Collision (WVC) Analysis
Project Type: Road/Hwy - Maintenance/Modification
Project Description: MoDOT statewide wildlife vehicle collision (WVC) reduction analysis and hotspot mitigation measure feasibility study.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.30465265,-92.49224551439177,14z

Counties: Missouri

ENDANGERED SPECIES ACT SPECIES

There is a total of 42 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/5SR4FW2A45BL3FSIXJRECNRFZY/documents/generated/6868.pdf	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/5SR4FW2A45BL3FSIXJRECNRFZY/documents/generated/6868.pdf	Endangered
Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

REPTILES

NAME	STATUS
Alligator Snapping Turtle *Macrochelys temminckii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

AMPHIBIANS

NAME	STATUS
Eastern Hellbender *Cryptobranchus alleganiensis alleganiensis* Population: Missouri DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9039	Endangered
Ozark Hellbender *Cryptobranchus alleganiensis bishopi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/647	Endangered

FISHES

NAME	STATUS
Grotto Sculpin *Cottus specus* There is **final** critical habitat for this species. However, no *actual* acres or miles were designated due to exemptions or exclusions. See Federal Register publication for details. Species profile: https://ecos.fws.gov/ecp/species/1009 General project design guidelines: https://ipac.ecosphere.fws.gov/project/5SR4FW2A45BL3FSIXJRECNRFZY/documents/generated/6905.pdf	Endangered
Neosho Madtom *Noturus placidus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2577	Threatened
Niangua Darter *Etheostoma nianguae* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7157	Threatened
Ozark Cavefish *Amblyopsis rosae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6490	Threatened
Pallid Sturgeon *Scaphirhynchus albus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7162	Endangered
Topeka Shiner *Notropis topeka (=tristis)* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4122	Endangered
Topeka Shiner *Notropis topeka (=tristis)* Population: U.S.A. (MO-specified portions of Little Creek, Big Muddy Creek, and Spring Creek watersheds in Adair, Gentry, Harrison, Putnam, Sullivan, and Worth Counties; see 17.84(d)(1)(i)) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4122	Experimental Population, Non-Essential

CLAMS

NAME	STATUS
Curtis Pearlymussel *Epioblasma florentina curtisii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5628	Endangered
Fat Pocketbook *Potamilus capax* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2780	Endangered
Higgins Eye (pearlymussel) *Lampsilis higginsii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5428	Endangered
Neosho Mucket *Lampsilis rafinesqueana* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3788	Endangered
Pink Mucket (pearlymussel) *Lampsilis abrupta* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7829	Endangered
Rabbitsfoot *Quadrula cylindrica cylindrica* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5165	Threatened
Scaleshell Mussel *Leptodea leptodon* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5881	Endangered
Sheepnose Mussel *Plethobasus cyphyus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6903	Endangered
Snuffbox Mussel *Epioblasma triquetra* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4135	Endangered
Spectaclecase (mussel) *Cumberlandia monodonta* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7867	Endangered
Western Fanshell *Cyprogenia aberti* There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/6895	Threatened
Winged Mapleleaf *Quadrula fragosa* Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4127	Endangered

SNAILS

NAME	STATUS
Tumbling Creek Cavesnail *Antrobia culveri* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6219	Endangered

INSECTS

NAME	STATUS
American Burying Beetle *Nicrophorus americanus* Population: Ex Pop, SW Missouri No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/66	Experimental Population, Non-Essential
Hine's Emerald Dragonfly *Somatochlora hineana* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7877	Endangered
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRUSTACEANS

NAME	STATUS
Benton County Cave Crayfish *Cambarus aculabrum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5011	Endangered
Big Creek Crayfish *Faxonius peruncus* There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/10759	Threatened
St. Francis River Crayfish *Faxonius quadruncus* There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/10761	Threatened

FLOWERING PLANTS

NAME	STATUS
Decurrent False Aster *Boltonia decurrens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7705	Threatened
Eastern Prairie Fringed Orchid *Platanthera leucophaea* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/601	Threatened
Geocarpon minimum No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7699	Threatened
Mead's Milkweed *Asclepias meadii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8204	Threatened
Missouri Bladderpod *Physaria filiformis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5361	Threatened
Pondberry *Lindera melissifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1279	Endangered
Virginia Sneezeweed *Helenium virginicum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6297	Threatened
Western Prairie Fringed Orchid *Platanthera praeclara* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1669	Threatened

CRITICAL HABITATS

There are 6 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Hine's Emerald Dragonfly *Somatochlora hineana* https://ecos.fws.gov/ecp/species/7877#crithab	Final
Indiana Bat *Myotis sodalis* https://ecos.fws.gov/ecp/species/5949#crithab	Final
Neosho Mucket *Lampsilis rafinesqueana* https://ecos.fws.gov/ecp/species/3788#crithab	Final
Niangua Darter *Etheostoma nianguae* https://ecos.fws.gov/ecp/species/7157#crithab	Final
Rabbitsfoot *Quadrula cylindrica cylindrica*	Final

NAME	STATUS
https://ecos.fws.gov/ecp/species/5165#crithab	
Tumbling Creek Cavesnail *Antrobia culveri*	Final
https://ecos.fws.gov/ecp/species/6219#crithab	

IPAC USER CONTACT INFORMATION

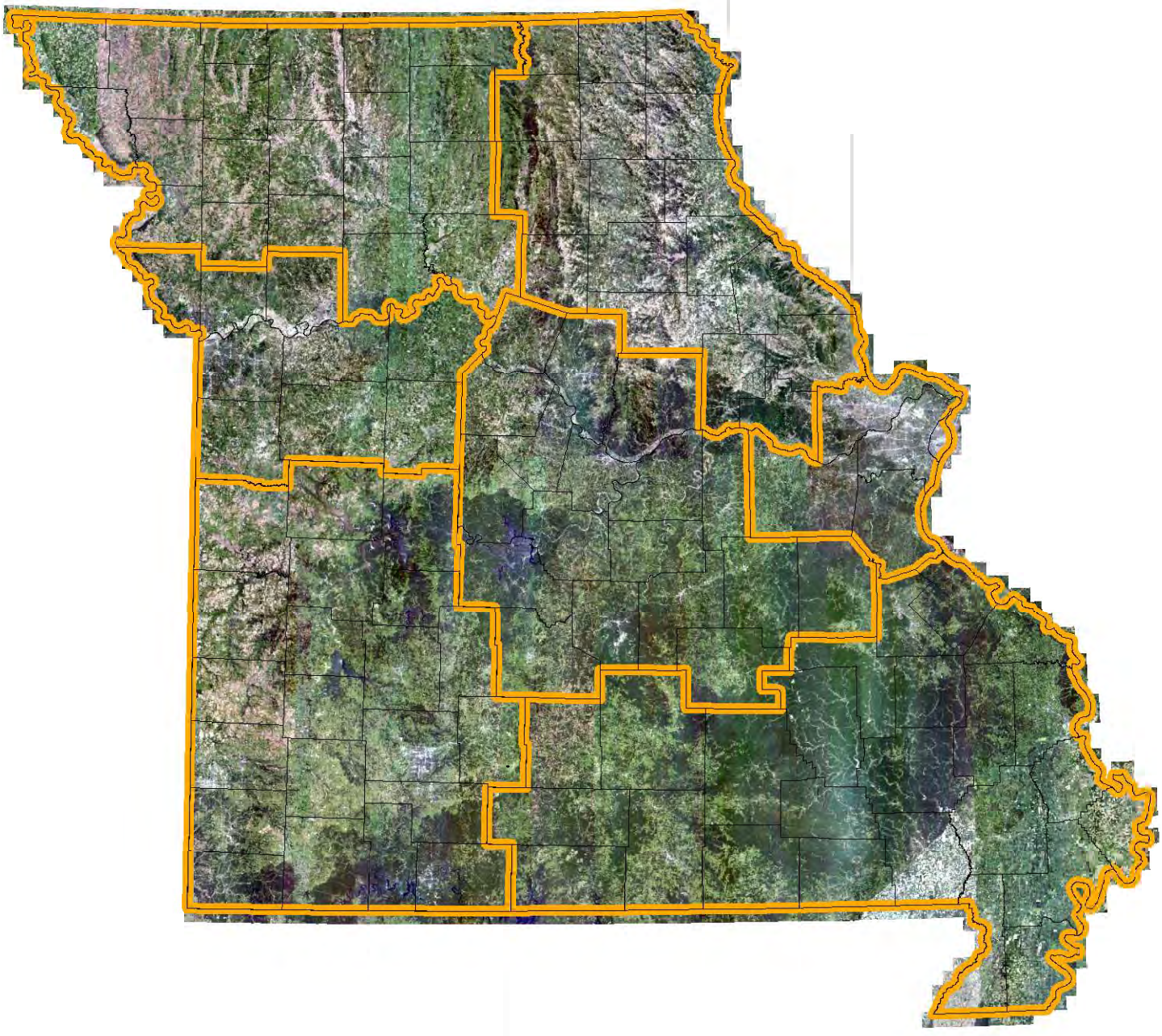
Agency: Missouri Department of Transportation
Name: Caleb Knerr
Address: 601 West Main Street
City: Jefferson City
State: MO
Zip: 65102
Email caleb.knerr@modot.mo.gov
Phone: 5735266675

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

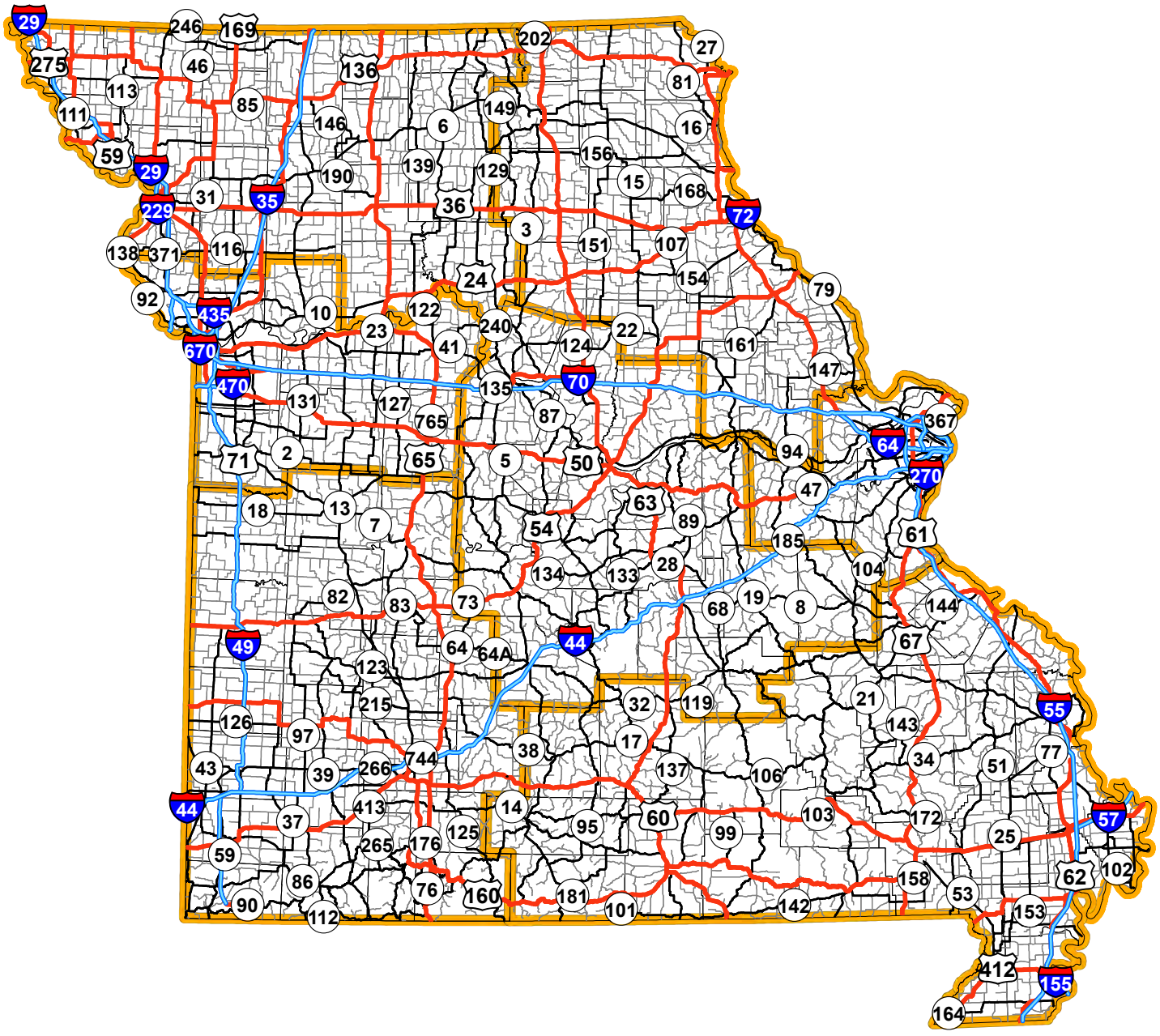
Appendix E:

Missouri Map



Appendix F:

Missouri Roadway Map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Appendix G:

Wildlife Median Barriers RFP

MoDOT

105 West Capitol Avenue
P.O. Box 270
Jefferson City, Missouri 65102

Missouri Department of Transportation
Patrick K. McKenna, Director

573.751.2551
Fax: 573.751.6555
1.888.ASK MODOT (275.6636)

June 28, 2022

Dear Research Partner:

The Missouri Highways and Transportation Commission requests proposals from qualified organizations—namely private consultants, universities, and research organizations—to furnish services as described in the following request for proposals to be coordinated by the Research Unit of the Construction and Materials Division.

Please submit a proposal for project TR202312 entitled, "**Methods for Monitoring the Movement of Wildlife Through Concrete Barrier Gaps**." Your submittal must include a project plan, the proposed project team and its background, and any related projects now active or recently completed by your firm.

The selection committee will make its choice based on the provided criteria. A "not to exceed" budget amount is included to assist with the required scope.

Please submit all proposals to MoDOTResearchRFP@modot.mo.gov indicated in the attachment by **August 16, 2022 10:00 AM (CST)**. More information about project contracting in general can be found at https://www.modot.org/research-requests-proposal.

Sincerely,

Jen Harper
Research Director
Attachment

CCO Form: CM09
Approved: 04/11 (AR)
Revised: 03/20 (BDG)
Modified:

REQUEST FOR PROPOSALS
Methods for Monitoring the Movement of Wildlife Through Concrete Barrier Gaps
TR202312

TABLE OF CONTENTS

LIST OF ACRONYMS

FHWA	Federal Highway Administration
MHTC	Missouri Highways and Transportation Commission
MoDOT	Missouri Department of Transportation
RFP	Request for Proposals
WMB	Wildlife Median Barrier
WVC	Wildlife-Vehicle Collisions

INTRODUCTION

This Request for Proposals (**RFP**) seeks proposals from qualified organizations (**Offeror**) to furnish the described services to the Missouri Highways and Transportation Commission (**MHTC**). MHTC reserves the right to reject any and all proposals for any reason whatsoever. Time is of the essence for responding to the RFP within the submission deadlines.

PROPOSAL

(1) The Offeror shall provide a fee proposal to MHTC on the **PRICE PAGE** in accordance with the terms of this RFP.

(2) The Offeror agrees to provide the services at the fees quoted, under the terms of this RFP.

Authorized Signature of Offeror: _____

Date of Proposal: _____

Printed or Typed Name: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

Electronic Mail Address: _____

_____

ACCEPTANCE

This proposal is accepted by MHTC.

_____ _____

Name and Title Date

SECTION (1):
GENERAL DESCRIPTION AND BACKGROUND

(A) Request for Proposal: This document constitutes an RFP from qualified organizations to conduct the TR202312, Methods for Monitoring the Movement of Wildlife Through Concrete Barrier Gaps study for the MHTC and Missouri Department of Transportation (MoDOT).

(B) Background: Traditional concrete Jersey style median barriers date back to their earliest use on the US Highway system in the 1930s and 1940s. Both styles of barriers prevent vehicles from crossing over into opposite directions of traffic. Nationally, multiple vehicle opposite direction, cross-median and head-on crash fatalities have been reduced by 92, 93, and 94 percent, respectively. Construction of concrete barriers preventing cross-median collisions in divided highway settings has no doubt reduced traffic fatalities.

However, their implementation has potentially caused an unintended negative effect on wildlife movement across the transportation system. Although little research exists on the effects of concrete median barriers, it is generally accepted that solid jersey barriers stop small animal passage on divided highways, effectively fragmenting habitat and eliminating connectivity. It has been shown that even paved roadways alone can cause a behavioral change in animal movement, reducing the likelihood small-bodied animals will cross a roadway. This fragmentation and behavioral adaptation can lead to reduced biological diversity, changes in animal communities and increase threat of extinctions. To combat these negative effects, the MoDOT Environmental Section has implemented the wildlife median barrier (WMB) innovation. WMB is a modified design Jersey barrier with a small 7.5” x 15” opening at the base providing a way for small-bodied mammals, reptiles, and amphibians to cross a divided highway corridor where one didn’t exist previously.

Currently there is only one highway with WMBs installed: the newly constructed I-49 corridor (Bella Vista Bypass) in McDonald County. In five miles of new I-49 highway, there are 14 sections of WMB. By allowing small-bodied mammals, reptiles, and amphibians a passable route across the WMBs on the new I-49 corridor, MoDOT is ensuring that vulnerable wildlife do not become trapped on divided highways.

The purpose of this research project is to develop ways to monitor the movement of small animals through the WMBs. This determination will show if the WMBs are or are not working. If successful, this practice can be implemented on other projects across Missouri. The research team would need to develop ways to monitor the sites since video cameras are subject to damage or being stolen if they are located in obvious locations.

(C) Fiscal Year: MoDOT’s fiscal year runs from July 1-June 30.

(D) Contract Period and Budget: The contract period will run for 24 months. The contract budget must not exceed $200,000, as stipulated in Section (2)(A). Please note, a cost estimate shall be submitted as part of the proposals (see Section (3)(D)) and will be considered during the evaluation process.

(E) RFP Schedule: The following RFP Schedule of Events represents MoDOT's best estimate of the schedule that shall be followed. The time of day for the following events shall be between 7:30 am and 4:00 pm, Central Standard Time. MoDOT reserves the right at its sole discretion to expand this schedule, as it deems necessary, without any notification except for the deadline date for submitting a proposal.

Date:	**Action:**
6/28/2022	MoDOT posts RFP to the website: https://www.modot.org/research-requests-proposal
7/12/2022	Written comments or questions must be submitted to MoDOTResearchRFP@modot.mo.gov. This is the only acceptable method for contact regarding the RFP and contacting MoDOT employees via other methods is prohibited. Not adhering to this rule is cause for disqualification of the proposal. This includes all requests for information, data, and manuals.
7/26/2022	MoDOT will post written responses publicly on the website: https://www.modot.org/research-requests-proposal
8/16/2022 **10:00 AM CST**	Written proposals must be submitted to MoDOTResearchRFP@modot.mo.gov by 10:00 AM CST. Do not consider your proposal submitted until you receive notification of receipt. A notification should be sent by noon of the same day.
9/13/2022	MoDOT will notify submitters about project selection, or if needed about interviews to finalize selection.

(F) Project Schedule: The following is an estimate of the project timeline or information on key dates within the project, presuming the project starts November 1, 2022. Proposals need to include a work plan with a proposed timeline. *If the Offeror believes the project can be completed sooner, please include a revised schedule with the proposal.* While alternative timelines will be considered, an extension is unlikely. The project timeline will be finalized during the contracting phase.

Last working day of each quarter: Quarterly updates on work accomplished during the quarter are due on or before the last working day of March, June, September, and December during the course of the project. These quarterly updates shall be submitted electronically to the MoDOT project manager. These updates are the basis for information in the Statewide Planning and Research (SPR) Quarterly Report that the Construction and Materials Division submits to FHWA at the end of each quarter of the fiscal year.

Monthly Updates: E-mail and phone communications with MoDOT contacts are required to provide on-going updates of progress.

On or before November 8, 2022 Kick-off Meeting: A kick-off meeting with MoDOT will be scheduled to discuss project requirements and deliverables. The dates of key milestones and deliverables will be determined from this meeting.

August 1, 2024 – Draft Report Documents Due: A Draft Report and Draft Research Summary are required. These drafts should be final products except for revisions based on MoDOT's review. A final report must include a completed Technical Report Documentation page. Please refer to the **Publication Guidelines** and summary template on the **website**.

October 1, 2024 – Final Report Documents Due: A completed Final Report and Final Research Summary are required. After MoDOT's review is complete and documents have been edited to MoDOT's satisfaction, final documents should be submitted as Word documents (unless otherwise instructed). Please refer to the **Publication Guidelines** and summary template on the **website**.

A final presentation of the results, recommendations, and implementation ideas to MoDOT and other stakeholders may be required.

November 1, 2024: Final invoice is due**.**

November 1, 2024: Contract ends.

(For report templates and a standard form see: https://www.modot.org/information-researchers.)

Date:	**Milestone:**
On or before: 11/8/2022	A kickoff meeting with MoDOT will be scheduled to discuss project requirements and deliverables. The dates of key milestones and deliverables will be determined from this meeting.
3/31/2023	Quarterly Report Due
4/1/2023	Potential model organisms identified.
6/30/2023	Quarterly Report Due
9/30/2023	Quarterly Report Due

Date:	Milestone:
12/31/2023	Quarterly Report Due
3/31/2024	Quarterly Report Due
4/3/2024	Field results and observed impact thresholds
6/30/2024	Quarterly Report Due
8/1/2024	Draft Report and Draft Research Summary are due. The draft documents shall be submitted to MoDOT approximately two months prior to the final report.
10/1/2024	Final Report and Research Summary are due. The final documents shall be due approximately one month before the end of the contract. This is to allow all billing to be completed prior to the end of the project.
11/1/2024	Final invoice due.
11/1/2024	Contract ends.

SECTION (2):
SCOPE OF WORK

(A) Services: The successful Offeror shall provide the following services not to exceed $200,000. The Offeror shall provide ways to monitor the movement of small animals through the WMBs. This determination will show if the WMBs are or are not working. If successful, this practice can be implemented on other projects across Missouri. In addition, as the reportprogresses, the Offeror will remain available to respond to questions and concerns raised by the project's Technical Advisory Committee (TAC). The following tasks shall be completed and are intended to provide guidance in development of this research.

(B) Specific Requirements: The Offeror will provide to Construction and Materials an electronic copy of a program proposal which will help bring the project to its successful completion.

Task 1

Project Management

The Contractor will facilitate a kick-off meeting with MoDOT to review the work plan, scope, and schedule; and establish a protocol for regular ongoing communications and coordination with the team. The Contractor will schedule and conduct a quarterly status meeting to review progress for the previous period and anticipated work for the next period. The contractor will also develop minutes for the kick-off meeting and any status meetings that may be held during the project. The finalized work plan will detail implementation of the following tasks as well as the resources and schedule required to carry them out.

Task 2

Conduct Comprehensive Review / Investigation

The Contractor will begin a literature review to identify the effects of concrete median barriers on divided highway on habitat fragmentation and small-bodied animal movement and mortality.

The Contractor will also perform a literature review of recently completed research related to mitigating fragmentation of habitat and impacts to animal movement across roadway corridors. This step will identify specifically which species are most likely impacted by concrete barriers and would most likely benefit from WMPs. Additionally, the review will look at new and emerging trends in impact mitigation and best management practices (BMPs). This review will aid in understanding potential issues or concerns experienced by other states along with additional concepts to consider (for example, barrier opening size, spacing, and placement) during the subsequent tasks of this project.

A survey of State DOTs, Conservation and/or Natural Resources Departments will be conducted, with collaboration from the TAC, to understand standard procedures and BMPs undertaken in other parts of the country to minimize or eliminate impacts to small-bodied mammals, reptiles and amphibians.

Task 3

Identification of Model Organism(s) and Wildlife Monitoring Proposal

The Contractor will propose (to MoDOT) no more than five ways to monitor the movement and mortality of wildlife through the concrete barrier gaps along Interstate 49 and identify the length of time of the study. Any use of equipment to monitor wildlife must include ways to avoid theft and vandalism. MoDOT will select two options for the Contractor to use in pilot programs.

The Contractor, in collaboration with the Technical Advisory Committee (TAC), will identify the most appropriate species for the study, based on the results found during Task 2 along with research animal species observed in the project area and other considerations. The species chosen will make up the projects model organisms and will be observed in Task 4 and considered while identifying and evaluating impact mitigation practices during Task 5.

The Offeror's method(s) and suggestions for determining the most appropriate model organisms (i.e., by classifications, body size or other method), in order to thoroughly evaluate median barrier impacts to a diverse selection of small-bodied animal species found in Missouri, should be outlined and explained in the proposal.

It is expected that multiple species will be used in the research to adequately assess a range of impacts from median barriers to small-bodied animals. The Offeror should indicate how many different animal species they anticipate studying in the proposal.

Task 4

Implement Selected Proposals / Field Study to Establish Impact Thresholds

The Contractor will implement the two proposals and produce a report on their effectiveness.

The Contractor will explore the following topics, at a minimum, in a controlled field study:

- The differences, with respect to impact to small-bodied animal movement, among differing barrier types, including, but not limited to the following:
    - Solid concrete jersey style barriers with no openings
    - Solid concrete jersey style barriers with openings (on I-49 Bella Vista Bypass)
    - Solid concrete jersey style barriers with openings within defined proximity to nearby box culverts (on I-49 Bella Vista Bypass)
- Differences between divided highways with median barrier openings compared to no median barrier openings with respect to the impact to small-bodied animal movement.
- Impact levels on various species, body sizes, and juvenile versus adult life stages.
- Effectiveness of I-49 median barrier openings in mitigating impacts to small-bodied animal movement and mortality

Please note, this research will specifically aim to evaluate the potential long-term effects of small-bodied animal movement with new median barriers constructed on divided highway segments

The Offeror's considerations for other topics or areas of concern to be explored during this task, along with any other pertinent information related to the field analysis, should be laid out and explained in the proposal.

Task 5

Develop Draft Report and Research Summary

The Contractor will prepare a draft Report and Research Summary, along with all accompanying documentation identified as beneficial during the study. These drafts should be final products except for revisions based on MoDOT's review. A final report must include a completed Technical Report Documentation page. Please refer to the **Publication Guidelines** and summary template on the **website**.

Task 6

Develop Final Report, Research Summary, and Presentation

The Contractor will prepare a completed Report, Research Summary, and Presentation along with all accompanying documentation. After MoDOT's review is complete and documents have been edited to MoDOT's satisfaction, final documents should be submitted as Word documents (unless otherwise instructed). Please refer to the **Publication Guidelines** and summary template on the **website**.

(C) Administration of Program: The Offeror will consult MHTC's representative regarding any concerns involved with the administration of the services provided pursuant to this RFP.

SECTION (3):
PROPOSAL SUBMISSION INFORMATION

(A) SUBMISSION OF PROPOSALS:

(1) Pricing and Signature: Proposals must be email to modotresearchrfp@modot.mo.gov by 10 AM local time according to time stamp on the due date indicated. Any form containing a signature line in this RFP and any amendments, pricing pages, etc., can be electronically signed or manually signed and scanned and returned as part of the proposal. Please reference the project title since more than one RFP may be due at one time.

(2) Submission of All Data Required: The Offeror must respond to this RFP by submitting all data required in paragraph (B) below for its proposal to be evaluated and considered for award. Failure to submit such data shall be deemed sufficient cause for disqualification of a proposal from further consideration.

(3) Public Inspection: The Offeror is hereby advised that all proposals and the information contained in or related thereto shall be open to public inspection and that MHTC does not guarantee nor assume any responsibility whatsoever in the event that such information is used or copied by individuals person(s) or organization(s). Therefore, the Offeror must submit its proposal based on such conditions without reservations.

(4) Clarification of Requirements: Any and all questions regarding specifications, requirements, competitive procurement process, or other questions must be sent to MoDOTResearchRFP@modot.mo.gov by the date and time listed in section 1E.

(B) REQUIRED ELEMENTS OF PROPOSAL

(1) Proposal Submission Form: The proposal submission form can be found here: https://www.modot.org/information-researchers.

(2) Work Plan: A narrative style description must be included of how the Offeror will work with MoDOT in order to fulfill project-specific requirements. This section should be no longer than ten (10) pages in length, with a font size no less than 11 points. This length limit does not include forms or resumes attached to the proposal. The project plan shall include all items outlined in Section 2 and recognize the ultimate authority of MoDOT to approve the work plans.

(3) Personnel: Please indicate the name, location, telephone number, fax number and email address of the primary contact person for the Offeror. Information presented in this section should highlight the previous Offeror experience, as well as any work with other state

agencies or local governments in Missouri. Offeror must furnish a complete listing of each Sub-Offeror, if any, and complete contact information for that Sub-Offeror.

(4) Experience: The proposal must clearly identify the Offeror's experience in offering the services requested in this RFP during the past three (3) years. The description should include a list of the agencies which your institution has served or currently serves.

(5) References: Proposals should indicate the name, title, and telephone number of at least three officials of clients within the past three years.

(6) Organization of Proposal: Proposals must be submitted as one combined PDF document. The submission should **only include the required documents** organized in the following order: 1) Proposal Submission Form; 2) Cover Letter (Optional; 1 page maximum); 3) Body of Proposal (including work plan and project schedule); 4) Personnel. 5) Organization's Project Experience; 6) Team Member Experience; and 7) Organization's Client References.

(C) EVALUATION CRITERIA AND PROCESS

(1) Evaluation Factors: Any agreement for services resulting from this RFP shall be awarded to the Offeror providing the best proposal. After determining responsiveness, proposals will be evaluated in accordance with the following criteria:

A. Experience, expertise and reliability;
B. Proposed method of performance;
C. Cost, fees and expenses;
D. Overall clarity and quality of proposal; and
E. Other preferred attributes.

(2) Historic Information: MHTC reserves the right to consider historic information and facts, whether gained from the Offeror's proposal, question and answer conferences, references, or other sources, in the evaluation process.

(3) Responsibility to Submit Information: The Offeror is cautioned that it is the Offeror's sole responsibility to submit information related to the evaluation categories and that MHTC's representative is under no obligation to solicit such information if it is not included with the Offeror's proposal. Failure of the Offeror to submit such information may cause an adverse impact on the evaluation of the Offeror's proposal.

(D) PRICING

(1) Cost Estimate: The Offeror must submit a proposed cost estimate for all services defined in the Scope of Work. This estimate must be shown on Section (4), Price Page, of this proposal which must be completed, signed, and returned with the Offeror's proposal. A detailed budget will be developed at a later date (for template see: https://www.modot.org/information-researchers.

SECTION (4):
PRICE PAGE

(A) Cost Estimate: The Offeror shall indicate below all cost for providing services in accordance with the provisions and requirements stated herein:

Cost Estimate	
Expenses	**Estimated Amount**
Salaries	
Benefits	
Operating Expense	
Facilities and Administration (F&A) Cost	
Miscellaneous (list-attach additional sheet if needed)	
Total	

SECTION (5):
AGREEMENT REQUIREMENTS

This RFP shall be governed by the following contract provisions. The award of this RFP is subject to a post-award negotiated contract. These same contract provisions will appear in the post-award negotiated contract. If the parties are unable to agree to terms in the post-award contract, MHTC shall reserve the right to cancel the award of the RFP and contract and select a different Offeror.

(A) MHTC's Representative: MoDOT's Research Director, Jen Harper is designated as MHTC's representative for the purpose of administering the provisions of the Agreement as defined in Paragraph (E) of this section. MHTC's representative may designate other persons having the authority to act on behalf of MHTC in furtherance of the performance of the Agreement. The Offeror shall fully coordinate its activities for MHTC with those of the Construction and Materials Division. As the work of the Offeror progresses, advice and information on matters covered by the Agreement shall be made available by the Offeror to the Construction and Materials Division throughout the effective period.

(B) Release to Public: No material or reports prepared by the Offeror shall be released to the public without the prior consent of MHTC's representative.

(C) Assignment: The Offeror shall not assign or delegate any interest, and shall not transfer any interest in the services to be provided (whether by assignment, delegation, or novation) without the prior written consent of MHTC's representative.

(D) Status as Independent Contractor: The Offeror represents itself to be an independent contractor offering such services to the general public and shall not represent itself or its employees to be an employee of MHTC or MoDOT. Therefore, the Offeror shall assume all legal and financial responsibility for taxes, FICA, employee fringe benefits, workers' compensation, employee insurance, minimum wage requirements, overtime, or other such benefits or obligations.

(E) Components of Agreement: The Agreement between MHTC and the Offeror shall consist of: the RFP and any written amendments thereto, the proposal submitted by the Offeror in the response to the RFP and the post-award contract agreement signed between the parties. However, MHTC reserves the right to clarify any relationship in writing and such written clarification shall govern in case of conflict with the applicable requirements stated in the RFP or the Offeror's proposal. The Offeror is cautioned that its proposal shall be subject to acceptance by MHTC without further clarification.

(F) Amendments: Any change in the Agreement, whether by modification or supplementation, must be accompanied by a formal contract amendment signed and approved by the duly authorized representative of the Offeror and MHTC.

(G) MBE/WBE Participation Encouraged:

1. Offerors are encouraged to submit copies of their existing affirmative action programs, if any. Offerors are also encouraged to directly hire minorities and women as direct employees of the Offerors.
2. Offerors are encouraged to obtain minority business enterprise (MBE) and women business enterprise (WBE) participation in this work through the use of subcontractors, suppliers, joint ventures, or other arrangements that afford meaningful participation for M/WBEs. Offerors are encouraged to obtain 10% MBE and 5% WBE participation.
3. Regardless of which persons or firms, if any, that the Offeror may use as subcontractors or suppliers of goods or services for the services to be provided, the Offeror ultimately remains responsible and liable to MHTC for the complete, accurate and professional quality/performance of these services.

(H) Nondiscrimination: The Offeror shall comply with all state and federal statutes applicable to the Offeror relating to nondiscrimination, including, but not limited to, Chapter 213, RSMo; Title VI and Title VII of Civil Rights Act of 1964 as amended (42 U.S.C. Sections 2000d and 2000e, *et seq.*); and with any provision of the "Americans with Disabilities Act" (42 U.S.C. Section 12101, *et seq*).

(I) Executive Order: The Offeror shall comply with all the provisions of Executive Order 07-13, issued by the Honorable Matt Blunt, Governor of Missouri, on the sixth (6^{th}) day of March, 2007. This Executive Order, which promulgates the State of Missouri's position to not tolerate persons who contract with the state engaging in or supporting illegal activities of employing individuals who are not eligible to work in the United States, is incorporated herein by reference and made a part of this Agreement.

1. By signing this Agreement, the Offeror hereby certifies that any employee of the Offeror assigned to perform services under the contract is eligible and authorized to work in the United States in compliance with federal law.
2. In the event the Offeror fails to comply with the provisions of the Executive Order 07-13, or in the event the Commission has reasonable cause to believe that the Offeror has knowingly employed individuals who are not eligible to work in the United States in violation of federal law, the Commission reserves the right to impose such contract sanctions as it may determine to be appropriate, including but not limited to contract cancellation, termination or suspension in whole or in part or both.

(J) Incorporation of Provisions: The Offeror shall include the provisions of Section (3), paragraph I of this Agreement in every subcontract. The Offeror shall take such action with respect to any subcontract as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance.

(K) Non-employment of Unauthorized Aliens: Pursuant to Section 285.530, RSMo., no business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the State of Missouri. As a condition for the award

of any contract or grant in excess of five thousand dollars by the State or by any political subdivision of the State to a business entity, or for any business entity receiving a state-administered or subsidized tax credit, tax abatement, or loan from the state, the business entity shall:

1. By sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. E-Verify is an example of a federal work authorization program. The business entity must affirm its enrollment and participation in the E-Verify federal work authorization program with respect to the employees proposed to work in connection with the services requested herein by providing acceptable enrollment and participation documentation consisting of **completed** copy of the E-Verify Memorandum of Understanding (MOU). For business entities that are not already enrolled and participating in a federal work authorization program, E-Verify is available at http://www.dhs.gov/files/programs/gc_1185221678150.shtm.
2. By sworn affidavit, affirm that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. A copy of the affidavit referenced herein is provided within this document, attached as Exhibit A.

(L) Proof of Lawful Presence for Sole Proprietorships and Partnerships: If the business entity is a sole proprietorship or partnership, pursuant to Section 208.009, RSMo., each sole proprietor and each general partner shall provide affirmative proof of lawful presence in the United States. Such sole proprietorship or partnership is eligible for temporary public benefits upon submission by each sole proprietor and general partner of a sworn affidavit of his/her lawful presence on the United States until such lawful presence is affirmatively determined, or as otherwise provided by Section 208.009, RSMo. A copy of the affidavit reference herein is provided within this document, attached as Exhibit B.

(M) Bankruptcy: Upon filing for any bankruptcy or insolvency proceeding by or against the Offeror, whether voluntarily, or upon the appointment of a receiver, Offeror, or assignee, for the benefit of creditors, MHTC reserves the right and sole discretion to either cancel the Agreement or affirm the Agreement and hold the Offeror responsible for damages.

(N) Law of Missouri to Govern: The Agreement shall be construed according to the laws of the state of Missouri. The Offeror shall comply with all local, state and federal laws and regulations relating to the performance of the Agreement.

(O) Cancellation: MHTC may cancel this Agreement at any time for a material breach of contractual obligations or for convenience by providing the Offeror with written notice of cancellation. Should MHTC exercise its right to cancel the contract for such reasons, cancellation will become effective upon the date specified in the notice of cancellation sent to the Offeror.

(P) Venue: No action may be brought by either party concerning any matter, thing or dispute arising out of or relating to the terms, performance, nonperformance or otherwise of the

Agreement except in the Circuit Court of Cole County, Missouri. The parties agree that the Agreement is entered into at Jefferson City, Missouri, and substantial elements of its performance will take place at or be delivered to Jefferson City, Missouri, by reason of which the Offeror consents to venue of any action against it in Cole County, Missouri.

(Q) Ownership of Reports: All documents, reports, exhibits, etc. produced by the Offeror at the direction of MHTC's representative and information supplied by MHTC's representative shall remain the property of MHTC.

(R) Confidentiality: The Offeror shall not disclose to third parties confidential factual matters provided except as may be required by statute, ordinance, or order of court, or as authorized by MHTC's representative. The Offeror shall notify MHTC immediately of any request for such information.

(S) Nonsolicitation: The Offeror warrants that it has not employed or retained any company or person, other than a bona fide employee working for the Offeror, to solicit or secure the Agreement, and that it has not paid or agreed to pay any percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making of the Agreement. For breach or violation of this warranty, MHTC shall have the right to annul the Agreement without liability, or in its discretion, to deduct from the Agreement price or consideration, or otherwise recover the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

(T) Conflict of Interest: The Offeror covenants that it presently has no actual conflict of interest or appearance of conflict of interest and shall not acquire any interest, directly or indirectly, which would conflict in any manner or degree with the performance of the services under this Agreement. The Offeror further covenants that no person having any such known interest shall be employed or conveyed an interest, directly or indirectly, in this Agreement.

(U) Maintain Papers: The Offeror must maintain all working papers and records relating to the Agreement. These records must be made available at all reasonable times at no charge to MHTC and/or the Missouri State Auditor during the term of the Agreement and any extension thereof, and for three (3) years from the date of final payment made under the Agreement.

1. MHTC's representative shall have the right to reproduce and/or use any products derived from the Offeror's work without payment of any royalties, fees, etc.
2. MHTC's representative shall at all times have the right to audit any and all records pertaining to the services.

(V) Indemnification: The Offeror shall defend, indemnify and hold harmless the Commission, including its members and department employees, from any claim or liability whether based on a claim for damages to real or personal property or to a person for any matter relating to or arising out of the Offeror's performance of its obligations under this Agreement.

(W) Federal Funding Accountability and Transparency Act of 2006: The (City/County/Grantee) shall comply with all reporting requirements of the Federal Funding

Accountability and Transparency Act (FFATA) of 2006, as amended. This Agreement is subject to the award terms within 2 C.F.R. Part 170.

(X) Insurance: Prior to contract signing, the Offeror may be asked about its ability to provide certificates of insurance which meet, or approach, the following coverages:

a.	General Liability	Not less than $500,000 for any one person in a single accident or occurrence, and not less than $3,000,000 for all claims arising out of a single occurrence;
b.	Automobile Liability	Not less than $500,000 for any one person in a single accident or occurrence, and not less than $3,000,000 for all claims arising out of a single occurrence;

c. Missouri State Workmen's Compensation policy or equivalent in accordance with state law.

EXHIBIT A: ANNUAL WORKER ELIGIBILITY VERIFICATION AFFIDAVIT

(for joint ventures, a separate affidavit is required for each business entity)

STATE OF _____)
) ss
COUNTY OF _____)

On the _____ day of _____, 20____, before me appeared _____,
Affiant name
personally known to me or proved to me on the basis of satisfactory evidence to be a person whose name is subscribed to this affidavit, who being by me duly sworn, stated as follows:

- I, the Affiant, am of sound mind, capable of making this affidavit, and personally certify the facts herein stated, as required by Section 285.530, RSMo, to enter into any contract agreement with the state to perform any job, task, employment, labor, personal services, or any other activity for which compensation is provided, expected, or due, including but not limited to all activities conducted by business entities.
- I, the Affiant, am the _____ of _____, and I am duly authorized, directed, and/or empowered to act officially and properly on behalf of this business entity.
  title business name
- I, the Affiant, hereby affirm and warrant that the aforementioned business entity is enrolled in a federal work authorization program operated by the United States Department of Homeland Security, and the aforementioned business entity shall participate in said program to verify the employment eligibility of newly hired employees working in connection with any services contracted by the Missouri Highways and Transportation Commission (MHTC). I have attached documentation to this affidavit to evidence enrollment/participation by the aforementioned business entity in a federal work authorization program, as required by Section 285.530, RSMo.
- I, the Affiant, also hereby affirm and warrant that the aforementioned business entity does not and shall not knowingly employ, in connection with any services contracted by MHTC, any alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. § 1324a(h)(3).
- I, the Affiant, am aware and recognize that, unless certain contract and affidavit conditions are satisfied pursuant to Section 285.530, RSMo, the aforementioned business entity may be held liable under Sections 285.525 though 285.550, RSMo, for subcontractors that knowingly employ or continue to employ any unauthorized alien to work within the state of Missouri.
- I, the Affiant, acknowledge that I am signing this affidavit as a free act and deed of the aforementioned business entity and not under duress.

_____
Affiant Signature

Subscribed and sworn to before me in _____, _____, the day and year first above-written.
city (or county) state

_____
Notary Public

My commission expires:

[documentation of enrollment/participation in a federal work authorization program attached]

EXHIBIT B: APPLICANT AFFIDAVIT FOR SOLE-PROPRIETORSHIP OR PARTNERSHIP

(a separate affidavit is required for each owner and general partner)

STATE OF _____)
) ss
COUNTY OF _____)

On this _____ day of _____, 20_____, before me appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instruments, who being by me duly sworn, deposed as follows:

My name is _____, and I am of sound mind, capable of making this affidavit, and personally certify the facts herein stated, as required by Section 208.009, RSMo, for failure to provide affirmative proof of lawful presence in the United States of America:

I am the _____ of _____, which is applying for a public benefit
owner or partner business name
(grant, contract, and/or loan) administered/provided by the Missouri Highways and Transportation Commission (MHTC), acting by and through the Missouri Department of Transportation (MoDOT).

I am classified by the United States of America as: (check the applicable box)

❑ a United States citizen. ❑ an alien lawfully admitted for permanent residence.

I am aware that Missouri law provides that any person who obtains any public benefit by means of a willfully false statement or representation, or by willful concealment or failure to report any fact or event required to be reported, or by other fraudulent device, shall be guilty of the crime of stealing pursuant to Section 570.030, RSMo, which is a Class C felony for stolen public benefits valued between $500 and $25,000 (punishable by a term of imprisonment not to exceed 7 years and/or a fine not more than $5,000 – Sections 558.011 and 560.011, RSMo), and is a Class B felony for stolen public benefits valued at $25,000 or more (punishable by a term of imprisonment not less than 5 years and not to exceed 15 years – Section 558.011, RSMo).

I recognize that, upon proper submission of this sworn affidavit, I will only be eligible for temporary public benefits until such time as my lawful presence in the United States is determined, or as otherwise provided by Section 208.009, RSMo.

I understand that Missouri law requires MHTC/MoDOT to provide assistance in obtaining appropriate documentation to prove citizenship or lawful presence in the United States, and I agree to submit any requests for such assistance to MHTC/MoDOT in writing.

I acknowledge that I am signing this affidavit as a free act and deed and not under duress.

_____ _____
Affiant Signature Affiant's Social Security Number or Applicable Federal Identification Number

Subscribed and sworn to before me this _____ day of _____, 20_____.

_____
Notary Public

My commission expires:

Appendix H:

MoDOT PCE Agreement

PROGRAMMATIC AGREEMENT
BETWEEN THE FEDERAL HIGHWAY ADMINSTRATION, MISSOURI DIVISION
AND
THE MISSOURI DEPARTMENT OF TRANSPORTATION
REGARDING THE PROCESSING OF ACTIONS CLASSIFIED AS CATEGORICAL EXCLUSIONS FOR FEDERAL-AID HIGHWAY PROJECTS

THIS PROGRAMMATIC AGREEMENT ("Agreement") made and entered into by and between the FEDERAL HIGHWAY ADMINISTRATION, UNITED STATES DEPARTMENT OF TRANSPORTATION ("FHWA") and the STATE of MISSOURI, acting by and through its DEPARTMENT OF TRANSPORTATION ("MoDOT") hereby provides as follows:

WITNESSETH:

Whereas, the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321-4370h (2014), and the Regulations for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500-1508) direct Federal agencies to consider the environmental impacts of their proposed major Federal actions through the preparation of an environmental assessment (EA) or environmental impact statement (EIS) unless a particular action is categorically excluded;

Whereas, the Federal Highway Administration's distribution and spending of Federal funds under the Federal-aid Highway Program and approval of actions pursuant to Title 23 of the U.S. Code are major Federal actions subject to NEPA;

Whereas, the Secretary of Transportation has delegated to FHWA the authority to carry out functions of the Secretary under NEPA as they relate to matters within FHWA's primary responsibilities (49 CFR 1.81(a)(5));

Whereas, the FHWA's NEPA implementing procedures (23 CFR part 771) list a number of categorical exclusions (CE) for certain actions that FHWA has determined do not individually or cumulatively have a significant effect on the human environment and therefore do not require the preparation of an EA or EIS;

Whereas, the Missouri Department of Transportation is a State agency that undertakes transportation projects using Federal funding received under the Federal-aid Highway Program and must assist FHWA in fulfilling its obligations under NEPA for MoDOT projects (23 CFR 771.109);

Whereas, the FHWA and MoDOT's Stewardship and Oversight Agreement sets forth the roles and responsibilities of the FHWA and MoDOT with respect to Title 23 project approvals and related responsibilities, be it local or state-sponsored, and FHWA oversight activities;

Whereas, Section 1318(d) of the Moving Ahead for Progress in the 21st Century Act (MAP-21), Pub. L. 112-141, 126 Stat. 405 (July 6, 2012), allows FHWA to enter into programmatic agreements with the States that establish efficient administrative procedures for carrying out

environmental and other required project reviews, including agreements that allow a State to determine whether a project qualifies for a CE on behalf of FHWA;

Whereas, the FHWA developed regulations implementing the authorities in section 1318(d), effective November 6, 2014;

Now, therefore, the FHWA and MoDOT enter into this Programmatic Agreement ("Agreement") for the processing of categorical exclusions.

I. PARTIES

The Parties to this Agreement are the FHWA and the Missouri Department of Transportation ("MoDOT").

II. PURPOSE

The purpose of this Agreement is to authorize MoDOT to determine on behalf of FHWA whether a local or state-sponsored federal-aid project qualifies for a CE specifically listed in 23 CFR 771.117(c) and (d) (listed in Appendix A of this Agreement). This Agreement also authorizes MoDOT to certify to FHWA that an action not specifically listed in 23 CFR 771.117(c) (d), but meeting the CE criteria in 40 CFR 1508.4 and 23 CFR 771.117(a), qualifies for a CE as long as there are no unusual circumstances present that would require the preparation of either an environmental assessment (EA) or an environmental impact statement (EIS).

III. AUTHORITIES

This agreement is entered into pursuant to the following authorities:

A. National Environmental Policy Act, 42 U.S.C. 4321 - 4370

B. Moving Ahead for Progress in the 21st Century Act, P.L. 112-141, 126 Stat. 405, Sec. 1318(d)

C. Fixing America's Surface Transportation Act, P. L. 114-94

D. 40 CFR parts 1500 - 1508

E. DOT Order 5610.1C

F. 23 CFR 771.117

IV. RESPONSIBILITIES

A. MoDOT Environmental and Historic Preservation Office is responsible for:

1. Ensuring the following process is completed for each project that qualifies for a CE:

a. For actions qualifying for a CE listed in Appendix A (CEs established in 23 CFR 771.117(c) and (d), that do not exceed the thresholds in Section IV(A)(1)(b) of this Agreement, MoDOT may make a CE approval on behalf of FHWA. MoDOT will identify the applicable listed CE(s), ensure any conditions or constraints are met, verify that unusual circumstances do not apply, address any and all other environmental requirements, and complete the review with a signature evidencing approval. No separate review or approval of the CE(s) by FHWA is required. Referred to by MoDOT as a Programmatic CE (PCE).

b. Actions listed in Appendix A that exceed the thresholds described below may not be approved by MoDOT. MoDOT may certify to FHWA that the action qualifies for a CE. An action requires FHWA CE review and approval (referred to by MoDOT as a CE2) based on MoDOT certification if the action:

   i. Involves a significant floodplain encroachment as defined in 23 CFR 650.105(q), other than functionally dependent uses (e.g., bridges, wetlands) or actions that facilitate open space use (e.g., recreational trails, bicycle and pedestrian paths).

   ii. Involves acquisitions of more than a minor amount of right-of-way. A minor amount of right-of-way is defined as no more than five acres of new right-of-way, permanent easement, and temporary easement combined, except if the project construction cost is under five million dollars or for long corridors with right-of-way strips of 25 feet or less on each side of existing right-of-way;

   iii. Involves acquisitions that result in five or more displacements. For those less than 5, none can occur within an Environmental Justice community. Public involvement will be carried out per MoDOT's Public Involvement Plan;

   iv. Results in capacity expansion of a roadway by addition of through lanes, except if the project does not require new permanent right of way resulting from the addition of the through lanes;

   v. Involves the construction of temporary access, or the closure of existing road, bridge, or ramps, that would result in major traffic disruptions. Public involvement will be carried out per MoDOT's Public Involvement Plan;

   vi. Requires the use of properties protected by Section 4(f) of the Department of Transportation Act (49 U.S.C. 303) that cannot be documented with an FHWA *de minimis* determination, or a programmatic Section 4(f) evaluation;

   vii. Requires the conversion of lands under the protection of Section 6(f) of the Land and Water Conservation Act of 1965, the Federal Aid in Fish

Restoration Act, the Federal Aid in Wildlife Restoration Act, or other unique areas or special lands that were acquired in fee or easement with public-use money and have deed restrictions or covenants on the property;

viii. Requires a U.S. Army Corps of Engineers Section 404 Individual permit or an action that does not meet the terms and conditions of section 10 of the Rivers and Harbors Act of 1899;

ix. Requires a U.S. Coast Guard bridge permit;

x. Requires construction in, across, or adjacent to a river designated as a component of, or proposed for inclusion in, the National System of Wild and Scenic Rivers published by the U.S. Department of the Interior/U.S. Department of Agriculture;

xi. Does not conform to the State Implementation Plan, which is approved or promulgated by the U.S. Environmental Protection Agency in air quality non-attainment areas;

xii. Does not include a next phase in the statewide transportation improvement program, and in the transportation improvement program, as applicable;

xiii. The project requires formal Section 7 of the Endangered Species Act consultation that leads to "May Affect, Likely to Adversely Affect" or a "Jeopardy" opinion under the Endangered Species Act except when covered under the Indiana and Northern long-eared bat Rangewide FHWA Formal Programmatic Agreement (PA) or other PA between MoDOT/FHWA and FWS; or requires a permit subject to the conditions of the Bald and Golden Eagle Protection Act;

xiv. The project involves unresolved controversy with the public, interested agencies, or tribes. Public involvement will be carried out per MoDOT's Public Involvement Plan;

c. MoDOT may not approve actions not specifically listed as CEs in 23 CFR 771.117(c) or (d), but meet the requirements of a CE under 40 CFR 1508.4 and 23 CFR 771.117(a). Instead, MoDOT shall certify that an action will not result in significant environmental impacts if MoDOT concludes that the action qualifies for a CE and the action does not involve unusual circumstances that warrant the preparation of an EA or EIS. The MoDOT shall submit this certification to FHWA for approval prior to the time FHWA contemplates its next approval or grant action for the project.

i. MoDOT shall provide a copy of the CE documentation prepared for the actions(s) in accordance with Section V of this Agreement.

ii. The Division Office's objection to a MoDOT certification may not constitute a disapproval of the action, but signifies that FHWA will need to engage in project-specific review to verify that the certification is adequate, which may include consultation with other agencies.

2. Providing a list of PCEs that MoDOT has approved in accordance with Section IV(A)(1)(a) of this Agreement to the Division Office biannually. FHWA will use this report for monitoring and quality control purposes as described in Section VII(C) of this agreement. The list of PCEs approved will contain the following information:

   a. Project number (J number for MoDOT project, Federal number for locally sponsored projects) and a project name; including the county and route number or facility name where the project will occur;

   b. Identify the CE action listed in the regulation (from Appendix A);

   c. Consultations or technical analyses that are pending (if applicable);

3. Providing a list annually, as requested by FHWA, of CEs processed as documented CEs (CE2) and those PCEs approved under d-listed actions.

4. Consulting early in project development with FHWA for actions that involve unusual circumstances (23 CFR §771.117(b)), to determine the appropriate class of action for environmental analysis and documentation. MoDOT may decide or FHWA may require additional studies to be performed prior to making a CE approval, or the preparation of an EA or EIS.

5. Meeting applicable documentation requirements in Section V for State CE approvals on FHWA's behalf and State CE certifications to FHWA, applicable approval and re-evaluation requirements in Section VI, and applicable quality control/quality, monitoring, and performance requirements in Section VII.

6. Relying only upon employees directly employed by MoDOT to make CE approvals or certifications in accordance with Section IV(A)(1)(a),(b), and (c) of this agreement. MoDOT may not delegate its responsibility for CE approvals or certifications to third parties (i.e., consultants, local government staff, and other State agency staff).

B. The FHWA is responsible for:

1. Providing timely advice and technical assistance on CEs to MoDOT, as requested.

2. Providing timely input and review of certified actions. FHWA will base its approval of CE actions on the project documentation and certifications prepared by MoDOT under this Agreement.

3. Overseeing the implementation of this Agreement in accordance with the provisions in Section VII, including applicable monitoring and performance provisions.

V. DOCUMENTATION OF MoDOT PCE APPROVALS AND CE2 CERTIFICATIONS

A. For State PCE approvals and State CE2 certifications to FHWA for approval, MoDOT shall ensure that it fulfills the following responsibilities for documenting the project-specific determinations made:

1. For actions approved at PCEs, MoDOT shall identify the applicable action(s), ensure any conditions specified in FHWA regulation are met, verify that unusual circumstances do not apply, address all other environmental requirements, and complete the review with a MoDOT signature evidencing approval within the Request for Environmental Services (RES) or Request for Environmental Review (RER).

2. In addition, for actions certified as CE2s, MoDOT shall prepare documentation that supports the CE2 determination and that no unusual circumstances as described in Section IV (A)(1)(b) of this agreement exist that would make the CE2 approval inappropriate.

B. MoDOT shall maintain a project record for PCE approvals it makes on FHWA's behalf and each CE2 submitted to FHWA for approval. This record shall include at a minimum:

1. Any checklists, forms, or other documents and exhibits that summarize the consideration of project effects and unusual circumstances;

2. A summary of public involvement complying with the requirements of MoDOT-approved public involvement policy;

3. Any stakeholder communication, correspondence, consultation, or public meeting documentation;

4. The name of the document approver and the date of MoDOT's approval or FHWA's final approval;

5. For cases involving re-evaluations, any documented re-evaluation (when required) or a statement that a re-evaluation was completed for the project (when documentation is not necessary);

6. Evidence documenting MoDOT's review and determination that the project has: (1) independent utility, (2) logical termini, and (3) does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements;

7. Evidence documenting that at the time of the CE approval or certification, MoDOT has complied, to the extent possible, with all applicable environmental laws and Executive Orders, or provide reasonable assurance that their requirements can be met.

C. Any electronic or paper project records maintained by MoDOT shall be provided to FHWA at their request. MoDOT shall retain those records, including all letters and comments received from governmental agencies, the public, and others for a period of no less than three (3) years after completion of project construction. This 3-year retention provision does not relieve MoDOT of its project or program recordkeeping responsibilities under 2 CFR § 200.333 or any other applicable laws, regulations, or policies.

VI. NEPA APPROVALS AND RE-EVALUATIONS

A. MoDOT's PCE approvals and CE2s submitted to FHWA for approval may only be made by officers or offices specifically identified below:

1. Approval of PCEs in Appendix A is delegated to the MoDOT Environmental Compliance Manager, the designated Local Public Agency (LPA) Environmental Specialists, and the Environmental and Historic Preservation Manager.

2. Certification of CE2s is delegated to the MoDOT Environmental Compliance Manager and the Environmental and Historic Preservation Manager.

B. In accordance with 23 CFR 771.129, if a change in the project scope, project limits, existing conditions, or pertinent regulations occurs after the PCE has been approved, the approved PCE determination shall be re-evaluated, commensurate with the change, to ensure the PCE determination is appropriate. This should occur at the time the change is identified, but at a minimum, the project must be assessed for changes when the project moves to the next subsequent phase of development (final design, ROW acquisition, or construction obligation). If during the re-evaluation, the impacts exceed any threshold defined in section IV(A)(1)(b) of this Agreement or unusual circumstances defined in 23 CFR 771.117(b) exist, due to the change in scope of work or unforeseen conditions, MoDOT will send the re-evaluation to FHWA for review and a decision on how to proceed. The re-evaluation shall describe the project scope change(s) including an assessment of consequential impacts. Include any mitigation commitment changes resulting from the re-evaluation, and documentation of coordination with resource agencies and the public, as appropriate. MoDOT shall not remove or alter commitments that resulted from coordination with resource agencies without the applicable agencies prior approval. MoDOT shall not remove or alter commitments that resulted from public coordination without prior appropriate public involvement and FHWA approval. Based on the re-evaluation process described herein, MoDOT will prepare additional documentation, if necessary, to ensure that determinations are still valid. Coordination should occur with FHWA, as appropriate, to determine if a CE2 review is warranted.

VII. QUALITY CONTROL/QUALITY ASSURANCE, MONITORING & PERFORMANCE

A. MoDOT Quality Control & Quality Assurance.

MoDOT agrees to carry out regular quality control and quality assurance activities to ensure that its PCE approvals and CE2 submissions to FHWA for approval are made in accordance with applicable law and this Agreement. A MoDOT Planning Technician determines if a project falls under this Agreement and the MoDOT Environmental Compliance Manager reviews each project determination and approves the PCE to complete quality control and assurance. For LPA projects, the MoDOT LPA Environmental Specialists approve CEs in Appendix A and the MoDOT Environmental Compliance Manager review each project determination and approves the PCE to complete quality control and assurance.

B. MoDOT Performance Monitoring and Reporting.

The FHWA and MoDOT shall cooperate in monitoring performance under this Agreement and work to assure quality performance.

C. FHWA Oversight and Monitoring

1. Monitoring by FHWA will include consideration of the technical competency and organizational capacity of MoDOT, as well as MoDOT's performance of its CE processing functions. Performance considerations include, without limitation, the quality and consistency of MoDOT's CE approvals, CE submissions to FHWA for approval, adequacy and capability of MoDOT staff and consultants, and the effectiveness of MoDOT's administration of its internal CE approvals.

2. On a quarterly basis, FHWA will review MoDOT's list of approved PCEs (using a statistically valid approach) to determine whether MoDOT has adequately met the conditions of this Agreement. Any findings will be recorded and communicated to MoDOT immediately to be addressed appropriately. Based on these quarterly reviews, FHWA will determine if any risk to the program is evident. FHWA may conduct program reviews, if needed, as part of its risk-based stewardship and oversight activities, during the term of this Agreement. MoDOT shall prepare and implement a corrective action plan to address any findings or observations identified in the FHWA review. MoDOT shall draft the corrective action plan within 45 days of FHWA finalizing its review. The results of that review and corrective actions taken by MoDOT shall be considered at the time this Agreement is considered for renewal.

3. Nothing in this Agreement prevents FHWA from undertaking other monitoring or oversight actions, including audits, with respect to MoDOT's performance under this Agreement.

4. MoDOT agrees to cooperate with FHWA in all oversight and quality assurance activities.

VIII. AMENDMENTS

If the parties agree to amend this Agreement, then FHWA and MoDOT may execute an amendment with new signatures and dates of the signatures. The term of the Agreement shall remain unchanged unless otherwise expressly stated in the amended Agreement.

IX. TERM, RENEWAL, AND TERMINATION

A. This Agreement shall have a term of five (5) years, effective on the date of the last signature. MoDOT shall post and maintain an executed copy of this Agreement on its website, available to the public.

B. This Agreement is renewable for additional five (5) year terms if MoDOT requests renewal and FHWA determines that MoDOT has satisfactorily carried out the provisions of this Agreement. In considering any renewal of this Agreement, FHWA will evaluate the effectiveness of the Agreement and its overall impact on the environmental review process based on the results of FHWA monitoring reviews of MoDOT's performance according to the terms of this agreement.

C. Either party may terminate this Agreement at any time only by giving at least 30 days written notice to the other party.

D. Expiration or termination of this Agreement shall mean that MoDOT is not able to make CE approvals on FHWA's behalf.

Execution Clause

DocuSigned by:
Kevin Ward
12B2702DDA11455...

2023-05-23 | 10:57 AM CDT

Name: Kevin W. Ward — Date

Title: Division Administrator, Federal Highway Administration Missouri Division

DocuSigned by:
Ed Hassinger
ABD12EE1F461494...

2023-05-22 | 8:00 AM CDT

Name: Ed Hassinger — Date

Title: Chief Engineer, Missouri Department of Transportation

Approved as to Form

DocuSigned by:
Terri L. Parker
3A96F56C7F92489...

2023-05-15 | 10:38 AM CDT

Name: Terri Parker — Date

Title: Asst Chief Counsel, Missouri Department of Transportation

ATTEST:

DocuSigned by:
Pamela Horton
A4666CD7996249B...

Secretary of the COMMISSION

APPENDIX A: 23 CFR 771.117 (c) and (d) - CRITERIA FOR PROGRAMMATIC CEs

This programmatic CE applies to the types of projects listed below and also do not exceed thresholds defined in section IV(A)(1)(b) of this Agreement.

"c" list; The following actions meet the criteria for CEs in the CEQ regulations (40 CFR 1508.4) and §771.117(a) and normally do not require any further NEPA approvals by the FHWA:

(1) Activities that do not involve or lead directly to construction, such as planning and research activities; grants for training; engineering to define the elements of a proposed action or alternatives so that social, economic, and environmental effects can be assessed; and Federal-aid system revisions which establish classes of highways on the Federal-aid highway system.

(2) Approval of utility installations along or across a transportation facility.

(3) Construction of bicycle and pedestrian lanes, paths, and facilities.

(4) Activities included in the State's highway safety plan under 23 U.S.C. 402.

(5) Transfer of Federal lands pursuant to 23 U.S.C. 107(d) and/or 23 U.S.C. 317 when the land transfer is in support of an action that is not otherwise subject to FHWA review under NEPA.

(6) The installation of noise barriers or alterations to existing publicly owned buildings to provide for noise reduction.

(7) Landscaping.

(8) Installation of fencing, signs, pavement markings, small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur.

(9) The following actions for transportation facilities damaged by an incident resulting in an emergency declared by the Governor of the State and concurred in by the Secretary, or a disaster or emergency declared by the President pursuant to the Robert T. Stafford Act (42 U.S.C. 5121):

(i) Emergency repairs under 23 U.S.C. 125; and

(ii) The repair, reconstruction, restoration, retrofitting, or replacement of any road, highway, bridge, tunnel, or transit facility (such as a ferry dock or bus transfer station), including ancillary transportation facilities (such as pedestrian/bicycle paths and bike lanes), that is in operation or under construction when damaged and the action:

(A) Occurs within the existing right-of-way and in a manner that substantially conforms to the preexisting design, function, and location as the original (which may include upgrades to meet existing codes and standards as well as upgrades warranted to address conditions that have changed since the original construction); and

(B) Is commenced within a 2-year period beginning on the date of the declaration.

(10) Acquisition of scenic easements.

(11) Determination of payback under 23 U.S.C. 156 for property previously acquired with Federal-aid participation.

(12) Improvements to existing rest areas and truck weigh stations.

(13) Ridesharing activities.

(14) Bus and rail car rehabilitation.

(15) Alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons.

(16) Program administration, technical assistance activities, and operating assistance to transit authorities to continue existing service or increase service to meet routine changes in demand.

(17) The purchase of vehicles by the applicant where the use of these vehicles can be accommodated by existing facilities or by new facilities which themselves are within a CE.

(18) Track and railbed maintenance and improvements when carried out within the existing right-of-way.

(19) Purchase and installation of operating or maintenance equipment to be located within the transit facility and with no significant impacts off the site.

(20) Promulgation of rules, regulations, and directives.

(21) Deployment of electronics, photonics, communications, or information processing used singly or in combination, or as components of a fully integrated system, to improve the efficiency or safety of a surface transportation system or to enhance security or passenger convenience. Examples include, but are not limited to, traffic control and detector devices, lane management systems, electronic payment equipment, automatic vehicle locaters, automated passenger counters, computer-aided dispatching systems, radio communications systems, dynamic message signs, and security equipment including surveillance and detection cameras on roadways and in transit facilities and on buses.

(22) Projects, as defined in 23 U.S.C. 101, that would take place entirely within the existing operational right-of-way. Existing operational right-of-way refers to right-of-way that has been disturbed for an existing transportation facility or is maintained for a transportation purpose. This area includes the features associated with the physical footprint of the transportation facility (including the roadway, bridges, interchanges, culverts, drainage, fixed guideways, mitigation areas, etc.) and other areas maintained for transportation purposes such as clear zone, traffic control signage, landscaping, any rest areas with direct access to a controlled access highway, areas maintained for safety and security of a transportation facility, parking facilities with direct access to an existing transportation facility, transit power substations, transit venting structures, and transit maintenance facilities. Portions of the right-of-way that have not been disturbed or that are not maintained for transportation purposes are not in the existing operational right-of-way.

(23) Federally-funded projects:

(i) That receive less than $5,000,000 (as adjusted annually by the Secretary to reflect any increases in the Consumer Price Index prepared by the Department of Labor, see www.fhwa.dot.gov or www.fta.dot.gov) of Federal funds; or

(ii) With a total estimated cost of not more than $30,000,000 (as adjusted annually by the Secretary to reflect any increases in the Consumer Price Index prepared by the Department of Labor, see www.fhwa.dot.gov or www.fta.dot.gov) and Federal funds comprising less than 15 percent of the total estimated project cost.

(24) Localized geotechnical and other investigation to provide information for preliminary design and for environmental analyses and permitting purposes, such as drilling test bores for soil sampling; archeological investigations for archeology resources assessment or similar survey; and wetland surveys.

(25) Environmental restoration and pollution abatement actions to minimize or mitigate the impacts of any existing transportation facility (including retrofitting and construction of stormwater treatment systems to meet Federal and State requirements under sections 401 and 402 of the Federal Water Pollution Control Act (33 U.S.C. 1341; 1342)) carried out to address water pollution or environmental degradation.

(26) Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (including parking, weaving, turning, and climbing lanes), if the action meets the constraints in 23 CFR 771.117 (e).

(27) Highway safety or traffic operations improvement projects, including the installation of ramp metering control devices and lighting, if the action meets the constraints in 23 CFR 771.117 (e).

(28) Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings, if the action meets the constraints in 23 CFR 771.117 (e).

(29) Purchase, construction, replacement, or rehabilitation of ferry vessels (including improvements to ferry vessel safety, navigation, and security systems) that would not require a change in the function of the ferry terminals and can be accommodated by existing facilities or by new facilities which themselves are within a CE.

(30) Rehabilitation or reconstruction of existing ferry facilities that occupy substantially the same geographic footprint, do not result in a change in their functional use, and do not result in a substantial increase in the existing facility's capacity. Example actions include work on pedestrian and vehicle transfer structures and associated utilities, buildings, and terminals.

“de” list actions:

(4) Transportation corridor fringe parking facilities.

(5) Construction of new truck weigh stations or rest areas.

(6) Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.

(7) Approvals for changes in access control.

(8) Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.

(9) Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.

(10) Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.

(11) Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.

(12) Acquisition of land for hardship or protective purposes. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

(i) Hardship acquisition is early acquisition of property by the applicant at the property owner's request to alleviate particular hardship to the owner, in contrast to others, because of an inability to sell his property. This is justified when the property owner can document on the basis of health, safety or financial reasons that remaining in the property poses an undue hardship compared to others.

(ii) Protective acquisition is done to prevent imminent development of a parcel which may be needed for a proposed transportation corridor or site. Documentation must clearly demonstrate that development of the land would preclude future transportation use and that such development is imminent. Advance acquisition is not permitted for the sole purpose of reducing the cost of property for a proposed project.

Appendix I:

MDC and LLF financial support letter

MISSOURI DEPARTMENT OF CONSERVATION

Headquarters

2901 West Truman Boulevard, P.O. Box 180, Jefferson City, Missouri 65102-0180

Telephone: 573-751-4115 ▲ www.MissouriConservation.org

SARA PARKER PAULEY, Director

July 26, 2023

Caleb Knerr
Missouri Department of Transportation
601 West Main Street
Jefferson City, MO 65102

Dear Mr. Knerr:

The mission of the Missouri Department of Conservation (Department) is to protect and manage the fish, forest, and wildlife resources of the state and to facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources. This mission benefits current Missourians and generations to come.

Delivering upon this mission requires immense partnership and support of a diversity of conservation programs and initiatives. The Wildlife Crossings Pilot Program (WCPP) offers incredible opportunity for collaboration around shared priorities. If successful, funding obtained through this WCPP will be used to conduct a one-year statewide wildlife vehicle collision (WVC) reduction analysis and hotspot mitigation measure feasibility study with an overall goal of developing, refining, and prioritizing recommendations to address WVC hotspots across Missouri. Results obtained will be used to design, permit, and construct WVC mitigation projects to reduce WVCs statewide while promoting roadway safety and improving habitat connectivity.

The Department proudly supports innovation and collaborative efforts to address safe and effective wildlife crossings for Missouri's citizens, visitors, and wildlife species as an important aspect of delivering and maintaining the state's world class transportation system infrastructure.

We are honored and appreciate the opportunity to partner with the Missouri Department of Transportation and a diversity of partners in support of this important effort. The Missouri Department of Conservation is pleased to commit $40,000 of state expense funds toward the needed non-federal match.

Sincerely,

NATE MUENKS
NATURAL RESOURCE PLANNING SECTION CHIEF

704 W. Jackson
PO Box 55
Keytesville, MO 65261
Phone: 888-573-2323
Email: executivedirector@landlearning.org
www.LandLearning.org

LETTER OF COMMITMENT

Mr. Caleb Knerr,

The Land Learning Foundation is committed to fund $5,000.00 to The Missouri Department of Transportation (MoDOT) in support of the Wildlife Crossings Pilot Program (Funding Opportunity Number: 693JJ323NF00011).

It is understood that funding obtained through this program will be used to conduct a one-year, statewide wildlife vehicle collision (WVC) reduction analysis and hotspot mitigation measure feasibility study. The overall goal of the two phase study is to conduct a statewide multi-species analysis to develop, refine, prioritize, and develop recommendations to address WVC hotspots in Missouri.

Sincerely,

Scott Martin

Executive Director

Appendix J:

Letters of Support

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field
Office 101 Park DeVille Drive, Suite
A Columbia, Missouri 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181

July 24, 2023

To Whom It May Concern
U.S. Department of Transportation
Federal Highway Administration

Re: Letter of Support for the Missouri Department of Transportation's application to the Fiscal Years 2022-2023 Wildlife Crossings Pilot Program (WCPP)

Dear Sir or Madam;

Please accept this letter in support of the Missouri Department of Transportation's (MoDOT) grant application to the Wildlife Crossings Pilot Program (WCPP). With funds received from the program in conjunction with support from non-federal partners such as the Missouri Department of Conservation (MDC), MoDOT is proposing to further refine potential Wildlife Vehicle Collision (WVC) mitigation site locations for future project construction. Funding received will be focused along Interstate Highway 70, which is the subject of massive investments from State and Federal sources over the next decade and is also the site of large concentrations of WVCs across the state.

The U.S. Fish & Wildlife Service (Service) is tasked with protection of many Federal trust resources, include threatened and endangered species, migratory birds, and interjurisdictional fish, among others. We are particularly concerned about the potential impacts of WVCs on federally listed species or species proposed and being evaluated for protection under the Endangered Species Act including the alligator snapping turtle, Blanding's turtle, and the western chicken turtle. Reptiles, both rare and common, are particularly vulnerable to WVCs due to their seasonal migrations, desire for warmth from road surfaces, and slow movement speeds.

We are encouraged to see the broad investment of funds into the prevention of WVCs across the nation and hope you will select MoDOT's application as a particularly relevant effort in the quest to reduce the unnecessary preponderance of collisions across the nation. If you have any questions or concerns about this letter of support, please contact me at John_S_Weber@fws.gov

Sincerely,

John Weber
Field Supervisor

NATIONAL WILDLIFE FEDERATION

NWF.ORG

The Honorable Pete Buttigieg
Secretary of the U.S. Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

July 26, 2023

Dear Secretary Buttigieg,

On behalf of the National Wildlife Federation, we are writing to illustrate our strong support for The Missouri Department of Transportation (MoDOT) in coordination with the Missouri Department of Conservation (MDC) and Land Learning Foundation (LLF) Wildlife Crossings Pilot Program proposal.

Every year thousands of wildlife collision occur our nation's roadways. These collisions cause property damage, minor and severe injury and in some cases, loss of life. Data gathered by MoDOT estimate nearly 40,000 wildlife vehicle collisions occur on Missouri roadways. In particular, the state of Missouri ranks 25th in overall fatality rate ultimately factoring into Missouri incurring nearly $159,000,000 per year due to wildlife vehicle related collisions. The MoDOT Wildlife Vehicle Collision (WVC) hotspot analysis, prioritization, and feasibility project proposal strongly aligns with MDC's strategic plans by promoting ecosystem health and survival of wildlife and habitats while ensuring that human-wildlife conflicts are minimized by reducing WVCs, promoting habitat connectivity, and ensuring natural wildlife travel corridors are identified, prioritized and protected. The proposed project will ensure that Missouri's natural resources remain a staple of the Midwest landscape.

In conclusion, the resources sought in MoDOT's proposal are important to ensure that they can deliver outcomes from a statewide analysis and prioritization study that promote motorist safety, expand and improve habitat connectivity for aquatic and terrestrial species, and provide ecosystem services that contribute to local communities and economies. We encourage you to support MoDOT's proposal, and look forward to working together and other key stakeholders to implement this important effort.

Sincerely,

Geralyn Hoey
Director of Conservation Partnerships
National Wildlife Federation

Jeremy Romero
Regional Connectivity Coordinator
National Wildlife Federation

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