

	Crashes (January 1, 2013 - December 31, 2017)										Crash Severity				Total	Weighted Total		
	Rear End While Turning				Didn't Slow Enough for Turn				Pull Out in Front Crashes (Left Turn / Through)	Pull Out in Front Crashes (Right Turn)	PDO	Minor	Disabling	Fatal				
	SBR	SBL	NBR	NBL	SBR	SBL	NBR	NBL										
Crystal Drive (LM 281.811)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sawmill Road	1	0	0	0	0	0	0	0	0	1	0	1	0	0	1	2	10	
Green Mound Road / Woods Fork Road	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	1	
Hopkins Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Amber Road / Burk Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Winslow (Junkyard)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Woods Fork Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Busiek Road	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	
Route A / Route BB	0	0	0	0	0	0	0	0	0	7	2	3	5	1	0	9	24	
Saddlebrooke	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	
Brookside Drive	1	1	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	
MO 176 / Outer 65	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	3	
Private Drive (LM 291.101)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Wolf Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MO 176 South Junction	0	0	0	0	0	0	0	0	0	3	0	1	2	0	0	3	7	
Bear Creek Road	0	0	0	1	2	0	0	0	0	2	0	4	1	0	0	5	7	
Total	2	2	0	2	2	0	0	0	0	14	3	14	9	1	1			

SCOPE OF SERVICES

The CONSULTANT shall provide the professional, technical, and other personnel resources, equipment, materials and all other things necessary to evaluate, scope and prepare the Traffic Study for Phase 1 and complete the Phase 2 requirements consisting of the Preliminary Plans, Right of Way Plans, Environmental Services and PS&E plans for the resurfacing and safety improvements on Christian and Taney County Route 65. The project limits are from 0.4 miles north of Route EE in Christian County to 0.8 miles north of Route 465 in Taney County.

The CONSULTANT shall perform the following services, all in accordance with the standard practice of the Commission as outlined in the MoDOT Engineering Policy Guide and using AASHTO Green Book and other resources as listed in MoDOT's Engineering Policy Guide.

A more detailed description of the process and requirements used by MoDOT for completion of the design may be found in the MoDOT Engineering Policy Guide (EPG). The consultant is encouraged to review the appropriate sections of the manual as a means to supplement the information contained in the scope of services and provide additional guidance in the requirements and expectations of MoDOT for completion of the design services.

Services rendered by the CONSULTANT, which are considered as additional services, will be addressed per paragraph (3), Additional Services of the Project Design Consultant Agreement. The provisions of the Design Consultant Agreement outlining the responsibilities of the CONSULTANT regarding the quality and accuracy of the deliverables and products shall apply to any decisions regarding determinations of additional services.

Preparation of a supplemental agreement is necessary prior to performance of any work, which is considered as additional services, not included in the original scope of services. The consultant will not be compensated for additional services performed prior to execution of a supplemental agreement. Only additional services, which are required due to changed or unforeseen conditions or are due to a change in the specified end product, will be considered for inclusion in a supplemental agreement.

The CONSULTANT shall prepare all plans through use of a Computer Aided Drafting (CAD) program. The CONSULTANT shall conform to the Missouri Department of Transportation Specifications for Computer Deliverable Contract Plans as referenced in the MoDOT EPG. The CONSULTANT shall use Microstation and Geopak SS4. The CONSULTANT shall provide a 3D model of the project exported from Geopak software for the COMMISSION's use.

The CONSULTANT will be required to produce and update the construction cost estimate for this project at the completion of each major milestone or at a minimum of every six months. The major milestones for this project are defined as the traffic study, preliminary design, right of way and final design.

The CONSULTANT shall review "as built" plans, aerial photographs, manuscripts, etc. and other information to be provided by the Commission and make the necessary field investigations to assure that there have been no significant changes since the information was recorded or obtained.

The CONSULTANT shall prepare a comprehensive design criteria memorandum for this entire project, and submit it to the COMMISSION for review and approval prior to starting the preliminary

design phase. Any deviations from Commission established procedures for design, construction or materials shall be approved through the MoDOT project manager and documented by the CONSULTANT. This documentation shall include a brief justification for the deviation and the signature of the CONSULTANT project manager.

This scope of services is intended to be an accurate description of the items and tasks required for completion of the design of this project. However, each project is unique and may require more or less effort in an individual task to complete the design. The following information will explain and define in general terms the major design items of importance relating to this project. All the elements of work that are necessary to satisfactorily complete the design of this project will be listed.

I PUBLIC INVOLVEMENT – PHASE 1 AND 2

The COMMISSION will be the main point of contact for receiving calls from the public. The CONSULTANT will interact with external agencies and the public as required to accomplish the scope of services of this contract.

1. The CONSULTANT shall be required to attend meetings with regulatory agencies, organizations, county officials, local municipalities, property owners and other entities as required.
2. The CONSULTANT shall be required to attend public meetings. It is anticipated that there will be at least one public meeting.
3. The CONSULTANT shall participate in one planning meeting with MoDOT to prepare for the public meeting.
4. The CONSULTANT shall provide the COMMISSION a database containing all property owners contiguous to the project, or within a reasonable distance of the project. The database shall be of similar format and contain the same information as the example database provided by the COMMISSION to the Consultant. The database shall also designate whether the individual is someone the Commission will need to obtain right of way and/or easements from.
5. The COMMISSION shall advertise for meetings, obtain the meeting location and room, produce copies of handouts and perform mass mailings of notices of meetings or hearings, and newsletters.
6. The CONSULTANT shall prepare the exhibits as requested by COMMISSION for the public meeting or hearing.
7. The COMMISSION shall record and prepare the meeting minutes of the public meeting and shall prepare the transcript, if applicable.

II TRAFFIC STUDY – CONCEPTUAL PHASE – PHASE 1

The conceptual phase of this agreement shall include a formal assessment of the existing roadway to identify safety concerns and the development of strategies to eliminate or mitigate the safety concerns.

1. The COMMISSION will provide to the CONSULTANT traffic counts, crash data and as-built plans.
2. The CONSULTANT shall review the traffic counts and crash data, existing right-of-way and easements, as well as topographic features (slopes, fences, utilities, drainage features, etc.).
3. The CONSULTANT shall submit a Request for Environmental Services (RES) for the conceptual stage of the project.
4. The CONSULTANT shall organize and coordinate a review meeting with a team that represents multiple engineering disciplines and law enforcement (Missouri State Highway Patrol (MSHP), if available).
 - a. The CONSULTANT shall provide team members representing disciplines in design and traffic.
 - b. The COMMISSION will provide team members representing disciplines in design, traffic and maintenance who are familiar with the roadway.
 - c. The COMMISSION will provide a team contact from MSHP, if available.
 - d. Other team members may be invited as deemed necessary by either the Commission or the Consultant.
5. The meeting will be led by the CONSULTANT. The team will assess the relevant information, and provide additional information on existing roadway conditions/issues.
6. The CONSULTANT shall develop meeting minutes.
7. The CONSULTANT shall coordinate a field check to evaluate and confirm existing conditions.
 - a. The field check may be part of the review meeting outlined in the previous paragraphs.
 - b. The CONSULTANT shall take pictures and provide notes documenting the findings from the field check.
8. The CONSULTANT shall develop a Traffic Study for the corridor within the project limits. The Traffic Study shall include, at a minimum:
 - a. Crash Analysis to identify any safety or operational issues.
 - b. Traffic Volumes for the corridor within the project limits.
 - c. Turning Movement Diagrams for each intersection.
 - d. Develop design alternatives to address the identified issue.
 - i. Summarize each alternative.
 - ii. Perform a traffic analysis of each alternative.
 - iii. Examine changes in travel patterns and accessibility for each alternative.
 - iv. Compare impact of each alternative on school districts, recreation areas, churches, businesses, police and fire protection, etc.
 - v. Determine impacts to neighborhood and community settings and characterize the impacted population.
 - vi. Determine the potential for right of way and displacements, residential and

- commercial.
vii. Develop a Cost Estimate for each alternative.

9. The CONSULTANT shall prepare a written report for this stage that includes an evaluation of the design alternatives.
10. The CONSULTANT shall coordinate a meeting with the core team to review the report and design alternative evaluation. The CONSULTANT shall prepare and distribute meeting minutes.

III SURVEYING – PHASE 2

Performance of work for Surveying will be done through a supplemental agreement.

1. The CONSULTANT shall follow MoDOT's Surveying Policies and Guidelines as stated in the Engineering Policy Guide (EPG).
2. The survey data shall be based on the Missouri State plane coordinate system, and modified by a factor provided by the COMMISSION. All elevations and vertical control shall be based on NAVD 88.
3. The CONSULTANT shall provide all computer data in GeoPak SS4.
4. The CONSULTANT shall be responsible for topographic survey and all surveying items necessary to provide preliminary plans, right of way, legal descriptions and final plans.
5. The CONSULTANT shall provide all land survey control information.
6. If necessary for the project, the CONSULTANT will establish or re-establish any necessary section corners or land-ties.
7. The CONSULTANT shall locate all Section Corners, Quarter Section Corners and personal property monuments within project limits.
8. If necessary, the CONSULTANT shall re-establish any monuments destroyed during construction of the project and record the necessary documentation.
9. The CONSULTANT shall be responsible for staking and re-staking tentative right of way on individual properties, as required by MoDOT staff, during right of way negotiations and acquisition phase of the project.
10. The CONSULTANT shall be responsible to monument new right of way and provide a location survey for each intersection.

IV ENVIRONMENTAL SERVICES – PHASE 1 AND 2

Performance of work for Environmental Services (except for the submittal of the Conceptual

Stage Request for Environmental Services) will be done through a supplemental agreement.

1. The COMMISSION shall submit the conceptual stage Request for Environmental Services (RES).
2. If the project does **not** fit under MoDOT's PCE agreement, the CONSULTANT shall perform the required environmental review and submit documentation and clearances for the environmental sections. The CONSULTANT shall be responsible for all environmental sections, and shall provide all documentation to the MoDOT Environmental Section.
 - a. The CONSULTANT shall submit the RES submittals at each project stage, and at a minimum of once per twelve (12) months.
 - b. The CONSULTANT shall perform all desktop reviews, field work and supporting documentation for:
 - i. Farmland
 - ii. Floodplain/Regulatory Floodway
 - iii. Stormwater/Water Quality
 - iv. Socioeconomic and Environmental Justice
 - v. Threatened and Endangered Species
 - vi. Migratory Birds
 - vii. Wetland and Streams
 - viii. Hazardous Waste
 - ix. Noise
 - x. Cultural Resources
 - xi. Public Lands
 - c. The CONSULTANT shall complete all field surveys and documentation as necessary to comply with Section 106 of the Historic Preservation Act, Section 4(f) of the Department of Transportation Act, Section 6(f) of the Land and Conservation Fund Act if applicable, the Endangered Species Act (ESA) and the Clean Water Act.
 - d. The CONSULTANT shall obtain all necessary permits and approvals to comply with all Federal, State and local laws, rules, regulations and orders applicable to the work to be performed and completed by MoDOT, including 404 permit, ESA concurrence and SHPO concurrence.
 - e. The CONSULTANT shall consider appropriate impact mitigation, avoidance, minimization and compensation.
 - f. The CONSULTANT shall compile the required NEPA documentation through the production of an administrative record.
3. If the project fits under MoDOT's PCE agreement, the CONSULTANT shall provide the COMMISSION with information for environmental and cultural clearance **including the submittal of the Request for Environmental Services (RES) for each stage of the project, and at a minimum of once per twelve (12) months**. Items that may need to be addressed include historical buildings, bridges and sites, archeological sites, conversion of farmland, endangered

species, wetlands and parklands.

V PRELIMINARY DESIGN – PHASE 2

Performance of work for preliminary design will be done through a supplemental agreement.

The CONSULTANT's attention is directed to Section 235 of MoDOT's Engineering Policy Guide (EPG) for general guidelines and requirements for preliminary design.

1. The COMMISSION shall furnish the Consultant the pavement design recommendation and general special provisions to be used in the preliminary plans.
2. Upon approval of the design alternative by the Commission, the CONSULTANT shall prepare the preliminary plans including the proposed design features:
 - a. Preliminary Plan Title Sheet
 - b. Typical Sections indicating heavy, medium or light duty pavement for new roadways (if the pavement recommendation is unavailable at the time of submittal), along with descriptions of the existing roadway types remaining in place.
 - c. The plan view scale shall be 1" = 50' horizontal (or different scale as determined by MoDOT Project Manager for clarity) and extend to 100 feet beyond the project limits.
 - d. The profile view scale shall be 1" = 50' horizontal, and 1" = 10' vertical.
 - e. The preliminary plans shall include the tentative additional easements and right of way limits, property lines and ownerships, section lines, township and ranges, any U.S. Surveys, city limits, and a general outline of the construction staging, critical design items, and other items as outlined in the EPG.
 - f. The CONSULTANT may have to review preliminary cross sections sufficiently to make a cost comparison between using retaining walls versus acquiring right of way for all proposed wall locations.
3. The CONSULTANT shall prepare the preliminary plan construction cost estimate.
 - a. The COMMISSION will prepare the right of way cost estimate based on the right of way requirements furnished by the CONSULTANT.
 - b. The COMMISSION shall prepare the cost estimate for any utility impacts. The CONSULTANT shall include utility impacts in the plans and construction cost estimate for those utility impacts that are determined to be included in the construction contract.
4. The CONSULTANT shall prepare the letter of transmittal for the preliminary plans. The COMMISSION will provide the template upon request.

5. The CONSULTANT shall complete the preliminary plan checklist. The COMMISSION will furnish the checklist upon request.
6. The CONSULTANT shall provide one (1) electronic copy of the preliminary plans, construction cost estimate, preliminary plan checklist and letter of transmittal to the Commission electronically for review and approval, as scheduled in Exhibit IV.
7. The CONSULTANT shall provide one (1) electronic copy of the approved preliminary plans and available cross sections to be used by MoDOT's Utilities Department. The known utilities will be color-coded on the preliminary plans.

VI FINAL DESIGN – PHASE 2

Performance of work for the final design (including Right of Way plans, if needed) will be done with a supplemental agreement.

1. Right of Way Design (if necessary)

- a. The COMMISSION will provide title insurance information for parcels where new right of way is being acquired, prepare right of way appraisals and secure the necessary right of way by negotiation or condemnation, if necessary, for construction of this project. Any ownership deeds, easements deeds, subdivision plats, etc. needed or used in the development of existing property lines for the right of way plans will be furnished by the CONSULTANT.
- b. The CONSULTANT shall prepare right of way plans, which may be separate drawings from those used for design and construction details. The right of way plans shall show alignment, geometric design, removal of improvements, drainage facilities, property lines and ownership, other land survey information, street lines and existing right of way and easements.
- c. The CONSULTANT should also include any plan details, which will require additional right of way or easements during the construction phase of the project such as bypasses, temporary erosion control, etc. Areas of new right of way, permanent easements and/or temporary easements required from each individual property owner must be denoted underneath the Parcel Number and Name on each individual tract.
- d. Right of way plans shall be submitted to the COMMISSION for review and approval as scheduled in Exhibit IV. The right of way plans shall be at the same scale as the construction plans. The right of way plans shall include any design details that control the width of right of way and necessary easements.
- e. The following minimum design features shall be included on the right of way plans:

- i. Title sheet with appropriate project limits, access note and traffic data completed.
 - ii. Typical Sections
 - iii. Plan and Profile Sheets – CONSULTANT shall finalize and detail the horizontal and vertical improvements. CONSULTANT shall clearly describe important design notes and features on all plan sheets in standard MoDOT format.
 1. New right of way lines and all easements shall be dimensioned from the centerline, or cross road centerlines, if necessary. Bearings and distances on the right of way lines will be required on the final location survey.
 2. Construction limits (slope lines); drainage facilities; entrances and their reference location along with existing and proposed entrance grades, width and type; property owners, with areas of new right of way, easements and remaining property size; centerline bearing, ties to legal land corners from centerline stations with notation for corner witness by a registered land surveyor; existing utility locations and easements, including replacement utility easements; horizontal curvature information; and proper right of way symbolization for new right of way (access control) and easements, including areas which may be required to accommodate temporary erosion control.
 3. Section, Township, Range, and/or U.S. Survey information on each plan sheet near the title block or appropriate survey/section line. The section line information will be provided to the $\frac{1}{4}$ $\frac{1}{4}$ section lines.
 - iv. Driveway Profiles – CONSULTANT shall develop and layout horizontal and vertical alignments for all driveways within the project limits.
 - v. Special Sheets
 - vi. Culvert Sections/Storm Drainage – CONSULTANT shall finalize size and length of any culverts and place description on plan sheets.
 - vii. Cross sections – CONSULTANT shall develop cross sections for the purpose of determining right of way impacts/takes and quantities.
- f. The CONSULTANT shall provide an updated construction cost estimate for the Right of Way design stage.
- g. The CONSULTANT shall submit the Right of Way plans and construction cost estimate with a letter of transmittal. The letter of transmittal shall be provided as a word document.
- h. The CONSULTANT shall provide the Letter of Certification RW Plans Approval Form, Form 236.13 in the EPG. The form shall be in a .pdf format with a digital signature available for the District Engineer's signature.
- i. The CONSULTANT shall provide the Acquisition Authority Date, A-Date Form, Form 3.4.2

in the EPG. The top third of the form shall be filled out by the CONSULTANT and submitted as a word document. The remainder of the form will be filled out by the COMMISSION.

- j. The CONSULTANT shall submit the Right of Way Plan checklist. The COMMISSION shall provide the checklist to the Consultant upon request.
- k. The CONSULTANT shall be responsible for making all revisions to the right of way and construction plans due to negotiations with the property owners in an effort to acquire right of way.
- l. The CONSULTANT shall write the legal descriptions for the new land and any new easements for all right of way acquisitions and complete MoDOT's Professional Land Surveyor Description Review form for this project. The legal description will be signed and sealed by a PLS and submitted on an 'Exhibit A' form, which will be provided by the Commission. Additionally, the COMMISSION will provide the Consultant with a document providing instructions for the MoDOT preferred wording to be used in the legal descriptions.
- m. The CONSULTANT shall provide one (1) electronic set of fully signed and sealed right of way plans for the Commission's use.
- n. The CONSULTANT shall provide one (1) electronic set of approved Right of Way plans and cross sections to be used by MoDOT's Utilities Department. The known utilities shall be color-coded on the plans.
- o. The COMMISSION shall certify the right of way plans as completed by the CONSULTANT.

2. Final Roadway Design

- a. The COMMISSION shall coordinate utility company activities for any adjustments required to be included in the final design plans.
- b. The COMMISSION will secure execution of municipal agreements with the cities and/or county agreements. A copy of the executed agreements will be furnished to the CONSULTANT for his information. The CONSULTANT shall conform to all design provisions of these agreements.
- c. If determined necessary, a field check shall be held with CONSULTANT and COMMISSION representatives prior to completing final design plan quantities. The CONSULTANT shall make any necessary revisions to the final plans as determined by this design field check.
- d. The CONSULTANT shall prepare detailed temporary erosion control plans for review and approval before inclusion in the final design plans.

- e. The CONSULTANT shall prepare computations for all design plan quantities. All plan quantities shall be shown on the Quantity Sheets, and by construction stage, if applicable. The format for these sheets shall be furnished by the COMMISSION. Specialty items may have separate sheets for quantity tabulations.
- f. The COMMISSION shall prepare for review and approval by the COMMISSION all General Job Special Provisions, which are to supersede the Missouri Standard Specification for Highway Construction. A brief reason for the deviation from the standard plans and specifications should also be provided. The CONSULTANT shall prepare only Job Special Provisions related to design elements shown in the plans. The COMMISSION shall provide any JSPs that are required as a result of right of way acquisition, utility impacts and environmental issues.
- g. The following list shall be considered the minimum requirements for a complete set of Final Design Plans.
 - i. Title Sheet
 - ii. Typical Sections
 - iii. Quantity Sheets – the latest version of the temporary traffic control summary sheet
 - iv. Plan Sheets at 1"=50' horizontal (or different scale as determined by MoDOT Project Manager for clarity). Plan sheets shall include all necessary adjustments to signing and proposed pavement marking.
 - v. Profile Sheets at 1"=50' horizontal and 1"=10' vertical
 - vi. Culvert Sections at 1"=10', if needed
 - vii. Special Sheets for geometrics, referenced points, grading plan, traffic control plan, temporary erosion control plan and any other sheets for special design features.
 - viii. Pavement Marking Sheets
 - ix. Lighting Plans
 - x. Signal Plans
 - xi. Earthwork Quantities, Cross Sections at 100' intervals, 1"=10' (1:100), horizontal and vertical, including entrance sections with existing and proposed grades
 - xii. Tabulation of Quantity Sheets
 - xiii. Job Special Provisions in electronic format readable in COMMISSION'S current word processor
 - xiv. File with the bid items and quantities as generated by COMMISSION'S Estimate Program
 - xv. Equipment and Materials List D-15 – generated from the COMMISSION'S Estimate Program
 - xvi. Construction Workday Study
 - xvii. Final Plans Checklist Form D-12

- h. Additional plans and information may be required to complete the Final Design Plans. With the submittal of the Final Design the CONSULTANT shall also provide the COMMISSION a statement that an internal quality control check has been conducted and to the best of the CONSULTANT'S knowledge the final design plans are free of gross errors, misleading or confusing typos, and includes adequate information to construct the project.

VII DRAWINGS AND DOCUMENTS

The CONSULTANT shall furnish the COMMISSION with the following completed sheets and documents, as applicable, for the construction project included in this contract, as follows:

1. Phase 1 and 2: All mapping, sketches, cross sections and all other engineering documents necessary to secure permits from the administrator of the FEMA Flood Insurance Program (if required) and Section 401 and 404 permits as administered by the United States Army Corps of Engineers (if required).
2. Phase 1: One (1) electronic copy of the Traffic Study, with design alternatives evaluation.
3. Phase 1 and 2: One (1) electronic copy of drainage and engineering calculations and analysis.
4. Phase 1 and 2: One (1) electronic copy of approved Design Exceptions (if applicable).
5. Phase 2: One (1) electronic copy of the Preliminary Plans, and other documents as outlined in this exhibit.
6. Phase 2: One (1) electronic copy of the Right of Way Plans, and other documents as outlined in this exhibit.
7. Phase 2: One (1) electronic copy of the PS&E Plans, and other documents as outlined in this exhibit.

VIII STANDARDS

The CONSULTANT shall use the latest version of the following publications to determine the design criteria and procedures which will be followed for development of the project.

1. Federal Emergency Management Administration Flood Insurance Guidelines and Specifications.
2. MoDOT Engineering Policy Guide (EPG)
3. Manual on Uniform Traffic Control Devices (MUTCD)
4. A Policy on Geometric Design of Highways and Streets
5. AASHTO LRFD Bridge Design Specifications
6. Missouri Standard Specifications for Highway Construction

7. Missouri Standard Plans
8. MoDOT Bridge Manual
9. Missouri Department of Transportation for Computer Deliverable Contract Plans
10. Any other publications which the ENGINEER directs the CONSULTANT to use.