

# Guidelines and Procedures for Alternate Technical Concept (ATC) Process

---

## **Description**

This project will allow contractors the opportunity to include in their bid proposal, pricing for a pre-approved Alternate Technical Concept (ATC) that differs from the Missouri Department of Transportation (MoDOT) base design proposal. ATCs allow for innovation, project schedule reduction and cost savings to obtain the best value for the project that meets or exceeds the project goals, and which provides a product, which is equal to or better than the concept it replaces. ATCs may address, but are not limited to, specifications, materials, products, design standards, design solutions, staging or traffic control.

For this Request for Bid, the contractor may submit a bid for the MoDOT base design proposal or a bid that includes pricing for a pre-approved ATC.

## **General Conditions**

The MoDOT furnished base design contains all of the proposed work for the project to be bid. The contractor may propose an ATC to do the work. The minimum requirements for the finished project are listed below. If an ATC is pre-approved by MoDOT, the contractor has the option of submitting a bid for the pre-approved ATC proposal or the MoDOT furnished base design. The contractor will only be allowed to submit one bid for this project.

MoDOT will be responsible for completing all roadway and structural design plans for approved ATCs.

## **Process for Submittal of Alternate Technical Concepts**

Submittal and evaluation of ATCs will include the following three step process:

**Step 1:** This will consist of one-on-one confidential meetings between the contractor and the ATC review team to discuss what portion of the project the ATC proposal impacts. If MoDOT confirms this portion of the base design has been finalized, then the ATC process proceeds to Step 2.

MoDOT cautions that any idea submitted by the contractor, in which the base MoDOT design has not yet been completed, may possibly be the design direction that was intended for the base design plans. To avoid discussing concepts on portions of the design that have not been completed; the contractor will be asked to describe which portion of the design their ATC will impact. If the ATC proposal impacts an incomplete portion of the base design, the contractor will have the option of delaying their ATC submittal until after the final design solution has been selected. If a contractor chooses to proceed with submitting an ATC on an incomplete portion of the base design that ends up being the same solution as the base design, the contractor shall have no ownership or right to that specific ATC. The contractor will be informed of this situation if it occurs.

**Step 2:** The ATC team will be available to review contractor's Conceptual Alternate Technical Concepts (CATC) proposals. CATCs will require minimal engineering and are intended to allow contractors to present their ideas to the ATC team in a confidential environment prior to investing time and resources into detailed engineering of their concept.

MoDOT will review submitted CATCs and respond back to the contractor as soon as possible, but not to exceed 2 weeks or 10 business days. Yet, MoDOT reserves the right to take longer depending on resources and evaluation needs of the specific CATC. The contractor will be notified prior to completion of the 2 week time period if more time will be necessary.

Although there is not a limit to the number of CATC submittals, MoDOT reserves the right to limit the number of CATC submittals if in its own determination it feels that a contractor is abusing the process by not limiting their submittals to reasonable concepts. The contractor will receive a written warning from MoDOT before being limited on the number of CATC submittals.

**Step 3:** Once a CATC is approved, the contractor may choose to pursue the ATC in more detail and submit it for final approval and inclusion in the bidding documents.

All inquiries regarding ATCs for this project should be directed to the contact as listed below:

Project Contact *(Insert contact information here)*

<b>ATC Process Schedule <i>(Modify schedule specific to individual project)</i></b>	
<i>(Insert Date)</i>	An informational meeting will be held to explain the ATC process.
<i>(Insert Date)</i>	Commission confirms direction for base design.
<i>(Insert Date)</i>	30% base plans will be posted to the Project website.
<i>(Insert Date)</i>	Start date of confidential one-on-one contractor meetings. CATCs will be accepted for review.
<i>(Insert Date)</i>	60% base plans will be posted to the Project website. Guidelines for the ATC Process and Procedures finalized and posted to website.
<i>(Insert Date)*</i>	Last day to submit ATCs.
<i>(Insert Date)</i>	Conceptual design deliverables due.
<i>(Insert Date)*</i>	Pre-bid deliverables due.
<i>(Insert Date)</i>	ATC bid document available to contractor.
<i>(Insert Date)</i>	Bids due.
* Dates subject to change depending on the number and complexity of ATC design.	

**Requirements for Step 2 Conceptual Alternate Technical Concept Submittal**

Requirements for the CATC submittal shall include at a minimum:

- a) Detailed narrative of the CATC being proposed (detailed to at least enough information for MoDOT to estimate cost and time savings).
- b) Estimate of cost savings.
- c) Estimate of time savings.
- d) Impact to the environment, utilities and right of way and any previous permits or approvals.
- e) A description of any previous use or submission of similar technical concepts or value engineering proposals, including dates, job numbers, results, and/or outcome of the ATC/VE if previously submitted, as known by the contractor. This would include ATCs/VEs from any state DOT.

CATCs may propose specifications and design standards that differ from MoDOT standard practice. MoDOT understands that, at times, MoDOT manuals, specifications and standards do not allow for maximum flexibility. Contractors are encouraged to propose Additional Applicable Standards (AAS) as part of the CATC/ATC process. The proposed manuals, specifications and standards, shall be limited to those already reviewed by the Federal Highway Administration (FHWA), for example, standards from other State departments of transportation. The Contractor shall provide the AASs including but not limited to construction specifications, special provisions, design requirements (by discipline), standard drawings, materials and testing requirements, and manuals for review and approval with CATC and ATC submittals. The contractor shall provide justification why the AAS should be utilized and the benefits of the AAS versus the standard design. MoDOT will have sole authority to approve or disapprove any AAS. If an AAS is disallowed, the contractor will be notified as to why.

### **Evaluation of Step 2 - Conceptual Alternate Technical Concepts**

The minimum basis of acceptance for a CATC shall adhere to the project specific minimum requirements, general requirements and submittal requirements. Any CATC failing to include the required submittal information or one that fails to meet the project minimum requirements will be rejected and returned to the contractor.

If a CATC is accepted, MoDOT will provide written approval of the CATC. MoDOT will estimate a cost to develop the CATC into a biddable set of plans and the final re-design costs after award. **A CATC proposal must produce an estimated net savings after design costs are deducted greater than \$100,000 (amount may vary based on specific project) to be considered for design.** Approval of the CATC to the contractor will include MoDOT's maximum redesign cost and redesign time for the ATC.

If a CATC is disallowed, the contractor will be notified as to why.

### **Requirements for Step 3 Alternate Technical Concept Submittals**

ATC submittals will only be considered if accompanied with a pre-approved CATC. The contractor shall request and submit four copies of the ATC form with the following information:

- a) All original CATC submittal documents with a copy of the approval letter acknowledging MoDOT's acceptance.
- b) Deviation: Reference all requirements of the MoDOT furnished design that are inconsistent with the proposed ATC, an explanation of the nature of the ATC deviations from said requirements, and impacts to other design elements.
- c) Description: Provide a detailed description of the ATC including specifications and conceptual drawings, and a description of where and how the ATC would be used on the Project.
- d) Justification: An analysis justifying the ATC and demonstrating why modifications or revisions to requirements of the MoDOT furnished base design should be allowed. Include information on how the ATC meets the project goals.
- e) Cost Differences: A detailed statement of the cost differences associated with the implementation of the ATC. Include an itemized list of impacted bid items and quantities supporting the cost differences for the ATC.
- f) Schedule Impact: A discussion of the effect the ATC will have on the contract completion time including design, construction, right of way, utility relocation, Access Justification Report and/or permitting issues.
- g) Certification that the ATC meets all applicable federal and state design standards, or conforms to a pre-approved AAS.

- h) Utilities: A discussion of utility (public and private) impacts and potential added costs.
- i) Permits: A discussion of permit changes, additional permits and/or agency approvals that may be required for the ATC.
- j) Right of Way: A discussion of the right of way impacts (both temporary and permanent) for the ATC.
- k) Traffic and Safety Impacts: A discussion of the impacts the ATC will have on maintenance of traffic during construction.
- l) Environmental Impacts: A discussion of the ATC environmental impacts as compared to the approved project Environmental Document including impacts to environmental commitments and community impacts.
- m) Maintenance: A discussion of the maintenance impacts over the design life of the project.
- n) History: A detailed description of other projects on which the proposed ATC has been used including contact information (name, title, phone number, address and email) for project owners that can confirm ATC implementation.
- o) Inspection: Any additional testing and construction inspection requirements.
- p) Risks: A discussion of added risks to MoDOT and other parties associated with implementing the ATC.
- q) A description of both the existing contract requirements for performing the work and the proposed ATC (if more information has become available since CATC narrative).

ATC submittals shall include enough roadway and structural design details to determine acceptance of the ATC which shall include if applicable, but not limited to: geometrics, hydraulic calculations, profiles, typical sections, and traffic control concepts; and structures to include type, size and location superstructure information, substructure information, and any other significant information. Where different from the MoDOT furnished base design, the ATC submittal shall also identify the contractor's specific approach to the following, as applicable: *(Modify/Add/Delete specific criteria unique to each project)*:

- a) Mechanically stabilized earth (MSE), the contractor shall define the MSE system to be used and its associated application criteria.
- b) Describe the corrosion protection measures for structural steel and concrete reinforcing steel subject to chloride exposure, such as decks, elements under joints and locations within splash zones. The definition of splash zone shall be included if utilized.
- c) The application limits and material requirements for structures for protective coatings such as graffiti protection to be used.
- d) The specifications for the application of proposed coatings for bridge superstructure, signs, message boards, steel piling and miscellaneous steel.
- e) The types of bridge expansion joints and bearings to be used.
- f) Specify what materials will be used for drainage pipes in various applications.
- g) For traffic related items the proposer shall define how they will interpret the 'guidance' recommendations in MUTCD.

### **Evaluation of Step 3 - Alternate Technical Concepts**

ATCs will be evaluated based on compliance to the requirements of these guidelines. ATCs that do not meet these requirements will fail and not be considered for bid. MoDOT and FHWA shall be the sole judges in determining compliance with these requirements. If a CATC is proposed and approved based on the requirements, but does not fulfill these requirements when it is submitted as an ATC, it will not be considered for bid.

ATCs will be evaluated using the following criteria. If any of the following criteria are not met, the ATC proposal fails. *(Define the following specific evaluation criteria unique to each project)*

- a) The ATC meets or exceeds the minimum requirements and engineering standards listed in these guidelines. The ATC was first evaluated and accepted as a Conceptual ATC (CATC).
- b) The ATC does not adversely affect the long-term maintenance of the project.
- c) The ATC is consistent with the overall project goals, which include but are not limited to the following:
  - a. Deliver the project on budget
  - b. Minimize public impact by keeping regional and local traffic flowing efficiently and safely through the impacted area
  - c. Incorporate innovative design including faster/better construction techniques, quality control & inspection
  - d. Coordinate with all partners and the local community resulting in a project that is viewed as successful
  - e. Demonstrate quality construction, encourage green techniques and provide a long lasting facility that complies to ADA requirements.
- d) The ATC is equal to or better than the original design proposal. The ATC shall not cause a decrease in engineering standards for any safety related items, including but not limited to: reduction in shoulder widths, reduction in lane widths, decrease in design speed, decrease in clear zone, or reduced traffic control performance, etc. To be considered for approval, all safety related elements of the ATC must meet or exceed the MoDOT furnished base design. Evaluation of ATC proposals may, at MoDOT's discretion, take into account the overall project design including increases and decreases in safety related items throughout the project. For example a decrease in engineering standard may be allowed in one area if, in MoDOT's and FHWA's sole discretion, it is determined that the overall safety of the project, as compared to the original MoDOT furnished base design, is increased by increasing the engineering standard of other parts of the project.
- e) Direct or secondary cost and/or delay related to utility conflicts.

MoDOT will make every effort to evaluate the ATC within 10 business days of submittal, and give the contractor a pass or fail decision. MoDOT will, in writing, notify the contractor of the ATCs pass/fail status. If an ATC with a promising concept is submitted with insufficient information, it will be rejected. A rejected ATC response will include a list of one or more of the criteria listed above as to why the ATC failed. The contractor will be allowed to address MoDOT's cause for rejection and resubmit the ATC prior to the ATC submittal deadline. All specific ATC discussions shall be written or in-person with minutes recorded by the contractor, and approved by MoDOT. In no way will MoDOT discuss specific ATCs without documentation. MoDOT and FHWA will be the sole judges of acceptability of the ATC. The Commission and FHWA reserve the right to reject any ATC request for any reason.

A request from MoDOT for additional information from the contractor will be considered a response and allows for extension of the evaluation period.

If the proposed ATC is given a "pass" recommendation the concept is considered pre-approved and may be submitted as a bid by the contractor. The contractor shall notify MoDOT in writing within 5 calendar days of approval of the ATC their intent to pursue the ATC. An approved ATC which is comprised of multiple elements must be bid as a whole, selective implementation of less than all the elements will not be accepted.

The contractor will have no claim for additional costs or delays, including development costs, loss of anticipated profits, or increased material or labor costs, if the ATC is rejected.

An approved ATC that is not submitted with the bid will not be considered a pre-approved value engineering change proposal (VECP). The awarded contractor may submit their approved ATC as a VECP, however, the fact that it was approved as an ATC shall have no bearing on potential approval as a VECP, and it will be reviewed independently in accordance with Sec 104.6 of the Missouri Standard Specifications for Highway Construction.

Any approved ATC by other bidders may be considered eligible for submittal as a VECP, only in the event the awarded contractor has an agreement letter from other bidders stating it is permissible to utilize the other bidder's approved concept.

### **Confidentiality**

All members of the review team (except FHWA) will be required to sign a confidentiality agreement before reviewing any CATC/ATC submittals. A copy of the form to be used for this purpose may be requested. All CATC and ATC submittals are considered confidential and will not be shared with other bidders.

MoDOT expressly reserves the right to adopt any specific CATC or ATC as standard practice for use on other contracts administered by MoDOT, whether the CATC or ATC is accepted or rejected. The CATC or ATC shall not be used by MoDOT until after the award of this project.

An approved ATC is made public only if it is the low bid. Approved ATCs submitted by other than the low bidder are not disclosed.

### **Design Requirements**

MoDOT will be responsible for all re-design costs, including design of the approved CATC to biddable quantities and the final re-design after award.

Prior to bid, the plans will be developed to a degree such that MoDOT and the contractor are satisfied that accurate biddable quantities are established. If the successful low bidder's proposal contains an ATC, their ATC will be developed into a finalized set of plans.

The contractor will be included in review and oversight of developing the ATC re-design plans. If necessary, weekly meetings between the design team and the contractor will be held. All communication between the contractor and design team will be written or in-person with minutes recorded. MoDOT will have final approval of design plan changes.

Subsequent to bid, final re-design will not proceed until the project is awarded and the contract executed. The final re-design will be complete before any construction activities related to the ATC proposal may proceed. MoDOT will not be responsible for any cost associated with project delays due to the redesign and production of plans, specifications and quantities as needed for implementation of the ATC's or any additional construction cost not foreseen prior to the ATC design completion.

### **Deliverables**

The following deliverables shall be prepared for approved ATCs in accordance to MoDOT's Engineering Policy Guide (EPG) and applicable state laws.

- 1) Conceptual Design Deliverables
  - a) The contractor shall submit the conceptual roadway and bridge plans by *(Insert date here)*. The plans shall consist of basic plans with enough information to show the overall ATC's design and scope. See Appendix A for details of deliverables.
  
- 2) Pre-Bid Deliverables:
  - a) MoDOT will develop a revised Bid Document in coordination with the contractor including plans, bid items and associated quantities and Job Special Provisions unique to the approved ATC proposal.
  - b) Upon approval of the CATC, MoDOT will coordinate with the contractor to establish an agreed upon cost estimate for the re-design. The contractor shall include the agreed upon re-design cost in the bid as a separate bid item. The re-design cost will be added to the bid to determine the lowest responsive and responsible bid for the project. The re-design cost will be used only for bid comparison and will not be considered a part of the contract award amount. MoDOT will not be responsible for any additional re-design cost beyond the agreed amount specified in the bid. This estimate will be delivered before *(Insert date here)*.
  - c) If the ATC requires additional right of way, including easements or property rights, MoDOT will provide the contractor a cost estimate of the additional right of way. The contractor shall include the agreed upon right of way cost in their bid as a separate bid item. The right of way cost will be added to the bid to determine the lowest responsive and responsible bid for the project. The right of way cost will be used only for bid comparison and will not be considered a part of the contract award amount. This estimate will be delivered before *(Insert date here)*.
  - d) If the ATC requires adjustment of utilities, the contractor shall coordinate with the applicable Utility Companies to develop an estimated cost for utility relocation. The MoDOT and contractor agreed upon utility cost shall be included in the bid as a separate bid item. The utility cost will be added to the bid to determine the lowest responsive and responsible bid for the project. The utility cost will be used only for bid comparison and will not be considered a part of the contract award amount. MoDOT will not be responsible for any additional utility cost beyond the agreed amount specified in the bid. This estimate will be delivered before *(Insert date here)*.
  
- 3) Post Award Deliverables
  - a) Final Engineering Plans: A complete set of Roadway and Bridge plans (if applicable) will be completed by MoDOT for the entire project. The plans will be completed by *(Insert date here)*.
  - b) Right of Way Plans: If the ATC requires additional right of way or easements beyond existing MoDOT property then signed and sealed right of way plans are necessary to begin the acquisition process. The right of way plans will be completed by MoDOT within *(Insert date here)*.
  - c) Utility Plans: If the ATC requires adjustment of utilities, the contractor shall coordinate with the applicable Utility Companies to develop utility relocation plans prior to initiating any work that would affect utilities.
  - d) Construction Schedule: The contractor shall submit a Critical Path Method (CPM) schedule incorporating all major design and construction activities. The milestones shall include all witness and hold points, controlling items of work, partial completion dates, final completion dates, bridge closure and opening dates. The schedule is due *(Insert date here)*.
  - e) Released for Construction Plans: As mutually agreed upon by MoDOT and the contractor, construction plans may be divided into component based packages rather than a complete construction set. For example, bridge may be divided into substructure, superstructure, and

deck packages. Roadway packages may be grading and drainage, pavement and base, and finished roadway. Miscellaneous plans like erosion and traffic control will be included in other packets as necessary for construction.

- f) Location Survey Plat: If the ATC included the purchase of additional right of way or permanent easements, then MoDOT will complete a location survey plat.

See Appendix A for a Deliverable Checklist.

### **Bidding Requirements**

The proposal documents contain all of the proposed work for the project to be bid as designed by MoDOT. Contractors choosing not to participate in the ATC process must bid the base set of plans furnished by MoDOT.

Contractors with pre-approved ATCs will receive a modified electronic bidding software (ebs) file with separate pay items for the pre-approved ATC and other applicable bid items. If the contractor elects to bid the project with pre-approved ATCs, the contractor shall enter the unit prices in the modified bidding document and submit the ATC bid electronically via an ftp site.

### **Basis of Payment**

A contractor with an awarded ATC low bid will be paid the contract unit price for the items bid in the ATC bid. If the successful contractor's pre-approved ATC is abandoned by the contractor or fails to be constructed for any reason, the contractor is obligated to complete the project utilizing the original design at the awarded cost. A no cost change order will be processed to re-adjust the bid items to the original design quantities.

Any quantity adjustments for an awarded low bid ATC will be done in accordance with of the Missouri Standard Specifications for Highway Construction. No direct payment will be made for any change in quantity of pay items contained in the base design that are indirectly impacted because of utilizing an ATC on the project.

No direct payment will be made for delay of schedule due to the use of an ATC, including but not limited to delay resulting from the design, review, implementation, right of way acquisition or construction of an ATC. Additionally, if the ATC causes conflicts with utilities that were not previously identified in the original ATC submittal, the contractor's sole remedy for the effects of the presence of utilities, delay in their relocation or any other effects they have on delivery of the project shall be a non-compensable, excusable delay as provided in Section 105.7.3 of the Missouri Standard Specifications for Highway Construction. No time delay will be granted for any utility conflicts identified in the original ATC submittal.

### **Basis of Award**

The contract will be awarded to the lowest responsible bidder. For an approved ATC bid, the contractor will be required to include in the bid any additional right of way, utility or re-design costs associated with the ATC proposal. These costs will be established and agreed upon between the contractor and MoDOT prior to bid. These costs will be added to the bid to determine the lowest responsive and responsible bid for the project. These costs will be used only for bid comparison and will not be considered a part of the contract award amount.



The following are requirements and limits that will be placed on the Alternate Technical Concepts for this project:

**General Design Specifications – Minimum Requirements** *(Modify/Add/Delete specific to each project)*

1. Roadway and Structural designs shall be in accordance with any state and all federal requirements, unless otherwise specified elsewhere in these contract documents.
2. Utilities shall not be disturbed except at the contractor's expense.
3. There are many factors that limit the options in altering the horizontal alignment. Prior to investing an extensive amount of time in any Conceptual ATC proposal that would affect the horizontal geometry of the base design; the contractor is strongly encouraged to contact MoDOT to discuss these limitations as noted in Step 1 of submittal process.
4. ATCs proposing changes in maintenance of traffic should maintain traffic as good as or better than the MoDOT base design. Closures exceeding that of the base design will be considered depending upon impacts to the traveling public and local input.
5. If the ATC requires additional right of way or easements, MoDOT will provide the contractor a cost estimate of the right of way based upon the appraised value. This estimate will be delivered before *(Insert date here)*.
6. ATCs may not result in a net increase in the acreage of disturbed wetlands.
7. ATCs requiring new Design Exceptions must receive MoDOT and FHWA approval according to the review and approval process specified in [MoDOT's Engineering Policy Guide Sec 131.1](#). Any combination of existing and new design exceptions must produce a design that is judged to be equal to or better than the existing design as determined by MoDOT and FHWA. MoDOT in its sole discretion may reject any design exception proposal that it feels does not provide a suitable or safe design prior to FHWA's review.
8. Any proposed ATCs requiring modifications to previously approved actions for this project (i.e., NEPA, Design Exceptions, Conceptual Reports, permits, etc.) must receive MoDOT and FHWA approval. This information is available upon specific request to the MoDOT contact person. MoDOT in its sole discretion may reject any proposal that will require modifications to previous approvals. Any work required for modification of previously approved actions shall be the responsibility of MoDOT.

**Bridge Design Specifications – Minimum Requirements** *(Modify/Add/Delete specific to each project)*

1. Alternate bridge designs shall be in accordance with the 2010 - AASHTO LRFD 5th Edition and 2010 Interims, Load and Resistance Factor Design, for Seismic Performance Category A, as modified and interpreted by the MoDOT Engineering Policy Guide (EPG). Bridge deck drainage design shall be in accordance with the 1986 FHWA Report "*Bridge Deck Drainage Guidelines*", and the May 1993 FHWA Report "*Design of Deck Drainage, Hydraulic Engineering Circular No. 21.*"

2. Alternate designs shall meet the following LRFD loading requirements:
  - HL-93
  - 35-lb/sf future wearing surface
3. Minimum vertical clearance for finished structure shall be 45'-0" clear over normal pool elevation of 660.0 ft. for a minimum distance of 200'.
4. Design life for finished structures shall be 75 years minimum.
5. The minimum number of lanes and shoulder widths for finished structures, as shown on the contract plans, shall not be reduced from the original design.
6. A reinforced concrete overlay is required for pre-stressed voided slab or pre-stressed box girder superstructures.
7. If drilled shafts are used for intermediate bents, all requirements in the MoDOT Engineer Policy Guide or equivalent drilled shaft requirements contained in a pre-approved AAS shall be met.
8. Alternate bridge designs shall include provisions for a future bicycle/pedestrian lane on either side of the bridge deck. The bicycle/pedestrian lane shall be a minimum of 7 feet clear. MoDOT standard bridge Safety Barrier Curb with appropriate railing/fencing shall be assumed to protect the bicycles/pedestrians from vehicular traffic and the edge of deck.

**Structural Wall Design Specifications – Minimum Requirements** *(Modify/Add/Delete specific to each project)*

These minimum Bridge Design Specification requirements apply to alternate wall designs.

1. Alternate wall designs shall be in accordance with the 2002 – AASHTO 17<sup>th</sup> Edition Load Factor Design, as modified by MoDOT Bridge Design Manual Section 3.6.2.

**Roadway Design Specifications – Minimum Requirements** *(Modify/Add/Delete specific to each project)*

1. This project has a Traffic Management Plan (TMP) that has been approved by FHWA. ATCs that impact the Traffic Control Plan or the TMP will require the preparation and approval, by MoDOT and FHWA, of a revised TMP. The revised TMP and Traffic Control Plan shall provide an equivalent impact to traffic during construction when compared to the one described for the base plans. The determination of equivalent impacts or acceptable impacts to traffic shall be at the sole discretion of MoDOT and FHWA.
2. Alternate pavement designs must be consistent with the AASHTO Mechanistic-Empirical Design guidelines. Any alternate pavement designs must be determined by MoDOT to provide an equivalent design and performance to the design included in the MoDOT furnished base design.
3. Drainage spread shall be limited to the shoulder width plus 3 ft. The design storm event shall be a 25-year (8.5" per hour) frequency and five-minute time period. Draining water directly over the edge of the bridge (i.e. curb outlets) is not allowed.

# APPENDIX A:

## DELIVERABLES CHECKLIST

### Conceptual Design Deliverables – Due *(Insert date here and modify requirements specific to each project)*

- Roadway Plans
  - Typical Cross Sections
    - Pavement type
  - Plan and Profile
    - Project limits
    - Alignments and profiles
    - Drainage features
    - Retaining wall locations
    - Existing Utilities
    - Estimated Right of Way limits
  - Traffic Control Plan
- Bridge Type, Size, and Location
  - General Plan & Elevation
    - Existing and proposed structures
  - Typical Cross Sections
  - Substructures
    - Typical pier elevation
  - Navigation Lighting Layout

### Pre-bid Deliverables – Due *(Insert date here and modify requirements specific to each project)*

- Job Special Provisions
- Bid Items and Quantities (Bid Tabs Pro Plus)
- Roadway Plans
  - Title Sheet
  - Typical Cross Sections
    - Pavement type
  - Plan and Profile Sheets
    - Project limits
    - Alignments and profiles
    - Drainage features
    - Retaining wall locations
    - Existing Utilities
    - Estimated Right of Way limits
- Erosion Control Plan
- Bridge Plans
  - General Plan & Elevation
    - Existing and proposed structures
  - Typical Cross Sections
  - Substructures
    - Abutment plan and elevation

- Typical pier elevation and section
- Navigation Lighting Layout

### **Post-Award Deliverables**

- Final Documentation
  - Right of Way Plans, if required.
  - Utility Plans, if required
  - Design Exceptions
    - FHWA Approval
  - Bridge Layout Memorandum
  - Navigation Lighting Plan and USCG Approval
  - Special Provisions
  - Location Survey Plats
  - As-built Plans
    - Signed & Sealed by Missouri Professional Engineer
    - Includes as-built quantities
  - Foundation Recommendation Report
  - CPM Schedule
    - Including design and construction activities
  - Final Engineering Plans
  - Electronic Design Data per MoDOT Engineering Policy Guide – Sec 237
  - Released for Construction Plans
    - Bridge & Roadway component package submittal acceptable