

Design Bid Build Alternative Technical Concepts

The use of Alternative Technical Concepts (ATCs) during traditional design-bid-build project procurement allows for early contractor involvement that often leads to creative solutions and best value to deliver the most cost-effective transportation solution.



INGENUITY IMAGINATION

INVENTION INNOVATION



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Frequently Asked Questions

- Q.** What degree of design completion is necessary for a biddable design for Alternative Technical Concepts (ATCs)?
- A.** Design should be completed so that accurate biddable quantities are established. Both the owner and contractor should mutually agree upon the quantities for bidding. The agreed upon biddable quantities are administered in the same manner as the baseline design; any variation in quantities are adjusted by change order.
- Q.** To what extent does the contracting agency need to ensure integration with all other design elements (e.g. utility conflicts, differing site conditions, etc.)?
- A.** Once the ATC is accepted, it is administered exactly like a traditional baseline design. Any differing site conditions are addressed in the same manner. Requiring the contractor to assume any potential risk for differing site conditions would likely stifle any ATC submittals. If there are any known conflicts with utilities, it should be addressed in the ATC proposal including costs. If a utility conflict is not discovered until after bidding, it would be addressed in the same manner as the baseline or a typical design would be.
- Q.** To what degree is the contracting agency liable for quantity overruns?
- A.** Both the owner and contractor should mutually agree upon the quantities for bidding. The agreed upon biddable quantities are administered in the same manner as the baseline design; any variation in quantities are adjusted by change order.

Industry feedback...



“We pursued ATCs because we believed that our innovative ideas would **save the state money** and **increase our chances at being the successful bidder.**”

“...elected to pursue ATC because we felt we could **derive a solution that would be more economical for us to build** than the baseline design.”

“The “right” ATC Review Team was involved.”

“We liked the interaction with the ATC Design Team and believe the ATC provided for a very competitive price proposal.”



- Q.** To what degree is the contracting agency responsible if a constructability conflict is identified after award of contract?
- A.** Constructability would generally be the responsibility of the contractor. The contractor could still have the option of constructing the baseline design at the same cost. If the ATC design agreed upon by the owner is impossible or not reasonably constructible, a re-design would be necessary.
- Q.** To what degree is the contracting agency responsible for the costs of design/re-design (I believe MoDOT pays for this to encourage ATC use)?
- A.** Payment of the ATC re-design has fluctuated throughout development of the ATC process. In the beginning, the Missouri Department of Transportation (MoDOT) required the contractor to pay for the re-design costs, which resulted in quite a bit of hesitation from industry because industry didn't want to invest any dollars in a re-design when they weren't guaranteed low bid. As a result of industry feedback, MoDOT typically pays for the cost of re-design for developing plans from approval of the conceptual ATC to biddable quantities and for final re-design after award. However, the cost of re-design is accounted for in determining if the ATC proposal is viable from a cost savings stand point. A Conceptual ATC (CATC) proposal must produce a net savings after re-design costs are deducted. The net savings amount is specified in the ATC guidelines for the specific project. The net savings amount may vary by project depending on the complexity of a project. If any potential ATC savings is negated by re-design costs and does not meet the estimated net savings, the ATC would not be accepted. If the ATC review team determines that the CATC proposal does not meet the net savings criteria, however the overall concept is acceptable, the contractor may be given approval to proceed with developing the ATC re-design in coordination with the DOT at the contractor's expense. Overall, MoDOT typically pays for the re-design, but that isn't to say if we had a unique circumstance, we may not resort back to the contractor paying for re-design. Each project is unique and lends to different circumstances, so we evaluate each situation to determine what makes sense.
- Q.** To what degree is the contractor responsible for an ATC for a 'partial-scope' ATC (e.g. alternative retaining wall system)?
- A.** In general, accepted ATC's would be administered just like the baseline design or any other standard project.
- Q.** How early do contractors get involved--What process is used to advertise these early plans?
- A.** As soon as the DOT determines the ATC process will be used on a specific project, a blast email is sent to all potential bidders to inform them of an ATC Informational meeting. An information session is held with industry to explain how the ATC process works and define the overall scope of the project. Draft plans are shared so industry can evaluate how the project is progressing and determine which areas of the project they can contribute their technical expertise and innovation. Contractors get involved (sign up for ATC) when the base design is established. Plans are posted at intervals such as 50%, 75% and 95% complete.

It's important to educate and collaborate with both industry and consultants on how the process works. Ensure that industry understands the agency's overall goal in utilizing the process, and that your DOT is sincere and serious in wanting innovation from industry. MoDOT engaged our industry partners in a variety of forums, including Associated General Contractor meetings, informational meetings and pre-bids to educate contractors and consultants on how it works. Keep in mind if your project is being designed by a consultant, consultants should be informed up-front that the project has ATCs and that the consultant is knowledgeable and prepared to deliver the services you need to make this process



successful. Information should be included in the Request for Proposals that the project involves the ATC process. This could impact the consultant selection; some may not always be open to the concept.

Q. How is confidentiality managed for the ATC process?

A. Confidentiality is one of the key components to making this process successful. It is stressed in the beginning with the contracting partners that a confidentiality agreement is signed by all parties involved in the process, and only the successful ATC bidder's design will be exposed. All other ATC proposals are protected. Jeopardizing the confidentiality of the process could lessen the chances of success. Confidentiality also adds a wild card to the competitive aspect because other contractors have no idea whether ATCs are being considered. Even when no ATC proposals were submitted on a project, we still get extremely competitive bids because of the unknown competition and potential unknown ideas that may be brought to the table.

Q. How do the confidential one-on-one meetings work?

A. As far as the meeting itself, there is no specific outline for the one-on-one meetings. The contractor shares their ideas, and we listen and give feedback. We are very careful about making sure people don't know we are having the meetings. Even being careful about putting meeting invites on your calendar or what your secretary may say when you are not available. Also, great care should be taken when exchanging files and emails. Not only do we want to make sure that ideas aren't shared, but also that people don't know whether we are working on a potential ATC proposal. Immediately following the confidential one-on-one meetings is where the timelines start kicking in. After we meet with the contractor, MoDOT is committed to reviewing and responding to the conceptual ATCs as soon as possible. We make every effort to evaluate the ATC within 10 working days of submittal, and give the contractor a pass or fail decision. That puts everyone under the gun, but you have to be able to evaluate the ATCs in a timely manner to keep momentum and everyone's confidence in the process. The contractor sees he has a deadline, and he's trying to make a decision if he is going to bid the base bid, so we all work towards the same deadline keeping in mind that the letting date for the project isn't going to move because of the ATCs.

Q. Why would a contractor pursue an ATC rather than simply proposing an alternate design as a Value Engineering Change Proposal (VECP)?

A. The ATC process ensures the contractor that their alternate proposal is approved and the savings can be realized with the bid submittal giving the contractor the competitive bid advantage.

Q. Why would a DOT pursue the Design Bid Build (DBB) ATC process versus using Design Build?

A. There are a few reasons:

1. The DOT may want to retain more ownership of the design because they already have plans developed (shelf project).
2. With the ATC process there is more flexibility in the programming stage because you do not have to allocate all the design and construction dollars up-front like you would for Design Build.
3. The ATC process can be implemented at any stage of project development anywhere from 12 months to literally 3 weeks prior to the bid opening.
4. ATCs and DBB may be more enticing for the smaller contractors and potentially help with overall competition. It can still be intimidating, but not as intimidating as DB to the little guys.
5. Allocation of risk to the owner versus contractor.



- Q.** If an ATC is approved but not used by the Contractor for bidding a project, do they allow that ATC to be submitted as a VECP after bidding?
- A.** An approved ATC that is not submitted with the bid will not be considered a pre-approved 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.
- Q.** Can a low-bid ATC contractor submit a value engineering proposal on an approved ATC?
- A.** Yes. We encourage even further innovation as the construction of the project progresses.
- Q.** How do you select which projects to use the ATC process on? Do you allow ATC's on all projects or only on identified projects?
- A.** When selecting a project to use this process on, know that this contracting method is not meant for every project. Projects that do not offer much flexibility on design are not good candidates. It's meant for projects with many possible solutions that function the same, but in the end, one solution is more cost effective. Other reasons to consider it: The DOT can maintain control over the design, existing plans have already been developed to an advanced stage, there are no tight constraints that may limit innovation, such as floodplain issues, restricted schedules, excessive ROW acquisition needs, or significant environmental issues, and it also still allows the opportunity for low-bid selection.
- Q.** Has an awarded contractor ever submitted a FOIA (Freedom of Information Act) request for all of the approved ATCs? And if so, has that contractor tried to submit one of those as a VECP?
- A.** No. To make this process effective, MoDOT's policy is to only disclose the ATC, if it is the successful low bid. In the event an awarded contractor utilizes a FOIA request to obtain information about approved ATCs submitted by other bidders, these ideas will not be considered eligible for submittal as a VECP, unless the awarded contractor has an agreement letter from other bidders stating it is permissible. Each State should evaluate their respective open records law.
- Q.** Has the ATC approach ever been used just for Maintenance of Traffic or other specific parts of a project?
- A.** Yes, this process is scalable. You can open innovation up to the entire project or a portion of a project. We have used this concept to allow contractors to submit an alternative traffic control plan prior to bid. At a minimum, we provide a base set of traffic control plans with quantities and bid the traffic control as lump sum. Contractors meet with us prior to bid and propose their alternative plan, and we give approval prior to bid.
- Q.** Have you considered life cycle cost with DBB ATCs?
- A.** ATC must be equal or better which would include LCC.
- Q.** How has the public reacted to this process?
- A.** The other important education outreach is with the public. One of the areas MoDOT has worked on over time is making sure the public is comfortable with understanding that a particular project is utilizing the ATC process, and that we may not know the exact details of what the final project is going to look like - whether it's going to be a concrete bridge or a steel bridge, etc. At MoDOT, we've been doing alternate pavements for a number of years, so our public is used to hearing from us that we're not sure whether a project will be asphalt pavement or concrete - we let the construction industry and prices sort that out. Early in the process at the public meetings, we share with the public that the



project is using the ATC process, and we could potentially bring better value to a project by collaborating with industry for innovation. We found the public is very receptive to that. Many times, specific items the engineering staff may think the public are very concerned about, often are not. MoDOT has found it's important to build that expectation from the very beginning.

Q. What are the legal requirements to use ATCs?

A. As far as the legal authority for Missouri, our procurement laws allow the use of this process because we still provide a base bid and ultimately award the low bid. We didn't need special legislation to do this, but every State's procurement laws are different, so it's important that each State verify whether there are any State laws that prohibit or impede their specific State from using this process.

Q. Is there a stipend for ATCs in DBB, or do they include their costs in their bid?

A. To date, no stipend has been offered on DBB ATCs. Any expenditure should be included in the bid. However, for MoDOT's most recent ATC project, the potential for stipends was being considered. In doing so, the ATC contractor grants ownership and rights to MoDOT to use the ATC idea on the current ATC project or future MoDOT projects. This concept was also approved by our FHWA Division office and Headquarters, however, the contractor did not have an approved ATC, so we didn't have to explore the consideration of stipends any further.

Q. What process is used to review the ATC submittals?

A. When reviewing the ATCs, we ask ourselves is the ATC equal to or better than the base design? So what does that mean? For MoDOT, it comes back to the purpose and the goals of the project. What are the needs of the project? What are the reasons for doing the project, and what are we trying to achieve? For example, if we have an interchange project and we want to have free flow with full movement in all directions, then we evaluate it from that perspective. Interchanges can have dozens of possible designs, but in the end, if it achieves the same project goal for less money, then that's a win-win for everybody. Make sure the project goals are clearly defined and the ATC team is all in consensus. Also, it's important to establish a net savings expectation for the ATCs. Net savings has to be proportional to the size of the project. Make sure we're not just shifting saved costs in construction to additional design costs.

Q. Do you pre-approve or prequalify contractors on other projects?

A. We only pre-approve contractors for highly specialized work.

Q. Who reviews your ATC? Project Team or someone else?

A. Project Team

Q. Is there any time lost in having MODOT get to biddable quantities?

A. ATC designs generally run concurrent with the base line design. The ATC process may not be a good candidate on a fast paced design project.

Q. What is the time investment for this process?

A. The ATC process can require a significant time investment from the team members, including FHWA. If multiple ATC's are included, each has to be reviewed at the conceptual stage, the preliminary design stage, and the final design stage; this, after the same time investment had already been made during the MoDOT development of the 'baseline' design. To be successful, you must have time, money and staff available and committed to the process, and realize that multiple ATCs could develop in parallel



with development of the base design. This can be challenging while trying to maintain oversight on many other concurrent projects. It is critical to have a good project management team with great time management skills and committed to the success of the process. It's important to consider the leadership that it takes to do one of these. The project manager becomes a key position in this process because it involves collaboration with contractors; there are confidential meetings and you continue to work back and forth on development of the ATCs. It takes a different type of person than just a technical manager. You need to have a person who can go out and meet with the industry and handle the public meetings to talk about the ideas and concepts and then also manage the project and all the things that have to go on within it.

- Q.** Do you limit what can be ATC'ed? i.e. things affecting ROW or environmental?
- A.** We outline all off-limit areas at the beginning of the process so contractors do not pursue ideas that are non-starters.
- Q.** Have you had any challenges where you accepted an ATC, and it wasn't what you thought it was once you got the contract underway? How did you handle it? We have had this happen on two low bid DB projects.
- A.** To date we have not had an ATC where we had buyer's remorse.
- Q.** What is a typical procurement duration for this process?
- A.** We've found that the sooner the preliminary plans are shared with industry, typically there are better results (generally 9 to 12 months). However, we have implemented on a much shorter timeframe, even within the 5 week advertisement. MoDOT does not alter the bid schedule when using the ATC process.
- Q.** Are the contractors required to identify quantity underruns pre-bid?
- A.** Revised quantities that reflect ATC quantities are bid on.
- Q.** When MoDOT receives bids, are the base bid and ATC bids submitted by paper, electronically, or a combination of the two? If electronically, do all contractors see the pay items and quantities in the ATC's schedule of items, and did your bidding software have to be modified for this?
- A.** All bids are submitted electronically. Only the base bids are submitted through BidX. Contractors with ATCs submit their bids on CDs or through a secure ftp site. Specific bid items for each separate ATC bid is developed in coordination with the contractor and the final bidding file is sent to them prior to bid. No other contractors see any of the bidding documents related to the ATC. We attempted to work with BidX to develop a secure process, however, it was never developed. We continue to emphasize the need with them, but in the interim will continue to use the secure ftp site for bid submittal.
- Q.** How do you deal with different quantities, especially when using electronic bidding? Who determines the quantities for the ATC?
- A.** Specific bid items for each separate ATC bid is developed in coordination with the contractor and the final bidding file is sent to them prior to bid. No other contractors see any of the bidding documents related to the ATC. The contractor and MoDOT work together to establish the biddable quantities.
- Q.** How do you set up the pay item structure for the ATC process?
- A.** The pay structure has varied and evolved over time from when MoDOT first implemented the ATC process, and it also varies on the type of ATC, whether it be the limited scope ATC or the full scope ATC.



Currently, for the full scope ATCs, MoDOT prepares the bid proposal to biddable quantities, including plans, bid items and associated quantities and job special provisions in coordination with the contractor. The final electronic bidding file is sent to the contractor prior to bid. No other contractors see any of the bidding documents related to the ATC. For an approved ATC bid, the contractor is also required to include individual bid items for any additional costs for right of way, utility or re-design associated with the ATC proposal. These costs are established and agreed upon between the contractor and MoDOT prior to bid, and are added to the bid to determine the lowest responsive bid, but are not considered part of the contract award amount.

We've also done the limited scope maintenance of traffic ATC where the MoDOT furnished design contains all of the items of work for the traffic control and staging. The contractor can submit an ATC for the maintenance of traffic including the traffic control items, staging of construction and any earthwork, drainage and temporary pavement associated with the staging. For these projects, the traffic control was bid as lump sum. We've attempted this on a handful of projects, and had contractor interest in the beginning stages, but then no ATCs were pursued. The ATC process for these projects started roughly 5 to 9 weeks before the bid opening, and we also had a pretty substantial net savings requirement of \$100,000 after re-design costs, which we do to ensure any investment of our resources into a potential re-design is worth our while. Some of the subsequent feedback we heard from contractors was that 5 weeks wasn't adequate time to re-evaluate the maintenance of traffic, and also contractors were able to identify some savings, but not enough to amount to the \$100,000 net savings required. The positive spin to this is by not receiving any ATCs, we felt that the staging and traffic management we designed in the base project actually resulted in the most cost effective and efficient solution.

Q. How is the engineer of record determined? Is it similar to a VECP?

- A.** Again, this topic has varied with each project. MoDOT generally encourages maintaining the same engineer of record for the base design and an ATC design, but we also continue to be flexible with the process to promote innovation if a contractor wishes to pursue it, as long as it is in compliance with all applicable laws. We've seen a lot of mixed opinions even from industry on the best way to handle this, so we continue to be open-minded and work through the issue on a case by case basis. In some cases, we've had contractors insist on using MoDOT resources for the ATC re-design because contractors feel we're pushing the limit and crossing over to Design Build, and they've expressed it should be the DOT's responsibility to retain the engineer of record, and in other cases it's the extreme opposite that contractors want to complete the redesign themselves to allow them to partner with a consultant to better promote the innovation, whereas they see the DOT may stifle it. We verified with Missouri's FHWA Division office and Headquarters the option of allowing contractors to complete their own ATC re-design, to ensure we are in compliance with the Brooks Act. Ultimately, we were informed that the Brooks Act does not apply to consultants that have design agreements with contractors, even if the DOT reimburses a contractor for the design work. In the case of a recent project, the interested ATC contractor was very aware of potential liability/engineer of record issues and was still interested in pursuing their own ATC re-design. However, in another case, the contractor wanted nothing to do with it. Sometimes, there's a clear cut line of liability, and other times, it may be a domino effect that one area of a project leads to another area and so on. In general, unless there's a clear demarcation or a 100% disconnect from the original design, then the original designer will maintain the engineer of record.



- Q.** Without a stipend, who owns the intellectual property?
- A.** The contractor. MoDOT reserves the right to adopt any specific ATC as standard practice for use on other contracts administered by MoDOT, whether the ATC is accepted or rejected. The ATC will not be used on another project by MoDOT until after the award of the ATC 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.
- Q.** Has your contracting industry voiced any concerns on the process being unfair, or have you had any projects contested based on the scope of the ATC?
- A.** No, MoDOT has not had any bids contested. We work closely with industry to build support for the process. We only use the process on limited number of projects and the right project.
- Q.** I've had some general questions on how NEPA is followed with the ATC process if the contractors propose something different than what is the preferred option from the environmental document.
- A.** When using the ATC process on a project, the NEPA document has to first of all recognize that the project allows the opportunity for the ATC process, and secondly leave the evaluation broad enough to identify all the environmental impacts for a maximum footprint of various design alternatives, rather than narrowing the design to only one solution. Historically in past projects, the NEPA documents were overly prescriptive identifying that the preferred alternative is the only solution. The NEPA document should identify the impacts globally and not be too specific about the type of solution to be implemented. Ultimately, if an ATC does require NEPA re-evaluation, then we offer a conditional approval within the ATC process and follow-up with a re-evaluation after award. MoDOT's environmental staff is involved on the ATC Review Team throughout the project development to continually evaluate the environmental needs. If a contractor proposes a design that is different from the preferred alternative selected in the NEPA document, we can award the contract and complete NEPA afterward if the proposed design impacts were analyzed in the original NEPA document (i.e. it was an alternative carried through for analysis but was not the preferred alternative). We work very closely with our FHWA partners in Missouri. There are certain things we have to do to meet our federal requirements, and we communicate that to the bidders throughout the ATC review process.
- Q.** What implications have you had with Right of Way involvement on ATCs?
- A.** For MoDOT as the owner, we've decided we want to manage the R/W. Let contractors identify what they need and we'll work to obtain it according to the applicable laws; must meet the Uniform Relocation Act. Many States have specific condemnation laws and timelines. Who's going to acquire it and how? Contractors in Missouri do not have condemning authority, which is another reason we manage any additional acquisitions. During the ATC review, it's important to evaluate whether acquiring additional R/W makes it worthwhile for us to pursue an alternate design on a project – weigh the additional costs. And the contractor has to understand that any potential impacts to R/W doesn't allow for flexibility in the schedule.
- Q.** What performance measures does MoDOT have on the ATC process?
- A.** None directly, however we continue to evaluate the process to ensure it does not adversely affect the bidding process, we can demonstrate cost savings, we're seeing innovation on our projects and we're still delivering projects on time with an equal to or better solution.