

**Maryland Department of Transportation  
State Highway Administration  
Application for SEP 14  
Time and Material Contract**

**PURPOSE**

For the last 20 or more years, the Maryland Department of Transportation State Highway Administration (MDOT SHA) routinely advertises \$10 million contracts using 100% State funding for the repair, rehabilitation, replacement, or preservation activities of highway bridges, retaining walls, and other highway structures with spans less than 20'. These are procured through a specialized Design-Bid-Build method that MDOT SHA calls "time and material" contracts.

MDOT SHA is now requesting SEP-14 approval for the implementation using this modified Indefinite-Delivery/Indefinite-Quantity (ID/IQ) contracting method called the "time and material" method. MDOT SHA uses these contracts to speed up the time it takes between identification of a defect on a highway structure to engineering a solution to completing a traditional Design-Bid-Build procurement process to address the defect. In some cases, a defect could have gotten much worse in the timeframe it would take to procure a traditional Design-Bid-Build contract and would result in large overruns of quantities and massive amounts of extra work. These contracts are also used to respond to emergency situations due to traffic impacts or weather-related damage such as scour that will continue to use state funds. It is far better and easier to have on-call "time and material" contractors for preventive maintenance to remedy a defect within a day, week, or a few months of identification. MDOT SHA believes that there will be no issues with this delivery method based on the rich history of using this method in the past with 100% State funds.

**SCOPE**

Under the "time and material" method, a specifications booklet with some quantities (based on historical data) are advertised. There are no plans, tasks, or locations identified at the time of bidding, and just a general scope of the types of work is included in the project description. These contracts will include bridge preservation, rehabilitation, replacement, and emergency repair activities.

Instead of traditional items (like CY of concrete or LBs of steel) that include the labor, material, and equipment, most of the items in these contracts are for either labor, materials, or equipment separately. Typical lump sum items like mobilization and maintenance is not included in the contract and are considered incidental to the other items in the contract. There are items for commonly used Maintenance of Traffic equipment (Cones, Drums, Protection Vehicles, etc.), items for commonly used contractor equipment (Flatbed Truck, Air Compressor, Dump Truck, Concrete Mixer, etc.), and items for various types of labor (Skilled, Forman, Welder, etc.). These items are all measured and paid by the amount of time they are used (hourly, daily, monthly, etc.).

Since there are an unknown number of tasks and quantities at the time of bidding, there are five additional items that have pre-established prices to make sure that the contract has enough money in it to carry the contract through the two year duration of the contract. If these items do not have pre-established prices, bidders would bid these items low, and then MDOT would have to constantly add money to the contract through hundreds or thousands of change orders every time

these items are used. These items, Materials for Structural Rehabilitation, Specialized Equipment for Structural Rehabilitation, Subcontracting for Structural Rehabilitation, Travel Expenses, and Railroad Expenses handle all other miscellaneous expenses that are incurred. They are all paid based on receipts, invoices, rental agreements, and/or blue book rates for material and equipment that are actually used on the contract plus a pre-established markup. This markup is 10% for all materials, 5% for all rental equipment, 0% contractor owned equipment (paid at blue book rate), 5% for all subcontractor work, and 0% for travel and railroad expenses. These pre-established markup rates are stated within the Section TC-7.03 Force Account Work in the MDOT Standard Specifications for Construction and Materials and/or the Section 400 Specifications for these items within the Invitation for Bid Booklet. The receipts will be attached to the Inspector Daily Reports for each task assignment before payment will be made.

- For the materials item, the contractor is reimbursed for a permanent and temporary materials including consumables (gasoline, oxygen, etc.) based on the receipts and invoice submitted to the inspectors.
- For the specialized equipment item, the contractor is reimbursed the rental agreement price for the equipment based on the rental agreement or the blue book rate if the contractor owns the equipment.
- For the subcontractor item, the contractor is required to submit prices from three or more subcontractors for any work that they plan on giving to a subcontractor. The prices include all labor, materials, and equipment for the subcontractor's task. The contractor is then required to select the lowest of the three subcontractors to complete the work. The only exception to this is if the subcontractor is needed to meet the Disadvantaged Minority Enterprise (DBE) goal of the project. In this case, an hourly, daily, or lump sum price for each task assignment is agreed to with the DBE subcontractor before the work starts. Typically, these costs are compared to costs for similar tasks that the prime contractor will construct.
- For the travel expense item, MDOT will reimburse the contractor for hotels and meals as well as tolls if the contractor is required to travel long distances away from their central office. This increases safety and saves time on these statewide contracts. The contractor will have to supply receipts for these expenses, and MDOT will paid up to a maximum pre-establish limit.
- Lastly, for the railroad expenses, MDOT will reimburse the contractor for any required specialized insurance, training, and other fees incurred for structures over and under railroads where flagger or escorts may be required. This particular item is mentioned within "Bonds and Insurance" section of the "Notice to Contractor" Special Provision rather than having its own specification.
- On traditional design-bid-build contracts, the travel and railroad expenses are typically incorporated into other items within the contract like the lump sum mobilization item. However, since the scope is unknown at the time of bidding and there are no mobilization items included in the contract, these expenses need to be paid separately on these innovative contracts.

Since the contractors are paid the exact amounts of money for work they complete on a month by month basis, the contractor has no way to front load the payment of items and will not likely

abandon these types of contracts in the middle without completing them. Thus, MDOT SHA does not hold the standard retainage during the payment process like they would on other traditional or areawide contracts. As a consequence, a non-bid item (which the contractor never sees in the bidding process) is created for all “liquidated damages”. This item will be used to deduct any penalties incurred by the contractor on a month-by-month basis instead of MDOT’s normal procedure of reducing the amount of retainage paid at the end of the contract as discussed in section GP 9.03 of the standard specifications. The contractor is alerted to this item in the “Liquidated Damage” section of the “Notice to Contractor” Special Provision in the IFB. One major penalty that the Contractor may face is with not supplying enough crew members (labor), materials, or equipment to complete a task in a timely manner. The contractor has 14 days from the first request of supplying a crew to avoid this penalty; otherwise, they are assessed a daily penalty for each day beyond the 14 days they do not supply the crew. This penalty is discussed in the “Labor for Structure Preservation and Minor Rehabilitation” specification. Other penalties range from the Contractor not removing lane closures on time (found in the Section 104.01 specification), not conforming to the environmental regulations (from fines assessed by external organizations not mentioned in the specifications), and overall failure to maintain the project (found in Section TC-4.02), etc. Since the time these penalties have been added to the IFB, they have never been assessed as the contractor has conformed to all requirements.

Before the contract advertises, MDOT SHA’s Structure Remedial Engineering Division (SIREM) will follow SHA’s MDOT Programmatic Agreement procedures for processing Categorical Exclusion Actions and in this instance for Areawide or Statewide construction projects. A Programmatic Categorical Exclusion (PCE) is completed for construction without knowing the exact locations for the work. Then, prior to any task being provided to the contractor, SIREM submits individual locations with a scope of work and other environmental information to the MDOT SHA’s Environmental Planning Division (EPLD) to ensure the scope is consistent with the previously approved PCE. EPLD will then complete the appropriate NEPA documentation based on the scope and impacts associated with the proposed action at the individual locations. Once the tasks have been completely designed and the NEPA coordination complete, the designers will submit the package for that task to MDOT SHA’s Federal-Aid Division to confirm that it is eligible for Federal funds and has all the proper pre-construction documentation needed to complete the task. Then the task is submitted through MDOT SHA’s FMIS system to get attached to the mother contract and separate charge number is created. This process is used for all other areawide type contracts when the Invitation for Bids booklet doesn’t include any specific locations.

As stated previously, these contracts advertised using a traditional design-bid-build contract, but with items to establish labor and equipment hourly, daily or monthly rates. The contracts are awarded to the bidder with the lowest overall total just like any other traditional design-bid-build contract. Contractors’ low bid ensures MDOT SHA that the cost for labor and equipment are at their lowest possible rate, but not lower than the required Federal minimum wage rates.

After award of the contract to the lowest bidder, a list of previously established task assignments is given to the contractor. Additional tasks can be added to the list as the contract progresses and more tasks are developed from the Structure Remedial Engineering Division. Most task assignments are completed with in-house engineers, but a few of the more complex tasks are designed by consultants. Each task assignment includes a location, scope of work, plans for the repairs, and material quantities for completing the work. For tasks over \$200,000, the contractor

is required to provide their prices for the material quantities and the amount of labor and equipment needed. For tasks over 90 days, the contractor is required to provide a schedule to complete the task. These estimates and schedule are for informational purposes only and only make sure that the Contractor understands all the work that is involved with a particular task. However, payment to the Contractor will still be from bid items using the actual costs for materials and actual time for labor and equipment. The contractor then proceeds with the work and provides invoices, receipts, and rental agreements for actual work spent as stated above per task as stated in various specifications. Primarily, Section TC-7.03 Force Account Work in the MDOT Standard Specifications for Construction and Materials mentions the submission of invoices.

The scope of these assigned tasks can vary from the list below:

- (a) Preservation and minor rehabilitation of piers, pier caps, and abutments.
- (b) Jacking beams under traffic and restoring bearings on piers and abutments of fixed spans.
- (c) Preservation and minor rehabilitation or replacement of deteriorated, damaged or cracked beams, girders, heat straightening and other structural steel including cleaning and painting of replaced areas.
- (d) Construct temporary bents and rehabilitate existing bents, piers and abutments.
- (e) Preservation and minor rehabilitation of sheet pile end walls and wing walls.
- (f) Underpin of piers and abutment footings.
- (g) Preservation and minor rehabilitation of damaged stringers.
- (h) Preservation and minor rehabilitation or replacement of timber bridge components.
- (i) Splicing of timber piles.
- (j) Preservation and minor rehabilitation of piers in water and install pile protective devices.
- (k) Placement of riprap and grout filled bag scour protection.
- (l) Preservation and minor rehabilitation of retaining walls.
- (m) Wrapping pier columns with fiber reinforced polymer protective system.
- (n) Applying a protective coating to concrete substructures as directed by the engineer.
- (o) Paving or lining of pipe inverts for both bridges over 20 feet in length and pipe structures under 20 feet.
- (p) Repairing pipe and culvert structures under 20 feet in length.
- (q) Installing roadway joint seals.
- (r) Installing waterproof membrane and new wearing surface on a deck.
- (s) Preservation and minor rehabilitation or replacement of damaged fender systems and dolphins.
- (t) Preservation and minor rehabilitation of movable bridge electrical systems.
- (u) Preservation and minor rehabilitation of movable bridge mechanical and hydraulic machinery systems.

- (v) Preservation and minor rehabilitation of movable bridge structural systems.
- (w) Operation of movable bridges independently as needed for any repair operation.
- (x) Repair or replacement of machine shop manufactured of machinery components.
- (y) Repair or replacement of machinery and motor brake parts.
- (z) Emergency response to weather events, i.e. washout of structures or approach roadways (could include repair, removal and replacement of various structures such as pipes, culverts, bridges) (State funded).
- (aa) Emergency repairs to bridge superstructures and substructures due to traffic impacts (State funded).
- (bb) Emergency response to defects either found by bridge inspectors or discovered under traffic loading, i.e. broken roadway joint angles, loose concrete (State funded).

As can be seen on the list above, there is a combination of preservation, rehabilitation, replacement, and emergency repair activities. Non-preservation and emergency activities will be State funded, as well as any tasks that are completed on roadways that are not eligible for Federal funds. These contracts are created so that they can be used for preservation, rehabilitation, replacement, and emergency repair activities to highway bridges (both movable and fixed), retaining walls, and bridges with spans less than 20'. We refer to bridges with spans less than 20' as "small" structures. These contracts, including all task orders regardless of the scope, shall conform to all FHWA construction contracting requirements, including the FHWA-1273, 23 CFR 635 Subpart D (including Buy America), Davis Bacon wages, and MBE/DBE requirements.

## SCHEDULE

Most of the Federal contracts in the last SEP-14 imitative to demonstrate the Time & Material Method of construction end on June 30, 2022, so MDOT SHA would like to have new contracts started by July 1, 2022. This will require contracts to be advertised in February or March 2022. MDOT SHA believes that a ~~4-year~~ *programmatically approved* (**Note: on 03/04/2022, FHWA HICP issued programmatic approval for a period of 2 years**) is needed to properly demonstrate the effectiveness of this method. The contracts all be scoped to complete preservation, rehabilitation, replacement, and emergency repair activities for highway bridges (both movable and fixed), retaining walls, and small structures as identified above. Since most contracts have had a two-year duration, multiple contracts will be needed. To meet the needs of MDOT SHA, there could be anywhere from 2 to 6 of these types of contracts active at any one time. Some of these contracts will be statewide while others might only be used for certain districts or counties within the State of Maryland. Typically, the statewide contracts are approximately \$12 to \$14 million in size, while the district contracts are only \$2 to \$4 million. The ~~four-year~~ *two-year* program will come to an end on ~~June 30, 2026~~ **June 30, 2024**.

## MEASURES

MDOT SHA will analyze the measures below during the ID/IQ "time and material" contract:

- Reaction of contractors and industry to the use of this method on Federal-aid contracts.

- Time for bidding and award.
- Evaluate whether there was adequate competition in the letting of the projects.
- Quality of work through the final inspection process.
- Compare the original engineer's task cost to actual contract task invoices.
- Evaluate the cost-effectiveness of the "Time and Materials" method. Since this method's largest advantage is the time savings, user cost for the time it takes to complete these repairs will be included in this analysis.
- Compare the ratio of construction costs and the overall CE costs including inspection from the Time and Material contracts to traditional design-bid-build bridge and other highway structures rehabilitation contracts.
- Compare the time it takes to get tasks completed from start of design through the construction phase. The comparison will be made against MDOT SHA's goal of completing projects based on their priority level (i.e. "E" rated tasks should be completed immediately, "P" rated tasks should be completed within 3 months, "A" rated tasks should be completed within 1 year, etc.).
- Lessons learned and suggestions for improvements on future contracts.

## **REPORTING**

MDOT SHA will provide annual reports to FHWA documenting the status of all contracts and providing information regarding evaluation measures.

Based on past history, MDOT SHA believes the procedures described above will result in very successful projects. MDOT SHA looks forward to collaborating with FHWA throughout the life of the contracts and providing FHWA and other DOTs the benefits of MDOT SHA's experience.