

Missouri Department of Transportation  
*Patrick K. McKenna, Director*

1.888.ASK MODOT (275.6636)

February 1, 2022

Dear Research Partner:

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

Please submit a proposal for project **TR202213** entitled, **“Identification of a Response and Rescue Network for the St. Louis Region.”** Your submittal must include a work plan, the proposed project team and its background, and any related projects now active or recently completed by your firm. The project team must be led by a licensed professional engineer in the state of Missouri and the final report must be sealed, in accordance with the provisions of Chapter 327 RSMo.

The selection committee will use Qualification Based Selection. A “not to exceed” budget amount is included in the RFP to assist with the required scope, but budgets are not to be included with the proposal submissions, and will not be presented to the selection committee.

Please submit all proposals to [MoDOTResearchRFP@modot.mo.gov](mailto:MoDOTResearchRFP@modot.mo.gov) by **March 22, 2022 at 10:00 AM (CST)**. More information about project contracting in general can be found at <https://www.modot.org/information-researchers> under RFP documents.

Sincerely,



Jen Harper  
Research Director



*Our mission is to provide a world-class transportation system that is safe, innovative, reliable and dedicated to a prosperous Missouri.*

[www.modot.org](http://www.modot.org)

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## Background

The St. Louis metropolitan area, with a population of about 2.8 million, faces earthquake hazards from distant large earthquakes in the New Madrid and Wabash Valley seismic zones, as well as a closer region of diffuse historical and prehistoric seismicity to its south and east. Also, low attenuation of seismic energy in the region and a substantial number of historic older unreinforced brick and stone buildings make the St. Louis area vulnerable to moderate earthquakes at relatively large distances compared to the western United States.

Structures located in the Missouri and Mississippi River floodplains will likely experience stronger ground shaking and a greater likelihood of liquefaction. Below St. Louis, bedrock is most commonly a hard 350 million-year-old limestone. Structures built on or near bedrock, such as in the upland areas out of the floodplains, will tend to have lower levels of earthquake ground shaking.

The last time a major earthquake occurred in this area was approximately 200 years ago, but the area is now densely urbanized with many key interstates and bridges, tall buildings, and other structures such as the Gateway Arch and is unprepared for a major earthquake of large magnitude. Bridge and roadway damage, collapsed buildings, and fires will lead to impenetrable areas of the region, which will increase response times and restoration times.

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## Objectives

This project will analyze and develop egress and ingress routes in the St. Louis region; identify all of the structures prone to fail in the event of an earthquake in the New Madrid and/or Wabash Valley seismic zones; create a traffic simulation model for evacuation; and develop a plan of action to effectively communicate evacuation directions and routes to residents in the region.

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## Project Requirements

### Task 1: Project Management

The Contractor will facilitate a kickoff meeting with MoDOT to review the work plan, scope, and schedule; and establish a protocol for regular ongoing communication and coordination with the team. This proposal will serve as the Draft Work Plan, to be discussed in the kickoff meeting. Upon comments received during the meeting and/or in writing, the Contractor will incorporate those comments into a Final Work Plan.

The Contractor will schedule and conduct a quarterly status meeting to review progress for the previous period and anticipated work for the next period. The Contractor will also develop minutes for the kickoff meeting and each of the quarterly status meetings.

### Task 2: Literature Review and Historical Data Analysis

The Contractor will perform a literature review of evacuation plans in the St. Louis region. The literature review will also look at human behavior during natural disasters and high stress environments; this knowledge should be considered when developing traffic models. The

Contractor will use historic seismic data from MoDOT, USGS, and other public data sources to identify areas of concern in the New Madrid and Wabash Valley seismic regions.

### **Task 3a: Identify Roadway Network Deficiencies, Strategies for Increasing Evacuation Effectiveness, Populations Likely to Struggle in an Evacuation, and Propose Type of Traffic Model.**

The Contractor will identify roadway networks likely to fail due to structural damage and/or congestion in an evacuation scenario. The Contractor should also propose strategies to mitigate impacts of limited roadway network and increase ability to effectively move people out of an impacted area. The Contractor will also identify and prioritize circulation system improvements to alleviate potential chokepoints.

The Contractor will provide maps identifying populations likely to be threatened by an earthquake, including those who will have the most difficult time with self-evacuation.

The Contractor will propose what type of traffic modeling to use in an evacuation simulation. Each proposal should identify the benefits and limitations of that particular model. The Technical Advisory Committee will then select one to use.

### **Task 3b: Develop Traffic Model for Evacuation**

Using the information collected in Task 3a, the Contractor will develop a traffic model covering many aspects of evacuation, including map creation, demand generation, driver behavior, bottleneck identification, traffic management policy improvement, and results analysis.

### **Task 4: Tabletop Exercise**

The Contractor will design a tabletop exercise intended to replicate an earthquake, identify road and bridge closures, implement the evacuation and response routes, and create a communication plan for the public. Three scenarios (work/school week mid-day versus night time versus special events) should be examined since the logistical responses will be different. This will allow the technical advisory committee to evaluate the proposed scenarios and make suggestions for improvement.

### **Task 5: Develop Draft Synthesis Report and Research Summary**

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

### **Task 6: Develop Final Synthesis Report and Research Summary**

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

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## Project Deliverables

For templates and forms for reports and plans, visit <https://www.modot.org/information-researchers>.

### Email Communications

E-mail and phone communications between the Principal Investigator(s) and MoDOT contacts as necessary are required to provide on-going updates of progress throughout the project.

### Data Management Plan

The plan is a formal document that describes the data that is acquired, created or produced during the project, specifies who owns it and who can access it as well as information on how it will be described, managed, analyzed, stored, shared and preserved during and after the project is over. Please refer to templates on the [website](#).

### Quarterly Reports

Quarterly reports should be submitted throughout the project on the last day of March, June, September and December. The quarterly reports are not intended to replace any additional correspondence between the research team and MoDOT needed to keep the project moving. Please refer to template on the [website](#).

### Interim Presentation

An interim presentation shall be scheduled near the mid-point of the project to update MoDOT on the progress and the direction of the project. The purpose of the interim presentation is to evaluate the progress and determine if any mid-project corrections are necessary.

### Tabletop Exercise

A tabletop exercise is intended to replicate an earthquake and implement the evacuation and response routes and messages developed. This will allow the technical advisory committee to evaluate the proposed scenario and make suggestions for improvement.

### Draft Final Report and Research Summary

These drafts should be final products except for revisions based on MoDOT's review. A final report must include a completed Technical Report Documentation page. Please refer to **Publication Guidelines** and summary template on the [website](#).

### Final Report and Final Research Summary

After MoDOT's review is complete and documents have been edited to MoDOT's satisfaction, final documents should be submitted as a Word documents (unless otherwise instructed). Please refer to **Publication Guidelines** and summary template on the [website](#).

### Other Deliverables

Examples include construction reports, interim reports, annual reports, maps, brochures, Include descriptions, criteria, and frequency.

## Final Presentation

May be required. The Contractor will present the results, recommendations, and implementation ideas to MoDOT and other stakeholders. The Contractor will coordinate location, date, and meeting fees with MoDOT. For stakeholder and agency participants, any travel and lodging fees are to be covered by individual attendees or their firms. MoDOT and stakeholders will provide feedback to the Contractor, especially related to implementation.

## Task-Specific Deliverables

Task	Deliverables
1	Revised final work plan and kickoff minutes.
2	None
3a	List of roadways and structures compromised by an earthquake. Provide maps identifying vulnerable populations impacted by an earthquake. Propose type of traffic model to use for evacuation simulation.
3b	Create traffic model for evacuation simulation.
4	Perform tabletop exercises with stakeholders.
5	Draft report and presentation.
6	Final report and presentation.

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## Project Schedule

The following is an estimate of the project timeline or information on key dates within the project, presuming the project starts **June 1, 2022**. Proposals need to include a work plan with a proposed timeline. For a sample of a work plan template, see link below. Changes to our estimated project timeline below will be considered, however, timeline extensions cannot be guaranteed. If the Contractor believes the project can be completed sooner, include a revised schedule with the proposal. The project timeline will be discussed and finalized during the kickoff meeting.

For report templates and forms, visit <https://www.modot.org/information-researchers>.

Date	Milestone
6/10/2022	A kickoff meeting with MoDOT will be scheduled to discuss project requirements and deliverables. The dates of key milestones and deliverables will be determined from this meeting.
2/11/2024	Tabletop exercises must be done by this date.
3/11/2024	Interim presentation must be done by this date.

Date	Milestone
3/11/2024	Draft report, draft summary report, other deliverables are due. The draft documents shall be submitted to MoDOT approximately two months prior to the final report.
5/10/2024	Final report, summary report, presentations, other deliverables are due. The final documents shall be due approximately one month before the end of the contract. This is to allow all billing to be completed prior to the end of the project.
6/10/2024	Final invoice due.
6/10/2024	Contract ends.

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## Special Notes

Project budget is not to exceed **\$225,000**. A budget is not to be included in the proposal but will be required for the contract and must be within this limit. For a sample Budget template, report templates and forms, see <https://www.modot.org/information-researchers>.

All questions, information, data and/or manual requests regarding any aspect of the RFP details or process for submissions should be submitted to [MoDOTResearchRFP@modot.mo.gov](mailto:MoDOTResearchRFP@modot.mo.gov) by the date and time listed in the "RFP Schedule" section of the RFP. This is the only acceptable method for contact regarding the RFP and contacting MoDOT employees via other methods is prohibited. Not adhering to this rule is cause for disqualification of the proposal.

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## RFP Requirements

- "Contracting Documents" provide further details and links to the required forms. They are available at <https://www.modot.org/information-researchers>.
  - **Contractor's Project Experience:** The proposal must clearly identify the Contractor's experience in offering the services requested in this RFP during the past three (3) years. The description should include a list of the agencies which your organization has served during this time period or currently serves. Please highlight any work you have done with other state agencies or local governments.
  - **Team Member Experience:** Please list all team members (including subcontractors) proposed to work on the project. Attach licenses, certifications and resumes for key personnel.
  - **Contractor's Client References:** Proposals should indicate the name, title, and telephone number of at least three clients within the past three years.
- Proposals must be no more than [10] pages in length with a font size no less than 11 points. This length limit **does not include** the Proposal Submission Form, Contractor's Project Experience, Team Member Experience, Contractor's Client References and optional cover letter (if included, one page maximum).

- Proposals must be submitted as one combined PDF document. The submission should **only include the required documents** organized in the following order: 1) Proposal Submission Form; 2) Cover Letter (Optional; 1 page maximum); 3) Body of Proposal (including work plan and project schedule); 4) Contractor’s Project Experience; 5) Team Member Experience; and 6) Contractor’s Client References.
- The Contractor must respond to this RFP by submitting all the information required herein for its proposal to be evaluated and considered for award. Failure to submit all the required information shall be deemed sufficient cause for disqualification of a proposal from consideration.
- Proposals will be evaluated by an agency and stakeholder team with knowledge and backgrounds in relevant areas for this project. Selection of the successful Offeror will be based on the Contractor’s demonstrated knowledge in the required areas, the merit of the proposed methods and approach in achieving the desired goals, the experience and qualifications of the team, the plan for ensuring implementation of results, and the adequacy and availability of team members to complete the work in a timely manner.
  - Correct proposal submission is one of the evaluation criteria. If submission instructions in this section are not followed, the **Offeror risks an automatic 10 point deduction (out of 100 total points)** when points are awarded during the Proposal Evaluation Process.

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## RFP Schedule

This document constitutes an RFP from qualified organizations to conduct the TR202213, Identification of a Response and Rescue Network for the St. Louis Region study for the MHTC and Missouri Department of Transportation (MoDOT). MHTC reserves the right to reject any and all proposals for any reason whatsoever.

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

The following timeline must be met for a proposal to be accepted.

Date	Action
2/1/2022	MoDOT posts RFP to the website at <a href="https://www.modot.org/research-requests-proposal">https://www.modot.org/research-requests-proposal</a> .
2/15/2022 4:00 PM (CST)	Written comments or questions must be submitted to <a href="mailto:MoDOTResearchRFP@modot.mo.gov">MoDOTResearchRFP@modot.mo.gov</a> .  This is the only acceptable method for contact regarding the RFP and contacting MoDOT employees via other methods is prohibited. Not adhering to this rule is cause for disqualification of the proposal. This includes all requests for information, data, and manuals.
3/1/2022	MoDOT will post written responses publicly on the website at <a href="https://www.modot.org/research-requests-proposal">https://www.modot.org/research-requests-proposal</a> .
3/22/2022 10:00 AM (CST)	Written proposals must be submitted to <a href="mailto:MoDOTResearchRFP@modot.mo.gov">MoDOTResearchRFP@modot.mo.gov</a> . Do not consider your proposal submitted until you receive notification of receipt. A notification should be sent by noon of the same day.
4/26/2022	MoDOT will notify submitters about project selection, or if needed about interviews to finalize selection.

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## Contracting Requirements

The successful team will be required to complete additional documentation and enter into a contract such as a "Standard Research Agreement" or "Task Order." Applicants should be aware of these additional needs so contracting can proceed in a timely manner.

As part of the eAgreements process, MoDOT uses an electronic signature tool, DocuSign, for signing agreements electronically. All parties of the agreement must agree to sign electronically in order to utilize the electronic signature option. If your proposal is selected, you will be informed about how to obtain your credentials for electronic signatures (including how to become a MoDOT vendor if you are not already).

Standard contracts, forms, attachment templates and additional information are available from the website at <https://www.modot.org/information-researchers>.

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## Proposal Submission

### Submission Deadline

Proposals must be emailed by **10:00 AM (Central Standard Time)** according to email time stamp by the submission date in the RFP Schedule to the Research Director's attention (Jen Harper) at: [MoDOTResearchRFP@modot.mo.gov](mailto:MoDOTResearchRFP@modot.mo.gov). Please reference the project title since more than one RFP may be due at one time. Electronic proposals are required.

### Submission Confirmation

You will receive an email confirmation after your proposal has been received. If you do not receive such a confirmation by **12 noon (Central Standard Time)** on the day of the deadline, please contact us at [MoDOTResearchRFP@modot.mo.gov](mailto:MoDOTResearchRFP@modot.mo.gov) as soon as possible. Your submission should not be considered received until you have received your email confirmation.