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Missouri Department of Transportation  
*Roberta Broeker, Interim Director*

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July 14, 2015

Dear Consultant:

The Missouri Highways and Transportation Commission is requesting the services of a consulting engineering firm to perform the described professional services for the project included on the attached list.

If your firm would like to be considered for these consulting services, you may express your interest by responding to the appropriate office, which is indicated on the attachments. Limit your letter of interest to no more than three pages. This letter should include a statement to indicate your firm's understanding of the project. It should also include any other information which might help us in the selection process, including key personnel you would assign to the project and the backgrounds of those individuals, and any sub-consultants you would propose to use, and an indication of your firm's approach to promoting and developing a diverse workforce. MoDOT is committed to reflecting the diversity of the communities we serve and we expect our partners to do the same. We will utilize the consultant information already on file so we will not need a lengthy submittal of other general company information. In addition, please attach one page with detailed information on similar projects that your key personnel have worked on. Indicate the role your key personnel played in the projects and include reference contact information.

DBE firms must be certified by the Missouri Department of Transportation in order to be counted as participation towards an established DBE Goal. We encourage DBE firms to submit letters of interest as prime consultants for any projects they feel can be managed by their firm. We also encourage both DBE firms and non-DBE firms to consider joining MoDOT's Mentor/Protégé program whenever possible as part of a MoDOT project.

MoDOT will evaluate firms based on: Past Performance, Qualifications of Personnel Assigned, Familiarity/Capability, General Experience of Firm, and Accessibility of Firm and Staff. Firm's not providing a response on approach to workforce diversity will be considered non-responsive to this solicitation. Firm's that are not current on all of the required prequalification categories found in MoDOT's Approved Consultant Prequalification List at the date of the solicitation expiration will be considered non-responsive.

We request all letters be received by 3:00 pm, August 14, 2015 at the appropriate office.

Sincerely,

Eric Schroeter, P.E.  
State Design Engineer

Attachment



*Our mission is to provide a world-class transportation experience that  
delights our customers and promotes a prosperous Missouri.*  
[www.modot.org](http://www.modot.org)

## **DISTRICT OFFICES**

SL District  
Greg Horn – District Engineer  
Missouri Department of Transportation  
1590 Woodlake Drive  
Chesterfield, Missouri 63017

Contact  
Davar Divanbeigi – Senior Traffic Studies Specialist  
(314) 275-1562  
[Davar.divanbeigi@modot.mo.gov](mailto:Davar.divanbeigi@modot.mo.gov)  
Email responses are encouraged

## District SL

<b>Incident bypass signal diversion timing plans for all MoDOT Freeways within St Louis District</b>	
<b>Job No:</b>	J6I3087
<b>Location:</b>	See attached
<b>Proposed Improvement:</b>	Expand and modify existing MoDOT St Louis District Arterial Management Interface (AMI) diversion plans on all MoDOT St Louis District freeways and St Charles Local Roads (see attached scope of services)
<b>Length:</b>	N/A
<b>Approximate Design and Implementation Cost:</b>	\$581,000
<b>DBE Goal (if applicable)</b>	0%
<b>Consultant Services Required:</b>	See attached
<b>Other Comments:</b>	Interviews (or presentations) may be conducted with the short listed firms.  The Consultant Short List will be posted to the web

### Rating Criteria w/Weighted Values

General Experience of Firm	15 Points Max
Past Performance	35 Points Max
Qualifications of Personnel Assigned	25 Points Max
Familiarity/Capability	15 Points Max
Accessibility of Firm & Staff	<u>10 Points Max</u>
	100 Points Max Total

# **J6I3087 Arterial Management Interface-AMI**

## **Scope of Services**

7/1/2015

The Scope of Services defined herein represents tasks to be performed to append the existing Alternate Route User Interface and to develop incident bypass signal timing plans. The selected consultant will be responsible for the tasks as defined in this scope of work.

This is a Cost-Share Project between MoDOT and St Charles County. The consultant shall coordinate the entire project tasks as defined in this scope of work with both agencies' representatives.

The order in which the tasks are completed may or may not correspond to the sequence of the task numbers in the scope of services. In fact, some tasks listed within this scope may be carried out concurrently to expeditiously complete the study.

The consultant shall use the existing MoDOT I-70 and I-270/255 AMI document and modify and add to it with no change in formatting or structure, including font, links, symbols and layout. Modified and appended sections shall be indistinguishable from the original AMI document.

### **STUDY AREA LIMITS**

Along each of the following listed corridors, the corridor will be enlarged to encompass each interchange and relevant outer roadway segments and other MoDOT routes and St. Charles County routes as noted.

#### **I-44**

- I-70 in St. Louis to Route 185 in Franklin County

#### **I-55**

- I-64 in St. Louis to U.S. 61 interchange in Jefferson County

#### **I-170**

- I-270 to I-64 in St Louis County

#### **Route 370**

- I-270 in St Louis County to I-70 in St Charles County

#### **Route 364**

- I-270 in St Louis County to I-64 in St Charles County

#### **Route 367**

- I-270 to Route 67 in St Louis County

#### **Current I-70 and I-270 AMI**

- Existing I-70 and I-270 AMI Dial/Split/Offset Timing Plans shall be converted to NTCIP Patterns
- I-70 bypass routes in St. Charles County shall be analyzed and redone in order to utilize the below noted St. Charles County roadway segments
- Removal of the ITS connection pages and links to and from those pages

#### **St Charles County Local Roads (Cost Share portion)**

1	Mexico Road/Veteran's Memorial	from	Bryan Road	to	Fifth Street
2	Mid Rivers Mall Drive	from	Route 364	to	Salt River Rd
3	Zumbehl Road/Friedens Rd	from	Arena Pkwy	to	I-70 NOR
4	Main Street/Route M	from	Terra Lane	to	Route P
5	Route K	from	I-64	to	Terra Lane
6	Birdie Hills Road/Salt Lick Road	from	Knaust Road	to	I-70
7	Route 94/Route 364	from	I-64	to	West Clay
8	Muegge Road/Cave Springs/Truman	from	Route 370	to	Old Route 94
9	Jungermann Road	from	Veterans Memorial Drive	to	Route 364
10	5th St./S. River/Arena Pkwy	from	Route 364	to	1st Capitol
11	Cottleville Pkwy/Knaust/Belleau Creek/T. R. Hughes	from	Mexico Road	to	Route 79
12	Bryan Road/Winghaven Boulevard	from	West Terra	to	I-64
13	Route N	from	Bryan Road		Sommers Rd
14	Wentzville Parkway/Route A	from	I-70 SOR	to	Route 61 NBOR

### **TASK 1: PROJECT MANAGEMENT**

#### **1.1 Project Administration and Quality Assurance/Quality Control**

Project Manual: The Consultant will prepare and maintain a project manual containing all information vital to their part in the project, e.g. scope, schedule, and deliverables.

Quality Control: The Consultant will insure all studies, reports, and plans are reviewed for compliance with MoDOT policy and standards, clarity, and completeness. As part of our quality assurance/quality control practices, all final products will be reviewed by the Consultant's internal QA/QC team to ensure a high quality product is delivered and that the deliverables required in the scope of work have been completed.

Cost Accounting: The Consultant will establish and maintain a study cost control system to process and track their study costs in accordance with MoDOT standards.

Invoicing: The Consultant will prepare invoicing and payments requests on a monthly basis. The invoices will include monthly progress reports including brief narrative descriptions, financial reports, and expenditures. The reports shall provide MoDOT and the Consultant with sufficient, timely financial and study progress information so that managerial decisions concerning control of various aspects of the study can be made.

Schedule: The Consultant will work closely with MoDOT and St. Charles County staff to ensure that the proposed schedule is being completed on time.

Project Close-Out: At the completion of the study, the Consultant will provide MoDOT a complete summary of all time and resources spent on the project.

Work Products: The Consultant will submit all products to MoDOT, who will coordinate the review of all products and materials with St Charles County and other MoDOT Groups.

## **1.2 Meetings**

It is anticipated that the Consultant will conduct up to six monthly meetings with MoDOT and St. Charles County staff during the duration of the project. Meetings with the public or other agencies are not anticipated for this project.

## **TASK 2 – DATA COLLECTION AND INVENTORY**

### **2.1 Information to be provided by the Department**

Existing Synchro Models: MoDOT will provide existing Synchro Models for the following interchanges, intersections and corridors:

#### **I-44**

- Grand
- Hampton
- Jefferson
- Vandeventer
- Elm

- Big Bend
- Bowels
- Maritz
- Six Flags

#### **I-55**

- 4500 Broadway
- Arsenal
- Loughborough
- Lafayette-Truemann
- Bayless
- Reavis Barracks
- Imperial-Main
- Richardson-Vogel
- Route M

#### **I-64**

- Boone's Crossing
- Timberlake
- Maryville Center
- Mason
- Ballas

#### **I-170**

- Airport
- Delmar
- Ladue

#### **Route 370**

- Route 141 (Earth City Expressway)
- Route 94
- Elm

#### **Route 364**

- Maryland Heights
- Bennington
- Heritage Crossing

- Upper Bottom Rd

**Route 367**

- Dunn

**Rte 21**

- Luthern H.S. to Walden Ridge

**Rte 30**

- 12<sup>th</sup>/I-55 to Clearview

**Rte 50**

- Prairie Dell to Independence

**Rte 100**

- Broadway to Taylor

**Rte 115**

- N. Florissant to I-70 S.O.R.

**Rte 141**

- 370 to US 61/67 including Clayton Rd interchange

**Rte 180**

- Odgen to Pennridge

**Rte 231**

- Telegraph to Becker

**Rte 340**

- Ferguson to Froesel

**Rte 366**

- Mackenzie to Geyer

**US 61/67**

- 370 to American Legion (ACS between Quailways & Litzsinger)



**Rte D**

- Odgen to Schuetz

**Rte K**

- I-70 NOR to I-64 SOR

**Rte N**

- 364 SOR to Sommers (St. C) & I-270 to Bermuda (No. Cnty)

**Rte U**

- Lutheran to Lillian

**Rte AC**

- Leisurewood to Lucas & Hunt

**St Charles County Local Roads Synchro File Locations**

- Bryan Road- I-64 Ramps to E. Terra Ln.
- Cottleville Pkwy (TR Hughes) – Highway 79 to Mid Rivers Mall Dr
- Fifth Street – Jefferson St to Arena
- Arena Pkwy – Friedens Rd/S. River Rd to Jungs Station Rd
- Mexico Rd – Bryan Rd to Zumbahl
- Muegge – South Premiere Pkwy to N St. Peters Pkwy/S Old Highway 94
- Route K – Rte 79 to Mexico Rd
- Wentzville – GM Plant Entrance to I-70 South Outer
- Zumbahl – Penbrooke to Rte 94
- Mexico Rd- I-70 Ramps to Jungermann Rd
- Jungermann Rd- Boone Hills Dr to McClay Rd
- S Old Winghaven Rd- Caulks Hill Rd to Jungermann Rd
- Mexico Rd- Spencer Rd to Grand Teton Dr
- Spencer Rd- Holly Springs Trl to Willott Rd
- Mid Rivers Mall Dr- North Outer Road to St Peters Rd
- Mid Rivers Mall Dr- Ohmes Rd to Rte 94
- Mexico Rd – Church Rd to Belleau Creek
- Salt Lick Rd- I-70 Ramps to Mexico Rd
- Spencer Rd- Spencer Loop S to Spencer Loop N

- Signalized Intersection- Jungermann Rd at Triad Center Dr/Queens Brooke Blvd

## **2.2 Compile and Summarize Data to be used in User Interface**

Compile and Summarize Data: The Consultant will obtain existing GIS database/Base Maps from MoDOT and St. Charles County, compile this information, and summarize it for use in the existing User Interface. The most recent files for roadways and signal locations in any spatial data format (shapefile or geo-database) will also be requested.

## **TASK 3 – INCIDENT SIGNAL TIMING PLAN DEVELOPMENT**

### **3.1 Interchange Synchro Models**

Verify Existing Synchro Models: The Consultant will verify geometrics and existing timing within all available Synchro models provided by MoDOT, St. Charles County, and the Consultant. AM and PM existing condition models will be saved for each corridor.

Create Existing Conditions Synchro Models: The Consultant will create Existing Conditions Synchro models for all corridors not already provided. These models will include interchange intersections including ramp terminals and any outer road intersections and any above listed arterial corridors approved for use as bypass routes. AM and PM existing condition models will be created for each corridor.

### **3.2 Development of Incident Signal Timing Plans**

Existing Incident Signal Timing Plans: Existing I-70 and I-270/255 AMI Dial/Split/Offset Timing Plans shall be converted to NTCIP Patterns. MoDOT will provide these conversions patterns to the consultant.

Existing I-70 bypass routes in St. Charles County shall be analyzed and redone in order to use the noted St. Charles County routes listed above.

Coordinated Intersections: The Synchro models created in Task 3.1 will be used to develop Incident Signal Timing Plans. The existing cycle lengths will be increased and the timing plans will be optimized to create separate directional incident plans. Time-space diagrams will be created to be used in the existing User Interface.

Free Operating Intersections: For interchanges with intersections operating free, the max times will be increased in order to create incident signal timing plans. Dynamic maximum settings will be documented for use in programming the incident signal timing plans.

## **TASK 4 – PROGRAMMING AND IMPLEMENTATION OF INCIDENT TIMING PLANS**

### **4.1 TransSuite TCS-Traffic Control System Programming**

Programming of Incident Signal Timing Plans: The Consultant will program the incident signal timing plans using NTCIP Patterns for each interchange to each local signal controller. Programming will be done via the TCS system from a MoDOT TMC or Gateway GreenLight workstation or via Remote Access.

### **4.2 Implementation**

Implementation of Incident Signal Timing Plans: The Consultant will implement and perform signal adjustments during three major incidents along the I-70 corridor in St. Charles County and 3 other major incidents along MoDOT freeways.

### **4.3 Documentation and Training**

Document Timing Adjustments and Final Timing Plans: Following each incident, the Synchro models will be updated with any timing changes that were needed. These timing changes will be documented along with the final timing plans will be submitted to both agencies.

Training: The consultant shall provide two training sessions for MoDOT and St Charles County. The training location and dates shall be determined by each agencies representative. Each training session shall consist of minimum 2 hours office training for up to 30 agency staff.

## **TASK 5 – DATA COLLECTION AND GIS DATA COMPILATION**

### **5.1 Develop and Compile GIS Database**

The Consultant will develop a geo-database of roadways, alternate routes, and signal locations at the interchanges specified in the study area and other signalized intersections along State Routes and noted St Charles County routes that will be evaluated as potential alternate/diversion routes. This data will use existing MoDOT and St Charles County data and be supplemented by alternate route data collected in the field under Task 6. All signal made available pertaining to the signals and roadways associated with this project will be linked to the spatial features to create a single relatable GIS database. The geo-database will be implemented into map documents that facilitate ease of use and maintenance by end users as well as export into other systems.

## **TASK 6 – APPEND EXISTING ELECTRONIC ALTERNATE ROUTE USER INTERFACE**

Using the data and deliverables from Tasks 2 through 5, the Consultant will append the existing alternate route user interface.

### **6.1 Survey and Assess Alternate Route Corridors**

The Consultant will assess the existing transportation network to determine a list of candidate routes that are available to move large volumes of traffic should an emergency take place and the need to implement a bypass route, evacuation route, or relieve interstate congestion occurs. A number of critical factors have been identified that the Consultant will assess:

- Roadway capacity
- Bridge weight restrictions
- Adjacent land use
- Adjacent utilities and services
- Attractiveness of the corridor as a means to move emergency services
- Connectivity with key corridors and/or other population centers
- Presence or availability of ITS infrastructure
- Ability to coordinate traffic signals and other traffic operations instruments
- Truck accessible routes
- Bridge height/clearance issues
- Proximity to residential areas, schools and other key institutions
- Railroad crossings
- Where should law enforcement personnel be deployed to keep traffic moving?
- What messages should be displayed on permanent DMS and portable CMS for each particular alternate route scenario?

## **Deliverables**

The Consultant will provide a technical memorandum summarizing the list of criteria and the list of potential alternate routes, including maps.

### **6.2 Develop Electronic Alternate Route Guide**

The Consultant will create an Alternate Route Guide that can be used by both transportation professionals as well as emergency services in an electronically accessed format. Two hard copies will be produced for emergency needs at the TMC. The primary version will be an electronic copy that will be produced. The Guide will include individual alternate route maps for each segment of interstate showing the closure area, alternate route designations, signage locations, signal locations, key areas for law enforcement to deploy, messages for portable CMS and permanent CMS, key factors noted above in Task 6.1, list of key contacts and phone numbers for that alternate route, and resources needed. The electronic version will be a highly interactive PDF file on CD that will mimic the use of the hard copy manual but allow for quicker access to various pages and route maps.

The electronic Alternate Route Guide provided to MoDOT shall utilize links and network drive references relative to the MoDOT network and shall include all bypass routes on both the MoDOT and St. Charles County systems. The electronic Alternate Route Guide provided to St. Charles County shall utilize links and network drive references relative to the GGL TransCore servers in order for any GGL user to access the Guide. It shall include all bypass routes on both the MoDOT and St. Charles County systems that are in St. Charles County only.

## **Deliverables**

The Consultant will provide 2 CDs, one electronic copy of the entire Alternate Route Guide and two hard bound versions of the appended portions of the Alternate Route Guide. The electronic document will be interactive via hot buttons for navigation of the manual.

The consultant will produce at the most five (5) two-minute video tutorials with audio that instruct users on the use and navigation of the Alternate Route Guide. These videos will be linked from the Alternate Route Guide and shall be approved by the Commission before acceptance.

### **6.3 Develop Geo-Database/Alternate Route Guide Access for End Users**

The Consultant will utilize data collected under Task 5 and alternate routes creates under Task 6 to populate a geo-database that will be electronically accessible via MoDOT or St. Charles County licensed software for users will access and permission. This will display the information regarding signals, intersections, timing plans, and alternate route plans gathered and created throughout this project.

The consultant shall also provide a descriptive “Step-By-Step” Incident Diversion Routing for each proposed Detour Route, including existing I-70 and I-270/I-255 as well as all St Charles County roads. This will provide a written description of each route, direction and turn for each alternate path that allows for the user to relay information to the public.**Deliverables**

The Consultant will develop, integrate, test, and coordinate access to the geo-database with MoDOT and designated St. Charles County staff and provide written procedures on how to access the geo-database and utilize data to the greatest potential.