



Maguire Street RAISE Grant Funding Services

City of Warrensburg, MO SCOPE OF SERVICES

TASK 1: PROJECT MANAGEMENT

The CONSULTANT will provide project management, project accounting, project controls and project coordination to complete the scope of work for this project. CONSULTANT will prepare agendas, minutes and participate in meetings (number of meetings defined throughout scope) with the City of Warrensburg to complete tasks on schedule, discuss progress status at regular intervals, and receive City guidance as necessary. CONSULTANT will attend a project-kickoff meeting where each task of the scope of services will be discussed.

TASK 2: TRAFFIC & SAFETY ANALYSIS

This scope of services is intended to update Synchro traffic models previously developed by HDR during the 2016 Maguire Interchange Operations study and the Maguire Signal Timing Optimization project for the proposed DDI as shown in **Exhibit A** and as described in more detail herein and the remainder of the Maguire Street corridor from Cooper Boulevard to Route DD.

Data Collection

The CONSULTANT will use previous traffic counts obtained during the 2016 Maguire Interchange Operations study and the Maguire Signal Timing Optimization project. These counts will be grown by a mutually agreed upon growth rate to existing year 2021, opening year 2023, and forecast year 2040. Intersections included in the models include:

- Maguire Street / Cooper Boulevard
- Maguire Street / Access to College Street (unsignalized)
- Maguire Street / Access to Simpson Drive (unsignalized)
- Maguire Street / US-50 WB Ramp
- Maguire Street / US-50 EB Ramp
- Maguire Street / Russell Avenue
- Maguire Street / Young Avenue
- Maguire Street / E North Street
- Maguire Street / E Gay Street
- Maguire Street / E Grover Street
- Maguire Street / E Market Street (unsignalized)
- Maguire Street / E Culton Street (unsignalized)
- Maguire Street / Railroad Street (unsignalized)
- Maguire Street / Broad Street (unsignalized)
- Maguire Street / E South Street
- Maguire Street / E Clark Street
- Maguire Street / Drummond Street (unsignalized)
- Maguire Street / Route DD
- Maguire Terrace / Route DD (unsignalized)



The CONSULTANT will work with MoDOT to obtain current signal timings for the signalized interchange intersections listed above. The City of Warrensburg will provide the current signal timing for all other signalized intersections. The CONSULTANT will review and incorporate this information into the Synchro models described below.

Speed Data: The CONSULTANT will obtain available speed data from NPMRDS and/or MoDOT. This data will be used in the existing conditions analysis.

Crash Data: At least 5 years' worth of crash data, in GIS format, indicating location, severity, crash type, and contributing circumstances for both US-50 off-ramps at Maguire Street and along the project corridor at each signalized and unsignalized intersections listed above.

This scope does not include project site / intersection field observations.

Existing Conditions Analysis

The CONSULTANT will develop 2021 Existing Conditions Synchro models for the Maguire Street corridor from Cooper Boulevard to Route DD including each intersection listed above. Base Synchro models developed by HDR in 2016 for the Maguire Street Interchange Operations report will be utilized and updated.

Safety Conditions: The CONSULTANT will organize the crash data, calculate crash rates, and prepare a baseline HSM crash prediction analysis that will form the basis of the future year analyses. This work will be important for identifying and quantifying safety issues in the project area.

Opening Year (2023) No-Build and Build Analysis

The CONSULTANT will develop opening-year volumes at the study intersections using growth factors and trip-generation/distribution assumptions from known nearby future developments.

The CONSULTANT will develop an opening-year Synchro model for the No-Build and Build conditions (same extents as Existing Conditions). Forecasted opening-year AM and PM traffic volumes will be incorporated into the models.

The CONSULTANT will report intersection results from the Synchro models including speed, delay, queues, LOS, and other necessary measures of effectiveness for use in the Benefit-Cost model. The CONSULTANT will also report the signal timing assumptions included in the models.

Safety Conditions: The CONSULTANT will develop HSM crash predictions for opening-year No-Build and Build conditions for comparison to the existing conditions baseline data and for providing benefit estimates for the economic analysis.

Forecast Year (2040) No-Build and Build Analysis

The CONSULTANT will develop and evaluate forecast-year 2040 models to ensure the viability and operational success of the proposed project improvements.



The CONSULTANT will develop 2040 forecast-year volumes at the study intersections using growth factors and trip-generation/distribution assumptions from known nearby future developments.

The CONSULTANT will develop 2040 forecast year Synchro models for the same limits described previously. Forecasted 2040 AM and PM traffic volumes will be incorporated into the models.

The CONSULTANT will report segment and intersection results from the models, including the following potential performance measures: speed, delay, queues, LOS, and other necessary measures of effectiveness. The CONSULTANT will also report the signal timing assumptions included in the models.

Safety Conditions: The CONSULTANT will develop HSM crash predictions for forecast-year No-Build and Build conditions for comparison to the existing conditions baseline data and for providing benefit estimates for the economic analysis.

Task 2 Deliverables: Traffic and safety findings and results generated in this task will be written in form for insertion into the RAISE Grant Application.

TASK 3: RAISE GRANT APPLICATION

CONSULTANT will complete for the City of Warrensburg the following tasks for its FY 2021 RAISE Grant Application:

RAISE Grant Application Preparation

CONSULTANT will assist City of Warrensburg in the preparation of the FY 2021 RAISE Grant Application for the City's selected project. CONSULTANT will provide technical writing and review services, and the preparation of select graphics to City of Warrensburg to meet the FY 2021 RAISE grant criteria. CONSULTANT will also assist in evaluating the selected project and developing content for each of the program objectives described earlier in this proposal. City of Warrensburg will be responsible for the actual submittal of the grant application on the grants.gov site.



The application narrative will follow USDOT’s recommended outline and approach for describing the project, its costs, funding, benefits, and other factors. CONSULTANT will design the application narrative per USDOT guidelines and emphasize the project’s strengths with key themes throughout the application narrative. The recommended application outline will follow the basic outline below (unless a different organization for the application narrative is specified in the NOFO when released):

- Project Description
- Project Location
- Grant Funds, Sources and Uses of Project Funding
- Selection Criteria
 - Safety
 - State of Good Repair
 - Economic Competitiveness
 - Environmental Protection
 - Quality of Life
 - Innovation
 - Partnership
 - Non-Federal Revenue for Transportation Infrastructure Investment
- Project Readiness
- Environmental Considerations
- Benefit-Cost Analysis

The City of Warrensburg will provide documentation detailing the project scope, budget, schedule, and likely impacts on transportation in the region. The City will also coordinate with MoDOT and seek out other mutually beneficial partnerships. CONSULTANT will work with City of Warrensburg staff to identify the material risks to the project and the strategies that the City has developed to mitigate those risks.

Benefit-Cost Analysis / Economic Impacts Analysis

CONSULTANT will quantify public benefits expected to be derived from the project that demonstrate adherence with RAISE’s criteria as described above. A key challenge of the RAISE grant application will be to provide compelling evidence to USDOT of the merit of the project and its quantitative and qualitative benefits in comparison to other projects being proposed by other applicants.

Generally, we propose the following multi-step process for the economic analyses that need to be undertaken:

Step 1: Define Baseline and Alternative Scenarios

The NOFO is expected to require that project benefits are estimated relative to a no-build scenario that factors in less capital-intensive improvements than the project being considered. Under this step, CONSULTANT will work with the City of Warrensburg to clarify the baseline condition and the possible alternatives for consideration, utilizing the 2016 Interchange Operations Study report as the primary basis for possible alternatives.



Step 2: Identify Public Benefit Categories

This step formalizes the public benefit categories to be evaluated. Included in this step is a strategy session by which the various components of the project will be discussed in order to fully define which elements should be included in the project scope in order to maximize probability of a grant award.

Step 3: Data Collection

This task will involve collecting project data for use in the BCA. It will also provide quantitative information for inclusion in the narrative discussion. We anticipate requiring the following information, at a minimum:

- Total construction costs for the project
- Operating and maintenance costs (O&M) for the project
- Schedules for pre-construction and construction activities, should funding be awarded
- Schedule for routine and on-going mid- to long-term O&M costs
- Baseline, build and no-build (Developed in Task 2)
 - Traffic data for the corridor
 - Speed, delay, queues, LOS
 - Including type of traffic (e.g., truck, auto)
 - Crash data for the study area
- Information related to anticipated development that may be generated due to the improved infrastructure

CONSULTANT will collect model inputs from a variety of sources including Warrensburg staff, USDOT guidance, and other project documentation (e.g., 2016 Interchange Operations Study, 2012 Maguire Street Corridor Plan, Environmental Assessment, cost estimates, etc.).

Step 4: Develop and Code Benefit-Cost Model Logic

For each of the benefit categories identified in Step 2 above, logic models will be developed that represent the methodology used to monetize each project benefit. The logic model will be populated with the most up-to-date information available.

Step 5: Issue Results

In this step, materials for inclusion in the RAISE grant application and in support of the findings described in the economics section of the applications are drafted. Typically, a short document is drafted with key section(s) for input directly into the application document and a second short appendix is drafted that can be posted online and referenced in the text of the document. The appendix describes the evaluation approach, describe the data and assumptions used, and present the results and the sensitivity analysis conducted.



Schedule

CONSULTANT will complete the tasks described in this proposal no later than one week prior to the RAISE grant application submission deadline, assuming that City of Warrensburg provides timely reviews and all necessary data, information and documentation to CONSULTANT. A proposed breakdown of the activities required to produce the RAISE application and a tentative timeframe for their completion is provided below.

| Activity | Timeframe |
|---|--|
| Notice to Proceed | April 30, 2021 |
| Kick-Off Teleconference Meeting | Within 3 days from NTP |
| City of Warrensburg transmits project data to CONSULTANT | No later than one week following the Kick-Off Teleconference Meeting |
| CONSULTANT begins RAISE Grant application | No later than one week following federal issuance of NOFO |
| CONSULTANT submits Draft RAISE application narrative to City of Warrensburg Review | 2 weeks before due date (City provide consolidated comments back within 5 calendar days) |
| CONSULTANT submits Final RAISE application narrative and BCA Appendix to City of Warrensburg | 1 week before due date |
| City of Warrensburg submits RAISE application to USDOT | |

Task 3 Deliverables: Completed FY 2021 RAISE Grant Application and required supplemental information.

The City shall pay HDR for all authorized performed services at the rates attached hereto in Exhibit B, "Fee Estimate" with a not-to-exceed amount of \$62,729.00.

ACCEPTANCE:

The parties acknowledge that this scope of services is proposed and accepted under the terms and conditions of the Engineering Services Agreement Dated April 21, 2021.

HDR Engineering, Inc.

City of Warrensburg, Missouri

By: 
Joseph Drimmel (Apr 21, 2021 16:21 CDT)

Danielle Dulin, Interim City Manager

Title: Sr. Vice President

Date: Apr 21, 2021

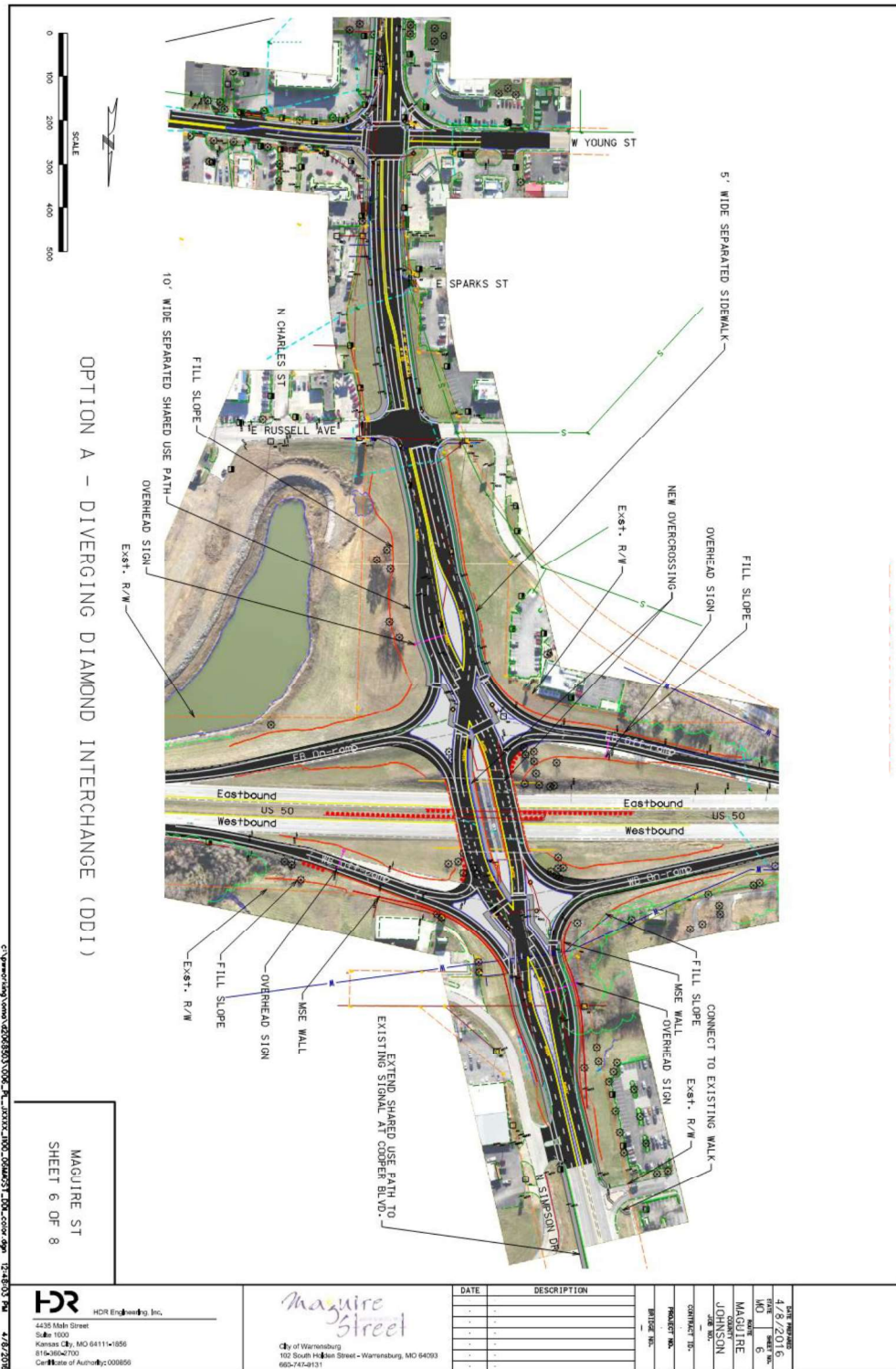
Date: _____

ATTEST:

Cindy Gabel, City Clerk



EXHIBIT A



| | | | |
|---|---|------|-------------|
| HDR Engineering, Inc. 4435 Main Street Suite 1000 Kansas City, MO 64111-1956 816-366-7700 Certificate of Authority: 000856 | City of Warrensburg 102 South Hillman Street - Warrensburg, MO 64093 660-741-2131 | DATE | DESCRIPTION |
| | | | |
| | | | |
| City of Warrensburg 102 South Hillman Street - Warrensburg, MO 64093 660-741-2131 | PROJECT NO. | | |
| | DRAWN BY | | |
| | CHECKED BY | | |
| 4/8/2016 MO STATE NO. 6 MAGUIRE JOHNSON JOHNSON | | | |

EXHIBIT B

4/21/2021

City of Warrensburg - Maguire Street RAISE Grant Funding Services Hour and Fee Estimate - HDR Engineering, Inc.

| Hours | | | | | | | | | | | | | | | |
|---|-----------|--------------|-----------|-----------|--------------------------|-----------|-----------|---------------------|------------------|---------------------|------------------------------|-------------------------------|----------|---------------|---------------|
| | Proj Mgr | Dep Proj Mgr | Sr. Eng | Engineer | StratComm Planner/Writer | EIT | QC | Principal Economist | Senior Economist | Economist / Modeler | Strat Comm - Sr. Comm. Spec. | Strat Comm - Graphic Designer | CADD | Account/Admin | Total Hrs |
| 1 Project Management | | | | | | | | | | | | | | | |
| Invoicing & Project Setup | 4 | | | | | | | | | | | | | | 4 |
| Project Kick-off Conference Call | 2 | | 2 | | 2 | | | 2 | | | | | | | 8 |
| Project Meetings (4 meetings) w/Minutes | 4 | | 4 | | 4 | | | 4 | | | | | | | 16 |
| Subtotal | 10 | 0 | 6 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 2 Traffic Analysis | | | | | | | | | | | | | | | |
| Data Collection | 1 | | | 4 | 2 | | | | | | | | | | 7 |
| Develop Existing Conditions Balanced Traffic Volume Network | | | | 2 | 2 | | 0.5 | | | | | | | | 5 |
| Synchro Existing Conditions Models | 2 | | | 4 | 4 | | 1 | | | | | | | | 11 |
| Safety Eval Existing Conditions | 1 | | 8 | 2 | 20 | 1 | | | | | | | | | 32 |
| Develop Opening Year Volumes | | | | 1 | 4 | 0.5 | | | | | | | | | 6 |
| Synchro Opening Year Model (No-Build) | 1 | | | 1 | 2 | 0.5 | | | | | | | | | 4 |
| Synchro Opening Year Model (Build) | 1 | | 4 | 4 | 8 | 2 | | | | | | | | | 15 |
| Safety Eval Opening Year (No-Build and Build) | 1 | | 4 | 2 | 16 | 1 | | | | | | | | | 24 |
| Develop Forecast Year Volumes | | | | 1 | 4 | 0.5 | | | | | | | | | 6 |
| Synchro Forecast Year Model (No-Build) | 0.5 | | | 1 | 2 | 0.5 | | | | | | | | | 4 |
| Synchro Forecast Year Model (Build) | 0.5 | | | 1 | 2 | 0.5 | | | | | | | | | 4 |
| Safety Eval Forecast Year (No-Build and Build) | 1 | | 4 | 2 | 16 | 1 | | | | | | | | | 24 |
| Subtotal | 8 | 0 | 16 | 25 | 0 | 82 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 140 |
| 3 RAISE Grant | | | | | | | | | | | | | | | |
| Assemble and Review Data for Project | 4 | | 1 | 4 | 2 | | | 8 | 4 | 16 | 40 | | | | 25 |
| Develop Economic Model | | | | 2 | | | | | | | | 8 | 12 | | 68 |
| Application Design and Graphics Support | 2 | | | | | | | | | | | | | | 24 |
| Develop Supplementary BCA Documentation | 8 | | 24 | 16 | 20 | 4 | 12 | 8 | 8 | 2 | | | | | 102 |
| Prepare Full RAISE Application | 14 | 0 | 25 | 22 | 22 | 0 | 16 | 16 | 36 | 70 | 10 | 12 | 0 | 0 | 243 |
| Subtotal | 32 | 0 | 47 | 47 | 28 | 82 | 25 | 22 | 36 | 70 | 10 | 12 | 0 | 0 | 415 |
| GRAND TOTAL | 44 | 0 | 53 | 52 | 56 | 82 | 25 | 22 | 36 | 70 | 10 | 12 | 0 | 0 | 62,729 |

| Labor Costs | | Hours | Hourly Rate | Dollars |
|-------------------------------|--|------------|-------------|---------------|
| Proj Mgr | | 32 | 60.00 | 1,920 |
| Dep Proj Mgr | | - | 45.00 | - |
| Sr. Eng | | 47 | 85.00 | 3,995 |
| Engineer | | 47 | 45.00 | 2,115 |
| StratComm Planner / Writer | | 28 | 42.00 | 1,176 |
| EIT | | 82 | 35.00 | 2,870 |
| QC | | 25 | 95.00 | 2,375 |
| Principal Economist | | 22 | 85.00 | 1,870 |
| Senior Economist | | 36 | 60.00 | 2,160 |
| Economist / Modeler | | 70 | 38.00 | 2,660 |
| Strat Comm - Sr. Comm. Spec. | | 10 | 68.00 | 680 |
| Strat Comm - Graphic Designer | | 12 | 30.00 | 360 |
| CADD | | - | 35.00 | - |
| Account/Admin | | 4 | 35.00 | 140 |
| Total | | 415 | | 22,321 |

| Subsconsultants/Vendors | | Hours | Hourly Rate | Dollars |
|------------------------------|--|----------|-------------|----------|
| Subsconsultants/Vendors | | - | - | - |
| Total Subsconsultants | | 0 | | 0 |

| Estimated Direct Costs | | Hours | Hourly Rate | Dollars |
|---------------------------|--|------------|-------------|------------|
| Web Hosting URL | | 15 | | |
| Reproduction services | | 100 | | |
| Postage | | 115 | | |
| Travel | | - | | |
| Total Direct Costs | | 230 | | 230 |

| Estimated Costs | | Hours | Hourly Rate | Dollars |
|---------------------------------|--|------------|-------------|---------------|
| Labor Total | | 415 | 54.50 | 22,321 |
| Multiplier | | | 2.80 | 62,499 |
| Labor and Overhead | | | | 62,499 |
| Dir Design Expenses (Dir Costs) | | 230 | | 230 |
| Total | | 415 | | 62,729 |

| Fee Estimate | | Hours | Hourly Rate | Dollars |
|-------------------------|--|------------|-------------|---------------|
| Labor Fee Plus Expenses | | 415 | 157.20 | 65,238 |
| Subsconsultants/Vendors | | 0 | | 0 |
| Total | | 415 | | 65,238 |