CITY		ENGINEER	
CITY OF JOPLIN 602 S. MAIN STREET JOPLIN, MO 64801		Name: Jacobs Engineering Group, Inc Address: 501 North Broadway St. Louis, Missouri, 63101-2131	
Attention: Nicholas A. Heatherly, PE,CFM nheather@joplinmo.org		Attention: Jeff Farah. PE SENIOR PROJECT MANAGER	
Department: Public Works Department		Phone: 314-335-4038	Fax: 314-335-5141
Phone: 417-624-0820, ext 500	Fax: 417-625-4738		

WORK AUTHORIZATION NUMBER JCB-DR2AP1-1
TO AGREEMENT FOR PROFESSIONAL ENGINEERING CONSULTING SERVICES

City and Engineer agree to amend their Agreement for Professional Engineering Consulting Services to include a scope of work and fees for engineering services, by adding the following terms to their Agreement.

1. **Services**. The City agrees to engage the services of the Engineer and the Engineer agrees to perform the services hereinafter set forth in connection with projects described in ***Exhibit A***.

2. **Addition to Services**. The City may add to the Engineer services or delete therefrom activities of a similar nature to those set forth in ***Exhibit A***, provided that the total cost of such work does not exceed the total cost allowance as specified in Paragraph 5 hereof. The Engineer shall undertake such changed activities only upon the direction of the City. All such directives and changes shall be in written form and prepared and approved by the City and shall be accepted and countersigned by the Engineer.

3. **Term**. The services of the Engineer shall commence as soon as practicable after the execution of this contract, unless otherwise directed in writing, and shall be undertaken and completed in such sequence as to assure their expeditious completion in the light of the purposes of the contract, but in any event, all of the services required hereunder shall be completed as set forth in the schedule for the project which is attached hereto as ***Exhibit A***.

4. **Costs not to Exceed**. The City of Joplin is limited by law with respect to the amount of money it can pay. Therefore, the City has established a fixed sum for this contract, which cannot be exceeded unless this contract is amended. The Engineer providing services hereunder shall be required to keep track of the amount of hours billable under this contract at all times; and any work in excess of the fixed sum shall not be eligible for payment. The Engineer shall notify the City if Engineer anticipates that the contract amount may be exceeded, in order to determine whether or not the City is prepared to increase the total compensation. The Engineer shall establish a billing system showing the amount of money remaining on the contract, which shall be shown in each monthly billing.

5. **Payment**.

a. **Conditioned upon acceptable performance.** The City agrees to pay the Engineer in accordance with the terms set forth in ***Exhibit A***, which shall constitute complete compensation for all services to be rendered under this contract; provided, that where payments are to be made periodically to Engineer for services rendered under this contract, the City expressly reserves the right to disapprove in whole or in part a request for payment where the services rendered during the period for which payment is claimed are not performed in a timely and satisfactory manner in accordance with the schedule and description of services set forth in ***Exhibit A***.

b. **Total compensation not to exceed.** It is expressly understood that in no event will the total compensation and reimbursement to be paid to the Engineer under the terms of this work Authorization Number JCB-DR2AP1-1 exceed the sum of Seven Hundred Ninety Eight Thousand Two Hundred Sixty One and No/100 Dollars ($ 798,261.00).

6. **Insurance**. Without limiting any of the other obligations or liabilities of the Engineer, the Engineer shall secure and maintain at its own cost and expense, throughout the duration of this Contract and until the work is completed and accepted by the City of Joplin, insurance of such types and in such amounts as may be necessary to protect it and the interests of the City of Joplin against all hazards or risks of loss as hereunder specified or which may arise out of the performance of the Contract Documents. The form and

limits of such insurance, together with the underwriter thereof in each case, are subject to approval by the City of Joplin. Regardless of such approval, it shall be the responsibility of the Engineer to maintain adequate insurance coverage at all times during the term of the Contract. Failure of the Engineer to maintain coverage shall not relieve it of any contractual responsibility or obligation or liability under the Contract Documents.

The certificates of insurance, including evidence of the required endorsements hereunder or the policies, shall be filed with the City at the time that this contract is signed by the Engineer. All insurance policies shall provide thirty (30) days written notice to be given by the insurance company in question prior to cancellation or non-renewal of such insurance. Such notices shall be mailed, certified mail, return receipt requested, to:

City of Joplin - Public Works, 602 S. Main, Joplin, MO 64801; and

All policies, except for the professional liability, employer's liability and workmen's compensation policies, shall name the City as an additional insured with limits of liability not less than the sovereign immunity limits for Missouri public entities calculated by the Missouri Department of Insurance as of January 1 each calendar year and published annually in the Missouri Register pursuant to Section 537.610, RSMo.
(See, http://insurance.mo.gov/industry/sovimmunity.php).

As of January 1, 2014, the minimum coverage for the insurance referred to herein shall be as set out below:

a. Workers' Compensation....Statutory coverage per RSMo 287.010 et seq.
Employer's Liability..... $1,000,000.00

b. Commercial General Liability Insurance, including coverage for Contractual Liability and Independent Contractors Liability. Such coverage shall apply to bodily injury and property damage on an "Occurrence Form Basis" with limits of at least Two Million Six Hundred Eighty-Seven Thousand Five Hundred Ninety-Four and no/100 Dollars ($2,687,594.00) for all claims arising out of a single accident or occurrence and at least Four Hundred Three Thousand One Hundred Thirty-Nine and no/100 Dollars ($403,139.00) with respect to injuries and/or death of any one person in a single occurrence and an amount not less than at least $1,000,000 for all claims to property arising out of a single occurrence and at least $100,000 to any one owner with respect to damages to property. Engineer agrees that the proceeds of such insurance policy shall first be used to pay any award, damages, costs, and/or attorneys' fees incurred by or assessed against City, its employees, officers and agents, before payment of any award, damages, costs or attorneys fees of Engineer, its employees, officers or agents. Engineer agrees to cause its insurer to name City as an additional insured on such insurance policy, including the City as an additional insured for coverage under its products-completed operations hazard, and said policy shall be primary and noncontributory.

c. Automobile Liability Insurance covering bodily injury and property damage for owned, non-owned and hired vehicles, with limits of at least Two Million Six Hundred Eighty-Seven Thousand Five Hundred Ninety-Four and no/100 Dollars ($2,687,594.00) for all claims arising out of a single accident or occurrence and at least Four Hundred Three Thousand One Hundred Thirty-Nine and no/100 Dollars ($403,139.00) with respect to injuries and/or death of any one person in a single accident or occurrence.

d. Errors and Omissions Insurance. The Engineer shall maintain a professional liability insurance policy in the amount of $1,000,000.00 on both a per-claim and an aggregate basis. This policy shall remain in full force and effect for a period of one year after completion and acceptance by the City of the construction of the project.

e. Subcontracts. In case any or all of this work is sublet, the Engineer shall require the subcontractor to procure and maintain all insurance required in subparagraphs (A), (B) and (C) hereof and in like amounts. Engineer shall require any and all subcontractors with whom it enters into a contract to perform work on this project to protect the City of Joplin through insurance against applicable hazards or risks and shall, upon request of the City, provide evidence of such insurance.

f. Notice. The Engineer and/or subcontractor shall furnish the City prior to beginning the work satisfactory proof of carriage of all the insurance required by this contract, with the provision that policies shall not be canceled, modified or non-renewed without thirty (30) days written notice to the City of Joplin.

g. Legislative or Judicial Changes. In the event the scope or extent of the City's tort liability as a governmental entity as described in Section 537.600 through 537.650 RSMo is broadened or increased during the term of this agreement by legislative or judicial action, the City may require Engineer, upon 10 days written notice, to execute a contract addendum whereby the Engineer agrees to provide, at a price not exceeding Engineer's actual increased premium cost, additional liability insurance coverage as the City may require to protect the City from increased tort liability exposure as the result of such legislative or judicial action. Any such

additional insurance coverage shall be evidenced by an appropriate certificate of insurance and shall take effect within the time set forth in the addendum.

7. All other terms and conditions of the original Agreement shall remain in effect.

IN WITNESS WHEREOF, the parties hereto have set their hands and seals on the day and year herein stated.

REVIEWED FOR APPROVAL

Dan Johnson

Dan Johnson, PE - Staff Project Manager

CERTIFICATE OF DIRECTOR OF FINANCE

I certify that the expenditure contemplated by this document is within the purpose of the appropriation to which it is to be charged and that there is an unencumbered balance of appropriated and available funds to pay therefore.

Leslie Haase

Leslie Haase, Director of Finance

APPROVED AS TO FORM

Peter Edwards, City Attorney

Engineer: Jacobs Engineering Group, Inc

By: David A. Diestelkamp

Printed Name: David Diestelkamp, PE

Title: St. Louis Operations Manager

Date: 08/19/14

CITY OF JOPLIN, MISSOURI

By: Nicholas A. Heatherly

Nicholas A. Heatherly, P.E.
Public Works Director

Date: 8/20/14

JACOBS®

501 North Broadway
St. Louis, Missouri 63102 USA
1.314.335.4000 Fax 1.314.335.5112

July 25, 2014

City of Joplin
Department of Public Works
602 S. Main Street
Joplin, MO 64801

Attention: Nick Heatherly, P.E.

RE: CDBG-DR2
Professional Engineering Services
Infrastructure Improvements – Yellow Area

Dear Mr. Heatherly:

Thank you for selecting the Jacobs Team for Surface Element Engineering Services related to Action Plan #1. We are pleased to submit our fee proposal to provide professional engineering services for two (2) specific storm water projects and two (2) separate sidewalk improvements projects. Each of these projects has been identified by the City as qualified CDBG-DR2 projects within the "Yellow Area". The two separate storm water projects are for McCoy Avenue (between 23rd and 28th Streets) and for the drainage ditch improvements between Oliver and Cunningham. The two separate sidewalk projects identified are for Willard Avenue (20th Street to 26th Street) and Oliver Avenue (26th Street to 32nd Street). While additional infrastructure projects within the "Yellow Area" have been identified by the City as being CDBG-DR2 eligible, the specific details of improvements for these projects are yet to be determined and therefore not included within this initial task order of work.

In addition to the four infrastructure improvement projects included in this proposal, the Jacobs Team has also included an overview-infrastructure analysis and priority study within this initial task order. The intent of this study is to further clarify the specific storm water and sidewalk infrastructure improvement needs within the "Yellow Area", including the areas the City has already determined eligible for improvements (Sunset South Drive, Cunningham Park drainage, etc.). This comprehensive study will identify a ranking system of new infrastructure improvement projects that can be used as a roadmap by which the City can create additional CDBG-DR Action Plans requests and begin to develop a comprehensive implementation plan toward construction completion of each project.

The Jacobs Team is truly excited and committed to helping the City of Joplin achieve success in rebuilding your community to the vibrancy it has known in the past. We understand that a critical element of your success is in executing the work at hand within the CDBG-DR2 detailed guidelines. Our team has extensive experience in public infrastructure as well as disaster relief work and is dedicated to providing the most cost effective and practical engineering solutions for the City of Joplin. Through our extensive and diverse experience, the City will benefit by having a team that will provide innovative solutions that will meet the CDBG-DR2 requirements within schedule.

Should you have any questions regarding our proposal, please contact Jeff Farah at 314-335-4038 or Renee Ross at 314-335-4341. We look forward to working with you on this exciting opportunity.

Sincerely,

David A. Diestelkamp, PE
St. Louis Operations Manager

EXHIBIT A

Introduction

The City of Joplin is undertaking a program to mitigate roadway and drainage problems that have a detrimental effect on both the public infrastructure and private properties. The program will be funded from CDGB-DR funds allocated in the First Action Plan of the *Joplin Phase II Recovery Plan.*

This scope of engineering services identified within EXHIBIT "A" describe professional services related to four (4) specific infrastructure improvement projects that the City of Joplin (City) has defined as qualified projects for CDBG-DR2 funding. These specific projects are within the City's "Yellow Area" which defines the boundary limits of work within this contract. A City map defining the limits of the "Yellow Area" is depicted in Appendix "A" for reference. Two of the four projects within the current scope of work are related to storm water improvements and the other two projects are specifically associated with sidewalk improvements. The City has identified other qualified infrastructure projects within the "Yellow Area" that are presently excluded from this EXHIBIT "A" due to the lack of detailed information defining the specific problems within these additional projects. The City has decided to defer these additional projects to a later date, after more definitive information can be obtained for each.

In addition to the four infrastructure projects outlined within this EXHIBIT "A", the Jacobs Team will execute an overview-infrastructure analysis and priority study within this initial task order. The intent of this study is to further clarify the specific storm water and sidewalk infrastructure improvement needs within the "Yellow Area", including the areas the City has already determined eligible for improvements (Sunset South Drive, Cunningham Park drainage, etc.). This comprehensive study will identify a ranking system of new infrastructure improvement projects that can be used as a roadmap by which the City can create additional CDBG-DR Action Plans request and begin to develop a comprehensive implementation plan toward construction completion of each project.

Scope of Work

In response to the City's RFQ which generally identified "Surface Element" improvements projects (storm water, street and sidewalk improvements) as qualifiers for the CDBG-DR2 funding, the Jacobs Team (in collaboration with the City), have identified two (2) specific storm water improvement projects, and separately, two (2) sidewalk improvement projects which define the scope of work at hand. These four (4) specific projects are identified as:

<u>Storm Water Improvements:</u>

- Improvements of an existing drainage ditch between Oliver Ave. and Cunningham Avenue and
- Storm water improvements along McCoy Avenue between 23rd and 28th Streets.

<u>Sidewalk Improvements:</u>

- South Willard Avenue between 20th & 26th Streets and
- Oliver Avenue (26^{th} Street to 32^{nd} Street).

The engineering services provided for each of these four projects consist of traditional engineering design services, including the development of construction plans and specifications for each. Construction procurement assistance (bidding services) is also included in our subject scope of work. Within this first task order our overall services end at the point of the contractor's award of the

respective construction contract relevant to the four infrastructure improvement projects described above.

As noted above, the Jacobs Team has also included an overview-infrastructure analysis and prioritization study within this task order for the entire "Yellow Area". Itemized details of the scopes of work for each of these four projects and the study are displayed in Appendix "B". Their respective man-hour estimates and fees are included within these appendixes as well. Due diligence review of potential environmental risk per NEPA requirements are included within the detailed scopes of service as well.

Project Management and Administrative Services:

In an effort to ensure timely completions of quality work and proper stewardship of the project financial resources, the Jacobs Team will provide overall project management / project control management for the Jacobs Team relevant to the scope of services for the "Yellow Area" as defined here within Exhibit "A". These services include:

- Maintaining transparent and effective communications/coordination between the City and the Jacobs Team (and periodically with other consultant teams hired by the City to design CDBG-DR2 approved infrastructure improvements within other areas of work outside the "Yellow Area" to help mitigate "gaps" between each consultant's scope of services).
- Managing weekly internal project coordination meetings, with the Jacobs Team, ensuring effective internal coordination (initially weekly) as well as with the City.
- Jacobs' project manager will attend weekly sub-consultant meetings at the City Public Works office throughout the duration of this task order (approx. 23 weeks). During these meetings, Jacobs will share progress information relevant to the "Yellow Area" with the other consultants who have been retained by the City for separate CDBG-DR2 restoration work. Jacobs will record meeting minutes relevant to the "Yellow Area".
- Project management associated with the Jacobs Team's invoicing.
- Managing schedules and deliverables.
- Performing Quality management services (QA/QC) to mitigate project risk.
- Implementing safety plans for all prime and sub consultants.
- And traditional administrative services.

Topographic Survey Services:

Within the Jacobs Team, Shultz Surveying and Engineering will perform the necessary topographic surveys for each of the projects listed within this task order. These services are limited to the boundaries identified in Appendix "D".

Geotechnical Engineering Services:

Within the Jacobs Team, Palmerton and Parrish will perform the necessary geotechnical field investigation logging selective boreholes and provided lab results with foundation recommendations. We have assumed seven (7) boreholes total for the two storm water improvement projects noted above. These geotechnical services are limited to scope defined in Appendix "E".

Exclusion, Qualifications and Assumptions

The following services are EXCLUDED from the Jacobs Team scope of services. Each can be added in future task order request by the City. Additional exclusion is itemized within Appendix "B" per individual project.

- All construction support services, including, but not limited to, all construction management services during construction, responding to any Request for Information (RFI) from contractors or City, construction testing, construction surveys or stakeout, survey as-builts, material testing of any kind, and the attendance in City or contractor meetings.
- The development of traffic control plans (provided by Contractor).
- The development of erosion control plans (provided by Contractor).
- Construction services (as a construction contractor).
- Overall program management and/or project management for any work outside of the "Yellow Area" CDBG-DR2 scope of services defined here within this Exhibit A.
- Overall design oversight of other consultants, including, but not limited to design reviews of other consultants and/or contractors.
- All participation in City council meetings have been excluded from this scope of services. There is no time included within this proposal for public hearings or support for public input to the project.
- Subsurface utility exploration.
- Permit Applications.
- This scope of work does not include the payment of deposits, fees, surcharges, escrows or so forth of any kind including, but not limited to, review and permit fees. This proposal assumes that any payments of that nature will be the responsibility of CITY.
- The scope of work does not include property owner solicitation for acquisition of property rights or rights of access by CONSULTANT. This proposal assumes that such solicitation will be performed under a separate agreement.
- Full size printing of paper or mylar plan sets (electronic delivery).
- The design for relocation of existing utilities (except storm sewer and sanitary sewer) is not included within this scope. No fee has been allocated for the cost of design of any of relocation of telephone, fiber optic, water, gas, power, or other utilities other than storm or sewer as indicated.
- Traffic signal design warrants for, or any other related traffic signal work is not included in this proposal.
- Any work related to condemnation of specific parcels.
- The scope of work assumes wetland/soil mitigation and archeological/historical/cultural exploration will not be required.
- Right of way acquisition services other than those plans specifically outlined in this proposal.
- The scope of work does not include public "Neighborhood" project meetings or any public involvement.
- Wetland Mitigation / Soil Mitigation Plan.

- Archeological / Historical / Cultural Exploration.
- Retaining wall design.
- Box culvert Design.

A proposal and contract amendment can be prepared for post-design services once the actual scope of construction is known.

The following assumptions have been made during the preparation of this Exhibit "A":

- LIDAR information for the "Yellow Area" will be provided to the CONSULTANT by the City prior to the start of work.
- The City's reviews will be completed within a 2 week period.
- CITY and CONSULTANT recognize that the actual time required for regulatory agency and utility service provider review and approval of construction documents is unknown and is beyond the control of either the CITY and/or CONSULTANT. CITY and CONSULTANT recognize that if extended periods of time are required for review, it may have an adverse effect on the progress of the work.
- The scope of work assumes that CITY will provide construction contract agreement forms, the general and supplementary conditions to the construction contract, bid forms, invitations to bid, instructions to bidders, and any other appropriate documents for incorporation into the construction documents.

Deliverables

See Appendix "B" for the specific deliverables per project.

References

This fee proposal has been developed by referencing the City Request for Qualifications (RFQ) and proceeding meetings with the City since announcement of the firms selected to prepare a cost proposal for the CDBG DR2 program (2 meetings).

Schedule

The Jacobs Team anticipates working each of the listed projects simultaneously. The overview-infrastructure analysis and prioritization study is scheduled to be completed within 72 calendar days of the Notice To Proceed (NTP) and the identified drainage and sidewalk projects range from 139 day to 164 day completion dates from the NTP. Please see appendix "B" for project specific schedules.

The Engineer will be entitled to an extension of time for any delays caused by events beyond its reasonable control.

Compensation

Compensation for the work defined here within Exhibit "A" shall be based upon the NOT TO EXCEED amount of **$798,261**. Monthly invoicing will be based upon the rate schedules provided in Appendix "C". Man-hour estimates are included in Appendix "B" for reference (per each individual sub-project).

Please see the table below for summary breakdown of this NOT TO EXCEED fee.

Invoicing

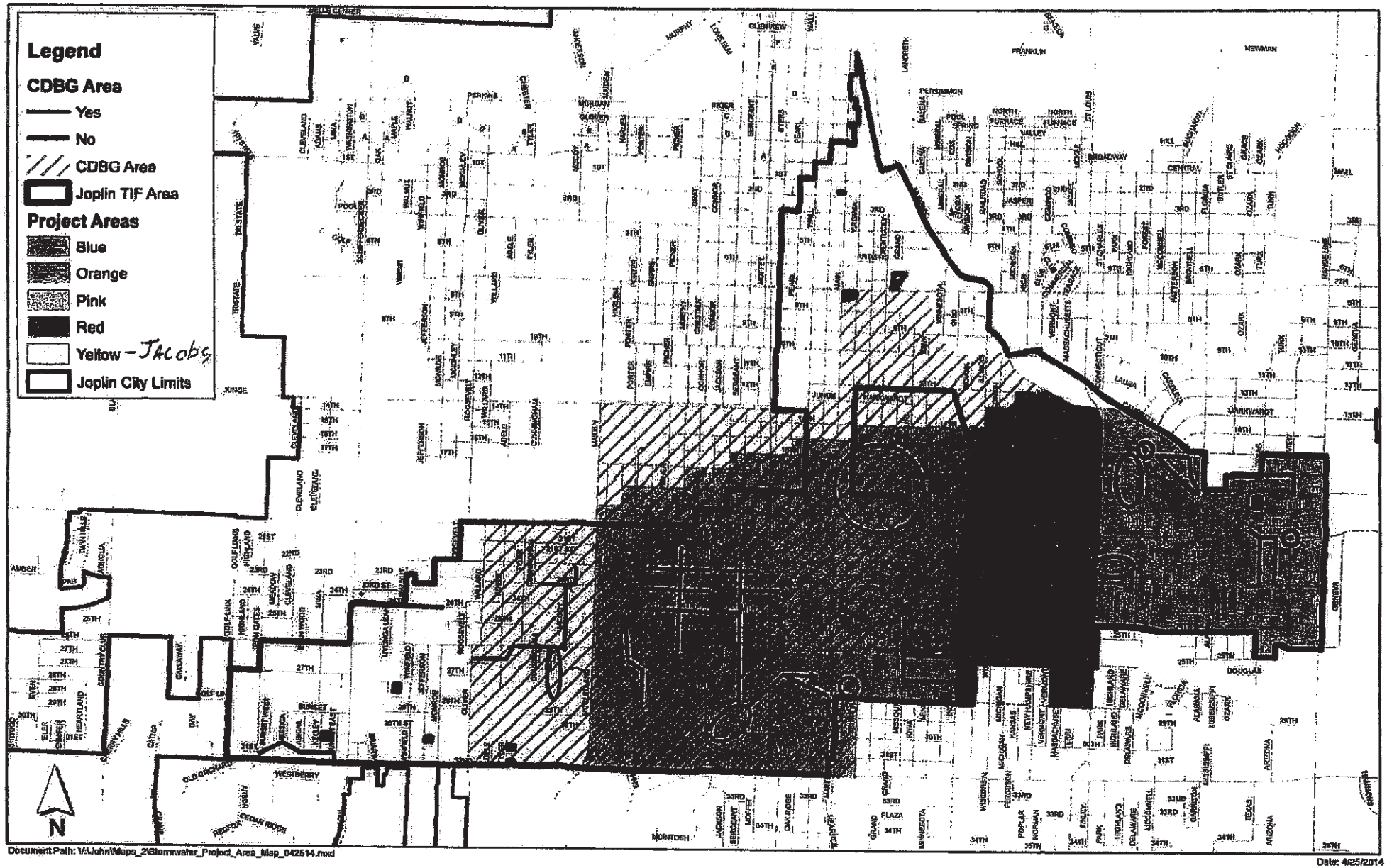
Engineer will submit invoices for periodic payments monthly and the City will pay Engineer within thirty days of Engineer's invoice."

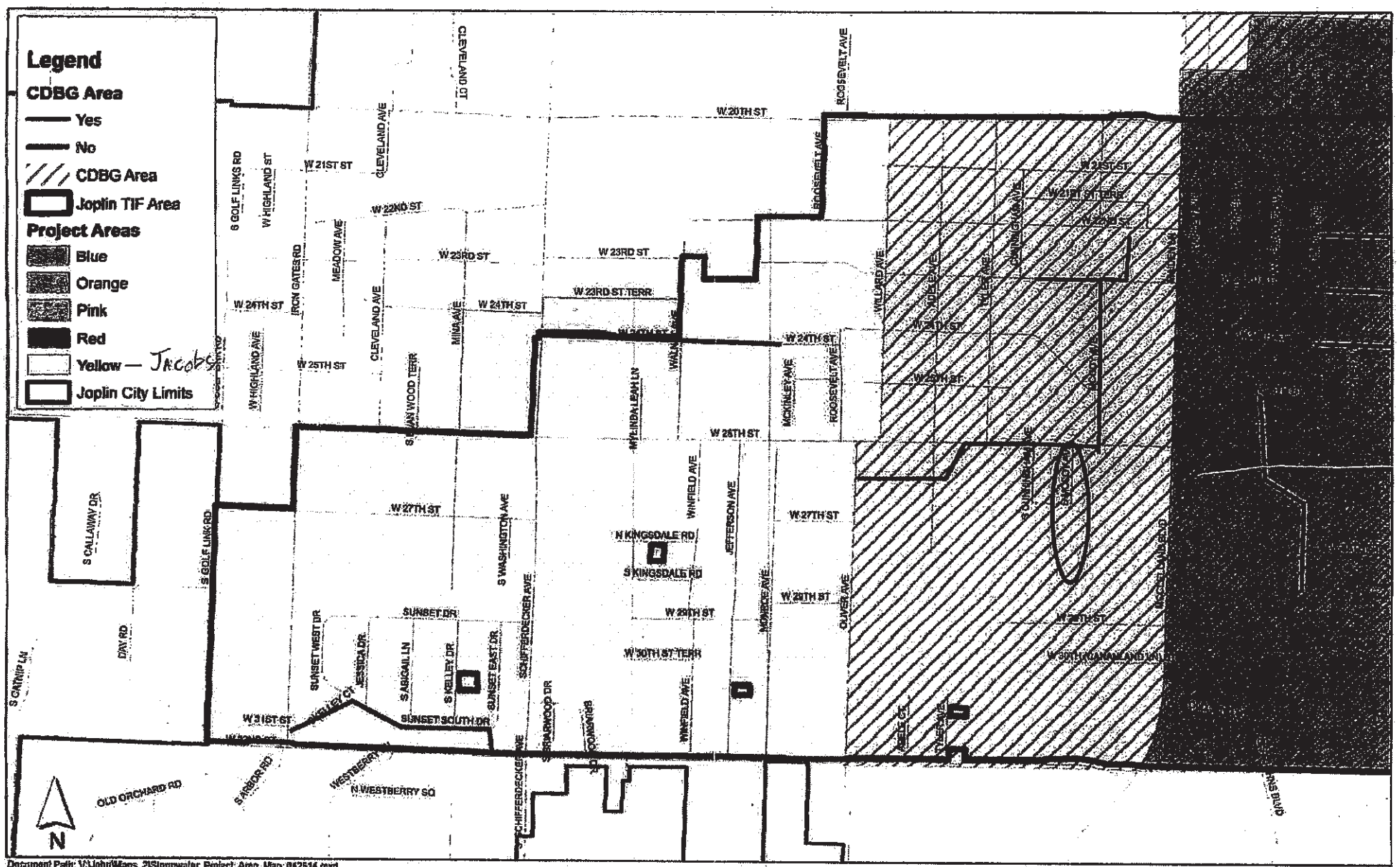
Joplin, MO. CDBG-DR2
Professional Engineering Services
Infrastructure Improvements – Yellow Area
EXHIBIT A

Task	Project A - Oliver-Cunningham storm water Improvements - HRGREEN	Project B - McCoy Aver-Cunningham Storm water Improvements - Jacobs	Project C - Willard-Sidewalk Improvements - Jacobs	Project D - Oliver-Sidewalks Improvements - HRGREEN	Project E - Overall Infrastructure Study - HRGREEN - Jacobs	Design & Procurement Subtotal	Overall Project Management - Project controls, Admin. - Jacobs	Total
Study & Design	$79,265	$146,543	$67,565	$72,047	$109,947	$475,367	**$55,845**	$531,212
Final Design & Construction Procurement	**$28,252**	**$30,286**	**$29,294**	**$28,252**	**$15,410**	$131,494	**$0**	**$131,494**
NEPA	$6,945	$10,215	$7,249	$6,945	$0	$31,355	**$0**	$31,355
Directs (travel + Misc.)	$8,250	$10,250	$8,500	$7,250	$8,200	$42,450	**$10,750**	$53,200
Surveying	$7,500	$20,000	$7,500	$5,000	$0	$40,000	**$0**	$40,000
Geotechnical	$5,000	$6,000	$0	$0	$0	$11,000	**$0**	$11,000
	$135,212	**$223,294**	**$120,108**	**$119,494**	**$133,557**	**$731,666**	**$66,595**	**$798,261**

APPENDIX A

Yellow Zone Area Map


Legend
CDBG Area
Yes
No
CDBG Area
Joplin TIF Area
Project Areas
Blue
Orange
Pink
Red
Yellow – Jacobs
Joplin City Limits
N
Document Path: V:\John\Maps_2\Stormwater_Project_Area_Map_042514.mxd
Date: 4/25/2014



Document Path: V:\Joplin\Maps_2\Stormwater_Project_Area_Map_042514.mxd

Date: 4/25/2014

APPENDIX B

Scope of Work,
Manhour Estimate,
and Schedule

(Approx. 50-ft of Storm Sewer Improvements and 1,125 LF of Natural Channel Improvements)

SCOPE OF ENGINEERING SERVICES:
"Yellow Area" Storm Water Improvements – Ditch from Oliver Ave. to Cunningham Ave.
(Yellow Area as defined by the City)

PROJECT UNDERSTANDING
The project is located in the "Yellow Area" in an area just south of 26th Street, east of Oliver Avenue, and west of Cunningham Avenue in the City of Joplin, Missouri. The purpose of the project is to alleviate nuisance yard and street flooding in the area. The project site is not located in the 100-yr flood plain as mapped by FEMA. At the present time, storm water runoff is conveyed from the west under Oliver Avenue (considered upstream limits of project) to the northeast by an unimproved channel/ditch (approximately 650-ft reach) that is piped under Adele Avenue to another reach of unimproved channel/ditch (approximately 475-ft reach) that carries it farther to the northeast toward the south side of 26th Street near its intersection with Tyler Avenue (considered downstream limits of project). At the downstream limits of the project, an existing concrete flume collects and concentrates the runoff, and the flow is conveyed in a 48-inch diameter pipe sewer to the north under 26th Street to a junction box that collects additional flow from the surrounding storm sewer system. It is assumed the existing storm sewer system downstream of the existing concrete flume that serves as the collection point for the project area storm water runoff has adequate capacity.

To alleviate nuisance yard and street flooding at properties along the reaches of unimproved channel/ditch previously described, a new storm conveyance system consisting of approximately 50-ft of pipe culvert and 1,125-ft of natural channel improvements is proposed from Oliver Avenue to the existing concrete flume on the south side of 26th near its intersection with Tyler Avenue.

PROJECT APPROACH
The CONSULTANT has been retained by the City to engineer the improvements and to prepare plans, specifications and estimates (PS&Es). In addition, the CONSULTANT shall provide professional services during the procurement of construction bids. If desired by the City, amendments to this agreement can be prepared in the future for post-design services.

In order to achieve the goals and objectives established for this project, the CONSULTANT will provide the following scope items:

I. **PROJECT COORDINATION**

a. Internal team meetings will be held as needed to ensure each Jacobs team member (prime and subconsultant team members alike) are operating under the same directions and following the same guidance for the project. Meetings will last no longer than one hour and will be held either face to face, or by phone conference. Four (4) meetings are assumed for this task.

b. Coordinate proposal information and have internal kick-off meeting.

II. **PRELIMINARY (30%) DESIGN STUDY**

Based on preliminary discussions with the CITY, the CONSULTANT will provide Preliminary options and recommendations and a cost estimate for improvements to be made in the project area.

a. Field Check and Data Gathering
   1) Perform record data research/collection including, but not limited to:
      i. Utility Service Provider available facility record data
      ii. Existing and future land use/zoning
      iii. Property data including ownership

iv. FEMA/FIS data and mapping
v. NRCS soil survey data
vi. USGS 7.5-minute Topographic Quadrangle Map(s)
vii. Municipal records of completed and proposed projects in the area
viii. Relevant watershed data, maps, reports
ix. Completed and proposed projects in the area
x. Complaint records

2) Perform regulatory agency record data search/initial contact
   i. Contact appropriate regulatory authorities (namely DNR, EPA and the USACE) to confirm the need for their involvement in the project and to solicit:
   ii. Record data, plans, maps, etc. for known facilities located at the vicinity of the site.
   iii. Applicable rules and/or regulations
   iv. Permit application requirements and procedures
   v. Construction requirements and standards
   vi. Plan review and approval requirements and procedures

b. Site Visit and City Meeting - Review and assimilate the information and data collected and identify data gaps. Meet with the City to discuss findings and map out path forward.

c. Topographic Survey Coordination - Work shall consist of generating a scope of work for the surveyor to perform necessary topographic and right of way survey of the project site and the performance of these respective field surveys as defined in Appendix "D". Survey will be reviewed for completeness once data is received.

d. Geotechnical Field and Engineering Services - Work shall consist of generating a scope of work for the geotechnical engineer to perform necessary subsurface investigations of the project site and the performance of these respective field surveys as defined in Appendix "E". Report will be reviewed for completeness once data is received.

e. Concept Design: Based on information gathered, prepare preliminary analysis of problem as follows:
   1) Watershed Drainage Study: Watershed sizing; identify nature and source of storm water discharges present and future; estimate quantity and flowrate (specific to upstream and downstream project limits)
   2) Storm water Schematic Design – 2 Options
      i. Indicate existing facility locations, rights-of-way, easements, and utilities.
      ii. Indicate proposed boring/test hole locations, utility relocations, anticipated easements and temporary construction easements.
      iii. Indicate proposed access routes and permanent working room for construction.
   3) Identify and evaluate site issues (utilities, laterals, constructability, etc.).

f. ROW Investigation – Opinion of Probable Construction Cost - Prepare a scope of work narrative and Opinion of Probable Construction Cost (OPC) for the project.

g. Opinion of Probable Construction Cost - Prepare a scope of work narrative and Opinion of Probable Construction Cost (OPC) for the project.

h. Utility Coordination – Utility providers will be contacted to discuss the project and outline major conflicts. The preliminary plans assembled in this phase will be provided to the utility companies. High level costs will be obtained from each utility for relocating services as needed.

i. QA/QC - A QA / QC check will be performed on all calculations and drawings prior to submittal in accordance with our job specific quality plan.

j. Subconsultant coordination (Surveyors, Geotechnical, Jacobs, etc.) - work shall consist of the management of subconsultants within the Jacobs Team (only) used on the project for specialty services, and shall include the project management associated with processing invoices, answering questions, directing work, managing schedules and deliverables, and other general administrative work to this cause.

k. Meet with City to discuss options moving forward and choose the best option.

III. 60% DESIGN PLANS

After CITY direction is given, the CONSULTANT will develop plans that correspond with any CITY driven changes and proceed towards a 60% design plan set. The plans will show a refined set of details, including:

a. Cover Sheet - Legend, sheet index, locator map, and abbreviations.

b. Typical Sections.

c. Plan / Profile Sheets – Split plans drawn to a scale of 1" equals 20' horizontally and 1" equals 5' vertically. Design of horizontal and vertical alignment shall be sufficient to provide construction limits and cross sections.
   i. Reference ties will be provided directly on these sheets.
   ii. Approximate construction limits and easement / new right of way lines will be shown on the plan/profile sheets and will be based on the approximate construction limits.
   iii. The location of all utilities, and book and page if the easement is on private property, based on available information.

d. Cross Sections - Cross sections for improvements will be shown at fifty-foot intervals along the proposed centerlines of the alignment, drawn at a scale of 1" equals 5' both horizontally and vertically. Cross sections will be required to determine the potential extent of ROW / easement impacts only.

e. Drainage Design –The drainage design for the project will include:
   i. Assessment of the existing and proposed watershed and drainage areas.
   ii. Assessment of the existing storm sewer drainage network (condition, location, capacity, etc.) to determine the extent it can be reused. This does not include modeling of the downstream system.
   iii. Type, size, and location of the necessary drainage features for the project.
   iv. Proposed water quality measures will be evaluated.
   v. Design submittals and approvals acquired through the appropriate regulatory channels.

f. Storm Sewer Profiles - Proposed profiles for storm sewer pipe to be drawn at a scale of 1" equals to 20' horizontally and 1" equals 5' vertically.

g. Grading Sheets – Proposed contours for the design features shown will be shown on separate sheets at a scale of 1" equals 20' horizontally.

h. Detail Sheets: Limited to 2 Sheets
   i. Details of non-standard design features will be provided on these sheets as necessary.

i. The City of Joplin's Standard Specifications current edition will be adopted for the specifications of this project and appended as needed in the Job Special Provisions (JSPs). A list of known JSP's at this stage of design will be prepared.

j. Utility Coordination – A preliminary phase plan will be submitted to utility providers. This will include electronic plans (which will include title sheet, typical section sheets, plan sheets, and cross section sheets. A utility coordination log of events and communications will also be developed and maintained.

k. QA/QC - A QA / QC check on all calculations and drawings will be performed prior to submittal in accordance with our job specific quality plan.

l. Subconsultant coordination (Surveyors, Geotechnical, Jacobs, etc.) - work shall consist of the management of subconsultants within the Jacobs Team (only) used on the project for specialty services, and shall include the project management associated with processing invoices, answering questions, directing work, managing schedules and deliverables, and other general administrative work to this cause.

m. Opinion of Probable Construction Cost – Based on the 60% Complete Design Plans, a revised OPC will be provided.

n. Meet with City to discuss progress of project and answer any questions of City or project team.

IV. 90% DESIGN PLANS

It is assumed that the 90% Plan Submittal will be of bid quality, and that the majority of City design comments will occur during the 60% plan review or through communications between the City and CONSULTANT between submittals. The Final Plans, Specifications, and Estimate (PS&E) submittal will specifically include the following information:

a. Cover Sheet - Legend, sheet index, locator map, and abbreviations.

b. Tabulation of Quantities – Quantities with subsequent quantity breakdown per item will be provided.

c. Proposed Typical Sections.

d. Plan / Profile Sheets.

e. Cross Sections.

f. Storm Sewer Profiles.

g. Grading Sheets.

h. Erosion control plans will NOT be provided. It will be the responsibility of the contractor to prepare a Storm water Pollution and Prevention Plan (SWPPP) for the project in conjunction with the construction permitting.

i. Detail Sheets.

j. The City of Joplin's Standard Specifications (current edition) will be adopted for the specifications of this project and appended as needed in the Job Special Provisions. All necessary Job Special Provisions (which supersede the City's Standard Specifications) will

be developed for review and approval by the CITY. The CITY will provide the front-end Contractual documents. The CITY will be advised of any needed changes to these documents to meet / correlate with JSPs or meet Federal/State/local requirements.

k. Utility Coordination – Utility companies will be coordinated with for any adjustments required to be included in the final design plans. A final electronic submittal will be provided to each utility company with facilities within the project corridor.
   1) All necessary utility plan adjustments will be incorporated into the final plans as required by the CITY; however actual design of relocated or adjusted utility facilities such as water, telephone, gas, fiber optic, power, or other is not included within this scope of services. The exception will be storm or sanitary sewer adjustments or relocations required to coordinate with existing utilities. This work will be limited to reasonable revisions (up to two) related to avoiding conflicts as identified during the initial utility coordination phase.
   2) The CONSULTANT <u>will NOT</u> be responsible for the preparation, negotiation and execution of all utility agreements as may be required to adjust existing utilities as a result of this project. However, the CITY may elect to add this work by Supplemental Agreement at a later date when the scope is better defined.

l. QA/QC - A QA / QC check on all calculations and drawings will be performed prior to submittal in accordance with our job specific quality plan.

m. Subconsultant coordination (Surveyors, Geotechnical, Jacobs, etc.) - work shall consist of the management of subconsultants within the Jacobs Team (only) used on the project for specialty services, and shall include the project management associated with processing invoices, answering questions, directing work, managing schedules and deliverables, and other general administrative work to this cause.

n. Opinion of Probable Construction Cost – Based on the 90% Complete Design Plans, a revised OPC will be provided.

o. Construction Workday Study. The construction scope will be evaluated and a preliminary construction schedule will be generated in the form of construction days needed to be used by CITY.

p. Meet with City to discuss progress of project and answer any questions of City or project team.

V. <u>100% DESIGN PLANS/CONSTRUCTION PROCUREMENT ASSISTANCE SERVICES</u>

It is assumed that minor comments from the 90% Plan Submittal will be picked up in this phase, and the plans will be adjusted accordingly. However, these City comments are expected to only be minor in nature, and the time spent addressing the comments will be limited to two and one half days (2.5) days of FTE time. Specific tasks attributed to the Construction Procurement assistance Services phase will include:

a. Final Revisions to Plan Set – Pick up final City comments and assemble final plans and special provisions.

b. Opinion of Probable Construction Cost – Based on the 100% Complete Design Plans, a revised OPC will be provided.

c. Assemble the bidding package for the project.

d. Distribute Plans – Distribute plans and bid proposal to appropriate bidding outlets. Develop the advertisement of the bid opportunity to City newspapers, City websites, and other media distribution outlets as determined with City influence.

e. Maintain a list of plan holders and tracking bidding questions.

f. Manage Pre-Bid Conference - Scheduling, preparing the addenda for, attending, and issuing meeting minutes of a pre-bid meeting.

g. Answering and issuing written clarifications in response to RFI's (in the form of addenda to the advertisement for bids)

h. Attendance at the bid opening and tabulation of the bids

i. Verification of the bid requirements, checking of references, and recommendation to City of the apparent low bidder.

VI. NEPA ENVIRONMENTAL REVIEW

This project will be subject to a site-specific Environmental Review. This environmental review will follow the procedures and requirements presented in 24 CFR Part 58 and in HUD's *Environmental Review Guide for Community Block Grant Programs*. It is anticipated that this project, because of the nature of the proposed work, will be determined to be categorically excluded from NEPA requirements.

An environmental field review will be conducted of the specific project area to note site-specific conditions requiring evaluation. Coordination with design engineers will be conducted to fully document the extent and nature of the proposed improvements. Where necessary, coordination will be conducted with federal, state, or local agencies to define existing conditions, regulatory requirements, and potential impacts, if any.

A Statutory Checklist (Chapter 4, page 22, of the *Environmental Review Guide*) will be completed, along with all necessary research and coordination to resolve each checklist item. Compliance documentation will be included as required. A preliminary checklist will be prepared during the 60% Design Phase, and the final checklist will be prepared during the 90% Design Phase. The final Statutory Checklist will serve as the documentation of the Environmental Review process and findings.

VII. DELIVERABLES PROVIDED BY CONSULTANT

CONSULTANT will deliver or provide the labor and materials for the following submittals:

a. The services of all professionals and technical personnel required for the performance of the services described under the Scope of Services above.

b. Technical Memorandums as specified.

c. Electronic plan sets (for those drawings completed at time of submittal) and Opinion of Probable Construction Cost (OPC) to be submitted via email to the City, Program Manager, and utility providers for the following project milestones:
   1) 30% Plans
   2) 60% Plans
   3) 90% Plans
   4) Final Plans

d. Electronic copy of complete Bid Proposal utilizing the City's standard boilerplate documents (front end contract, general provisions, requirements, etc.) plus other standard documents

such as the City Standard Specifications, Federal and State Wage Rates, Job Special Provisions, and other required documents.

VIII. ESTIMATED SCHEDULE

CONSULTANT estimates that **139-calendar days** will be required to complete design through the 90% Design Plans phase.

	CONTRACT STAGE	INDIVIDUAL CALENDAR DAYS	ACCUMULATED CALENDAR DAYS
	Start Date		
II	Preliminary (30%) Design Plans	30	30
	CITY Review (Includes Meeting)	10	40
III	60% Design Plans	30	70
	CITY Review (Includes Meeting)	10	80
IV	90% Design Plans	45	125
	CITY Review (Includes Meeting)	14	139
		TOTAL:	**139 Days**

100% Design Plans/Bidding Services shall be completed within 45-calendar days after property rights agreements are executed.

SCOPE OF ENGINEERING SERVICES

McCoy Avenue / 23rd - Storm water / Sidewalk Improvements

PROJECT UNDERSTANDING

The project is located in the "Yellow Area" north of 26th Street, south of 23rd Street between Maiden Lane and Cunningham Avenue in the City of Joplin, Missouri. The purpose of the project is to alleviate flooding upstream of an existing large CMP culvert, eliminate ponded water that accumulates in the roadway curb and gutters and add pedestrian sidewalks along McCoy and 23rd Streets. The project site is not located in the 100-yr flood plain as mapped by FEMA.

At the present time, storm water runoff is conveyed to this area from the east side of Maiden Lane and the north side of 23rd Street up to approximately 17th Street. Conveyance to this area is a combination of closed drainage systems throughout the area and open channels located on private property east of McCoy and on government property owned by The Joplin Housing Authority west of McCoy. The outlet point to the south is an existing CMP culvert traversing under 26th Street and the old "St. Johns" development. This culvert discharges into an existing creek that runs in a southerly direction.

1. Box Culvert
    a. It is assumed the creek downstream of the existing culvert has adequate capacity and it is the CMP culvert causing the flooding problems. To alleviate flooding, infrastructure options will be considered and analyzed. Options to be considered are as follows:
        i. Locate a detention basin(s) upstream of the culvert to attenuate peak flows. Basin locations will be evaluated on both sides of McCoy Avenue based on right-of-way considerations.
        ii. Increase the size of the CMP culvert to pass flood flows.

2. Roadway Drainage
    a. In several locations, storm water runoff generated from existing roadways and adjacent properties drains onto the roadway and ponds in low areas that don't have street inlets. These localized low points within the gutter system will be analyzed and eliminated with new curb inlets and closed drainage systems. It appears this as caused pavement failure in isolated locations as well.
    b. A large port of the drainage areas currently discharges under 23rd Street west of McCoy onto property owned by The Joplin Housing Authority. This area will be reviewed for flow rates and erosion. Countermeasures will be developed to eliminate this condition.

The second part of the project is to increase pedestrian mobility and connectivity in the "Yellow Area" of the area affected by the tornado zone, through the addition of Americans with Disability Act (ADA) compliant sidewalks and curb ramps throughout the corridor. At the present time, the entire corridor (with the exception of the roadway projects currently in design or under construction) is devoid of pedestrian accommodations.

In order to achieve the goals and objective established for this project, the CONSULTANT will provide the following scope items:

I. ENGINEERING STUDY, PRELIMINARY 30% DESIGN

A preliminary concept plan, recommendations and an opinion of probable construction cost for improvements to be made in the project area will be provided (3 options maximum).

a. Download & Review City / Available Data
   1) Perform record data research/collection including, but not limited to:
      i. Utility Service Provider available facility record data
      ii. Existing and future land use/zoning
      iii. Property data including ownership
      iv. FEMA/FIS data and mapping
      v. NRCS soil survey data
      vi. USGS 7.5-minute Topographic Quadrangle Map(s)
      vii. Municipal records of completed and proposed projects in the area
      viii. Relevant watershed data, maps, reports
      ix. Completed and proposed projects in the area
      x. Complaint records
   2) Perform regulatory agency record data search/initial contact
      i. Contact appropriate regulatory authorities (namely DNR, EPA and the USACE) to confirm the need for their involvement in the project and to solicit:
      ii. Record data, plans, maps, etc. for known facilities located at the vicinity of the site.
      iii. Applicable rules and/or regulations
      iv. Permit application requirements and procedures
      v. Construction requirements and standards
      vi. Plan review and approval requirements and procedures

b. Site Visit and City Meeting - Review and assimilate the information and data collected and identify data gaps. Meet with the City to discuss findings and map out path forward.

c. Topographic Survey Coordination - Work shall consist of generating a scope of work for the surveyor to perform necessary topographic and right of way survey of the project site and the performance of these respective field surveys as defined in Appendix "D". Survey will be reviewed for completeness once data is received.

d. Geotechnical Field and Engineering Services- Work shall consist of generating a scope of work for the geotechnical firm to perform necessary borings and geotechnical report of the project site and the performance of these respective field surveys as defined in Appendix "E". Borings and report will be reviewed for completeness once data is received.

e. Watershed Drainage Study: Based on information gathered, prepare preliminary drainage analysis as follows:
   1) Watershed sizing; identify nature and source of storm water discharges present and future; estimate quantity and flowrate. (Watershed delineation)
   2) Analyze existing system to determine capacity and possible deficiencies.
   3) Develop solutions to alleviate capacity deficiencies (Detention Basin).
   4) Locate street inlets to eliminate localized gutter ponding.
   5) Develop closed sewer system connectivity in study area.

f. Sidewalk Study:
    1) High-level assessment of pedestrian volumes and needs, as well as ROW widths and quantity of parcels which would require interaction should ROW/easements is needed.
    2) Develop preliminary concepts for the proposed improvements:
        i. Conceptual conveyance facility route location.
        ii. Location of sidewalk (both sides or single side), ADA curb ramps, and crosswalks
    3) Prepare preliminary alignment map(s) and appurtenant schematics as appropriate to assist in defining the scope of work.

g. Conceptual Drawings: Prepare preliminary map(s) and appurtenant schematics as appropriate to assist in presenting the project solutions developed. Profiles and details will NOT be provided at this time. Only schematics that present the solution to allow understanding of the solution will be developed.

h. ROW Investigation - Identify target property access/rights that will be necessary to construct the proposed improvements.

i. Opinion of Probable Construction Cost - Prepare a scope of work narrative and Opinion of Probable Construction Cost (OPC) for the project.

j. Utility Coordination – Utility providers will be contacted to discuss the project and outline major conflicts. The preliminary plans assembled in this phase will be provided to the utility companies. High level costs will be obtained from each utility for relocating services as needed.

k. QA/QC - A QA / QC check will be performed on all calculations and drawings prior to submittal in accordance with our job specific quality plan.

l. Meet with City to discuss options moving forward and choose the best option.

II. 60% DESIGN PLANS

After CITY direction is given, the CONSULTANT will develop plans that correspond with any CITY driven changes and proceed towards a 60% design plan set. The plans will show a refined set of details, including:

a. Cover Sheet - Legend, sheet index, locator map, and abbreviations.

b. Typical Sections

c. Reference-Tie Sheets - Depicts and sets control for the project. Each reference point shall be three-point tied to existing features located outside proposed construction limits. Reference points should be located approximately five hundred feet (500') apart.

d. Removal Sheets – Plans drawn to a scale of 1" equals 20' horizontally. Items to be removed due within the project limits will be shown on these sheets.

e. Plan Sheets – Plans drawn to a scale of 1" equals 20' horizontally. Design of horizontal and vertical alignment shall be sufficient to provide construction limits and cross sections.

1) Proposed geometrics of the design features (Storm and Sidewalk) will be shown and detailed.
2) Approximate construction limits and easement / new right of way lines will be shown on the plan/profile sheets and will be based on the approximate construction limits.
3) The location of all utilities, and book and page if the easement is on private property, based on available information.

f. Sidewalk Profile Sheets – Sidewalk profile sheets will be developed showing the profile of the prosed sidewalks at a scale of 1" equals 20' horizontally and 1" equals 5' vertically.

g. Sewer Profile Sheets - Proposed profiles for storm sewer pipe to be drawn at a scale of 1" equals to 20' horizontally and 1" equals 5' vertically.

h. Grading Plan Sheets – Plans sheets at a scale of 1" equals 20' will be developed showing areas of special grading for detention basins and water quality features as needed.

i. MOT Sheets – Maintenance of Traffic Sheets at an appropriate scale will be developed to show required lane drops, detours, and required signage. Detailed Construction Phasing and Staging Sheets will NOT be included. This task will be limited to 4 sheets.

j. Detail Sheets: Limited to 4 Sheets
1) Details of non-standard design features will be provided on these sheets as necessary (inlets, basin outlet structures, riprap, cross-walk stripping, ADA ramps, utility details, curb details, grading, etc.).
2) Intersection geometrics and warping details will NOT be provided for intersections. Since the existing infrastructure is in place and not being replaced, only driveway cross slopes will be evaluated regarding sidewalks for compliance with ADA since they will be within the Pedestrian Access Route.

k. Cross Sections - Cross sections for sidewalks will be shown at fifty-foot intervals along the proposed centerlines of the alignment, drawn at a scale of 1" equals 5' both horizontally and vertically. Cross sections will be required to determine the potential extent of ROW / easement impacts only. Cross sections will also be shown at each driveway entrance to evaluate cross slopes ensuring compliance with ADA requirement.

l. Storm Water Engineering – Develop the following items associated with drainage design on this project:
1) Assessment of the existing and proposed watershed areas. Compute associated flowrates.
2) Proposed detention basin analysis.
3) Proposed water quality measures will be evaluated and proposed for the overall site, as well as at each storm outfall, where applicable.
4) Storm sewer analysis
5) Roadway spread analysis
6) Culvert analysis
7) Assemble computations and brief write-up in a report to be submitted to the City.

m. Drainage Area Maps – Maps depicting drainage areas for structures designed on the project will be developed.

n. Three Dimensional Modeling for Grading Areas – Perform design of grading areas and use InRoads software (MicroStation compatible) to generate a three-dimensional proposed model of these areas. This model will be used to generate and display proposed contours

o. The City of Joplin's Standard Specifications current edition will be adopted for the specifications of this project and appended as needed in the Job Special Provisions (JSPs). A list of known JSP's at this stage of design will be prepared.

p. Utility Coordination – A preliminary phase plan will be submitted to utility providers. This will include electronic plans (which will include title sheet, typical section sheets, plan sheets, and cross section sheets. A utility coordination log of events and communications will also be developed and maintained.

q. QA/QC - A QA / QC check on all calculations and drawings will be performed prior to submittal in accordance with our job specific quality plan.

r. Opinion of Probable Construction Cost – Based on the 60% Complete Design Plans, a revised OPC will be provided.

s. Meet with City to discuss progress of project and answer any questions of City or project team.

III. 90% DESIGN PLANS

It is assumed that the 90% Plan Submittal will be of bid quality, and that the majority of City design comments will occur during the 60% plan review or through communications between the City and CONSULTANT between submittals. The Final Plans, Specifications, and Estimate (PS&E) submittal will specifically include the following information:

a. Cover sheet with legend, sheet index, locator map, and abbreviations.

b. Tabulation of Quantities – Quantity sheets (Summery "A-Sheet" and "2B-Sheet(s) with subsequent quantity breakdown with per item/per sheet/per stage quantities will be provided).
   1) Earthwork quantities for sidewalk will NOT be calculated but rather, MoDOT's linear grading specification and bid item will be used to handle grading and shaping required to prepare the area for construction of sidewalk.

c. Proposed typical sections.

d. Reference Tie Sheets.

e. Plan Sheets.

f. Sidewalk Profile Sheets

g. Sewer Profile Sheets

h. Grading Sheets

i. Erosion control plans will NOT be provided. It will be the responsibility of the contractor to prepare a Storm water Pollution and Prevention Plan (SWPPP) for the project in conjunction with the construction permitting.

j. MOT Sheets

k. Detail Sheets

l. Cross Sections

m. Storm Water Engineering

n. Drainage Area Maps

o. Three Dimensional Modeling for Grading Areas

p. The City of Joplin's Standard Specifications (current edition) will be adopted for the specifications of this project and appended as needed in the Job Special Provisions. All necessary Job Special Provisions (which supersede the City's Standard Specifications) will be developed for review and approval by the CITY. The CITY will provide the front-end Contractual documents. The CITY will be advised of any needed changes to these documents to meet / correlate with JSPs or meet Federal/State/local requirements.

q. Utility Coordination – Utility companies will be coordinated with for any adjustments required to be included in the final design plans. A final electronic submittal will be provided to each utility company with facilities within the project corridor.
   1) All necessary utility plan adjustments will be incorporated into the final plans as required by the CITY; however actual design of relocated or adjusted utility facilities such as water, telephone, gas, fiber optic, power, or other is not included within this scope of services. The exception will be storm or sanitary sewer adjustments or relocations required to coordinate with existing utilities. This work will be limited to reasonable revisions (up to two) related to avoiding conflicts as identified during the initial utility coordination phase.
   2) The CONSULTANT will NOT be responsible for the preparation, negotiation and execution of all utility agreements as may be required to adjust existing utilities as a result of this project. However, the CITY may elect to add this work by Supplemental Agreement at a later date when the scope is better defined.

s. QA/QC - A QA / QC check on all calculations and drawings will be performed prior to submittal in accordance with our job specific quality plan.

t. Opinion of Probable Construction Cost – Based on the 90% Complete Design Plans, a revised OPC will be provided.

u. Construction Workday Study. The construction scope will be evaluated and a preliminary construction schedule will be generated in the form of construction days needed to be used by CITY.

v. Meet with City to discuss progress of project and answer any questions of City or project team.

IV. 100% DESIGN PLANS / CONSTRUCTION PROCUREMENT ASSISTANCE SERVICES

It is assumed that minor comments from the 90% Plan Submittal will be picked up in this phase, and the plans will be adjusted accordingly. However, these City comments are expected to only be minor in nature, and the time spent addressing the comments will be limited to three days (3) days of FTE time. Specific tasks attributed to the Construction Procurement assistance Services phase will include:

a. Final Revisions to Plan Set – Pick up final City comments and assemble final plans and special provisions.

b. Opinion of Probable Construction Cost – Based on the 100% Complete Design Plans, a revised OPC will be provided.

c. Assemble the bidding package for the project.

d. Distribute Plans – Distribute plans and bid proposal to appropriate bidding outlets. Develop the advertisement of the bid opportunity to City newspapers, City websites, and other media distribution outlets as determined with City influence.

e. Maintain a list of plan holders and tracking bidding questions.

f. Manage Pre-Bid Conference - Scheduling, preparing the addenda for, attending, and issuing meeting minutes of a pre-bid meeting.

g. Answering and issuing written clarifications in response to RFI's (in the form of addenda to the advertisement for bids)

h. Attend the bid opening and tabulation of the bids.

i. Verification of the bid requirements, checking of references, and recommendation to City of the apparent low bidder.

V. NEPA ENVIRONMENTAL REVIEW

This project will be subject to a site-specific Environmental Review. This environmental review will follow the procedures and requirements presented in 24 CFR Part 58 and in HUD's *Environmental Review Guide for Community Block Grant Programs*. It is anticipated that this project, because of the nature of the proposed work, will be determined to be categorically excluded from NEPA requirements.

An environmental field review will be conducted of the specific project area to note site-specific conditions requiring evaluation. Coordination with design engineers will be conducted to fully document the extent and nature of the proposed improvements. Where necessary, coordination will be conducted with federal, state, or local agencies to define existing conditions, regulatory requirements, and potential impacts, if any.

A Statutory Checklist (Chapter 4, page 22, of the *Environmental Review Guide*) will be completed, along with all necessary research and coordination to resolve each checklist item. Compliance documentation will be included as required. A preliminary checklist will be prepared during the 60% Design Phase, and the final checklist will be prepared during the

90% Design Phase. The final Statutory Checklist will serve as the documentation of the Environmental Review process and findings.

VI. DELIVERABLES PROVIDED BY CONSULTANT

CONSULTANT will deliver or provide the labor and materials for the following submittals:

a. The services of all professionals and technical personnel required for the performance of the services described under the Scope of Services above.

b. Technical Memorandums as specified.

c. Electronic plan sets (for those drawings completed at time of submittal) and Opinion of Probable Construction Cost (OPC) to be submitted via email to the City, Program Manager, and utility providers for the following project milestones:
   1) 30% Plans
   2) 60% Plans
   3) 90% Plans
   4) Final Plans

d. Electronic copy of complete Bid Proposal utilizing the City's standard boilerplate documents (front end contract, general provisions, requirements, etc.) plus other standard documents such as the City Standard Specifications, Federal and State Wage Rates, Job Special Provisions, and other required documents.

VII. ESTIMATED SCHEDULE

CONSULTANT estimates that **164-calendar days** will be required to complete design through the 90% Design Plans phase.

	CONTRACT STAGE	INDIVIDUAL CALENDAR DAYS	ACCUMULATED CALENDAR DAYS
	Start Date		
II	Preliminary (30%) Design Plans	40	40
	CITY Review (Includes Meeting)	10	50
III	60% Design Plans	40	90
	CITY Review (Includes Meeting)	10	80
IV	90% Design Plans	50	150
	CITY Review (Includes Meeting)	14	164
	TOTAL:	**164 Days**	

100% Design Plans/Bidding Services shall be completed within 45-calendar days after property rights agreements are executed.

(Approx. 2700 LF) of sidewalk on either one, or both sides of Willard Avenue

SCOPE OF ENGINEERING SERVICES

S. Willard Avenue Sidewalks
(26th to 20th Streets)

PROJECT UNDERSTANDING

Willard Avenue is a north/south roadway located in the "Yellow Area". The specific limits of the sidewalk project described herein is along Willard bounded by the east/west collector street of 20th Street as the northern limit, and the east/west connector street of 26th Street as the southern limit, in the City of Joplin, Missouri. The purpose of the project is to increase pedestrian mobility and connectivity in the "Yellow Area" of the area affected by the tornado zone, through the addition of Americans with Disability Act (ADA) compliant sidewalks and curb ramps throughout the corridor. At the present time, the entire corridor (with the exception of the roadway projects currently in design or under construction) is devoid of pedestrian accommodations, and this project will bisect the Yellow Area in a north/south direction (between Shifferdecker Road and Maiden Lane) with additional pedestrian options.

PROJECT APPROACH

The CONSULTANT has been retained by the City to engineer the improvements and to prepare plans, specifications and estimates (PS&Es). In addition, the CONSULTANT shall provide professional services during the procurement of construction bids. If desired by the City, amendments to this agreement can be prepared in the future for post-design services.

In order to achieve the goals and objectives established for this project, the CONSULTANT will provide the following scope items:

I. ENGINEERING STUDY, PRELIMINARY 30% DESIGN

A preliminary concept plan, recommendations and an opinion of probable construction cost for improvements to be made in the project area will be provided (2 options maximum).

a. Download & Review City / Available Data
   1) Perform record data research/collection including, but not limited to:
      i. Utility Service Provider available facility record data
      ii. Existing and future land use/zoning
      iii. Property data including ownership
      iv. FEMA/FIS data and mapping
      v. NRCS soil survey data
      vi. USGS 7.5-minute Topographic Quadrangle Map(s)
      vii. Municipal records of completed and proposed projects in the area
      viii. Relevant watershed data, maps, reports
      ix. Completed and proposed projects in the area
      x. Complaint records
   2) Perform regulatory agency record data search/initial contact
      i. Contact appropriate regulatory authorities (namely DNR, EPA and the USACE) to confirm the need for their involvement in the project and to solicit:
      ii. Record data, plans, maps, etc. for known facilities located at the vicinity of the site.
      iii. Applicable rules and/or regulations

iv. Permit application requirements and procedures
v. Construction requirements and standards
vi. Plan review and approval requirements and procedures

b. Site Visit and City Meeting - Review and assimilate the information and data collected and identify data gaps. Meet with the City to discuss findings and map out path forward.

c. Topographic Survey Coordination - Work shall consist of generating a scope of work for the surveyor to perform necessary topographic and right of way survey of the project site and the performance of these respective field surveys as defined in Appendix "D". Survey will be.

d. Concept Design: Based on information gathered, prepare preliminary analysis as follows:
   1) High-level assessment of pedestrian volumes and needs, as well as ROW widths and quantity of parcels which would require interaction should ROW/easements be needed.
   2) Develop preliminary concepts for the proposed improvements:
      i. Conceptual conveyance facility route location.
      ii. Location of sidewalk (both sides or single side), ADA curb ramps, and crosswalks
   3) Prepare preliminary alignment map(s) and appurtenant schematics as appropriate to assist in defining the scope of work.

e. ROW Investigation - Identify target property access/rights that will be necessary to construct the proposed improvements.

f. Opinion of Probable Construction Cost - Prepare a scope of work narrative and Opinion of Probable Construction Cost (OPC) for the project.

g. Utility Coordination – Utility providers will be contacted to discuss the project and outline major conflicts. The preliminary plans assembled in this phase will be provided to the utility companies. High level costs will be obtained from each utility for relocating services as needed.

h. QA/QC - A QA / QC check will be performed on all calculations and drawings prior to submittal in accordance with our job specific quality plan.

i. Subconsultant coordination (Surveyors, HR Green, etc.) - work shall consist of the management of subconsultants within the Jacobs Team (only) used on the project for to ensure consistency of team. This includes team meetings, coordination phone calls, etc.

j. Meet with City to discuss options moving forward and choose the best option.

II. 60% DESIGN PLANS

After CITY direction is given, the CONSULTANT will develop plans that correspond with any CITY driven changes and proceed towards a 60% design plan set. The plans will show a refined set of details, including:

a. Cover Sheet - Legend, sheet index, locator map, and abbreviations.

b. Typical Sections.

c. Reference-Tie Sheet - Depicts and sets control for the project. Each reference point shall be three-point tied to existing features located outside proposed construction limits. Reference points should be located approximately five hundred feet (500') apart.

d. Plan / Profile Sheets – Split plans drawn to a scale of 1" equals 20' horizontally and 1" equals 5' vertically. Design of horizontal and vertical alignment shall be sufficient to provide construction limits and cross sections.
   1) Proposed geometrics of the design features will be shown and detailed.
   2) Approximate construction limits and easement / new right of way lines will be shown on the plan/profile sheets and will be based on the approximate construction limits.
   3) The location of all utilities, and book and page if the easement is on private property, based on available information.

e. Cross Sections - Cross sections for sidewalks will be shown at fifty-foot intervals along the proposed centerlines of the alignment, drawn at a scale of 1" equals 5' both horizontally and vertically. Cross sections will be required to determine the potential extent of ROW / easement impacts only. Cross sections will also be shown at each driveway entrance to evaluate cross slopes ensuring compliance with ADA requirement.

f. Detail Sheets: Limited to 2 Sheets
   1) Details of non-standard design features will be provided on these sheets as necessary (crosswalk striping, ADA ramps, utility details, curb details, grading, etc.).
   2) Intersection geometrics and warping details <u>will NOT</u> be provided for intersections. Since the existing infrastructure is in place and not being replaced, only driveway cross slopes will be evaluated for compliance with ADA since they will be within the Pedestrian Access Route.

g. The City of Joplin's Standard Specifications current edition will be adopted for the specifications of this project and appended as needed in the Job Special Provisions (JSPs). A list of known JSP's at this stage of design will be prepared.

h. Utility Coordination – A preliminary phase plan will be submitted to utility providers. This will include electronic plans (which will include title sheet, typical section sheets, plan sheets, and cross section sheets. A utility coordination log of events and communications will also be developed and maintained.

i. QA/QC - A QA / QC check on all calculations and drawings will be performed prior to submittal in accordance with our job specific quality plan.

j. Subconsultant coordination (Surveyors, HR Green, etc.) - work shall consist of the management of subconsultants within the Jacobs Team (only) used on the project for to ensure consistency of team. This includes team meetings, coordination phone calls, etc.

k. Opinion of Probable Construction Cost – Based on the 60% Complete Design Plans, a revised OPC will be provided.

l. Meet with City to discuss progress of project and answer any questions of City or project team.

III. 90% DESIGN PLANS

It is assumed that the 90% Plan Submittal will be of bid quality, and that the majority of City design comments will occur during the 60% plan review or through communications between the City and CONSULTANT between submittals. The Final Plans, Specifications, and Estimate (PS&E) submittal will specifically include the following information:

a. Cover Sheet - Legend, sheet index, locator map, and abbreviations.

b. Tabulation of Quantities – Quantity sheets (Summery "A-Sheet" and "2B-Sheet(s) with subsequent quantity breakdown with per item/per sheet/per stage quantities will be provided).
   1) Earthwork quantities will NOT be calculated but rather, MoDOT's linear grading specification and bid item will be used to handle grading and shaping required to prepare the area for construction of sidewalk.

c. Proposed Typical Sections.

d. Reference Tie Sheet.

e. Plan / Profile Sheets.

f. Cross Sections.

g. Striping and Signage plans will NOT be shown separately but will be shown on the split plan/plan sheets.

h. Erosion control plans will NOT be provided. It will be the responsibility of the contractor to prepare a Stormwater Pollution and Prevention Plan (SWPPP) for the project in conjunction with the construction permitting.

i. Detail Sheets.

j. Detailed Construction Phasing and Staging Sheets will NOT be included but two (2) sheets will be reserved for details such as required lane drops, detours, and required signage.

k. The City of Joplin's Standard Specifications (current edition) will be adopted for the specifications of this project and appended as needed in the Job Special Provisions. All necessary Job Special Provisions (which supersede the City's Standard Specifications) will be developed for review and approval by the CITY. The CITY will provide the front-end Contractual documents. The CITY will be advised of any needed changes to these documents to meet / correlate with JSPs or meet Federal/State/local requirements.

l. Utility Coordination – Utility companies will be coordinated with for any adjustments required to be included in the final design plans. A final electronic submittal will be provided to each utility company with facilities within the project corridor.

1) All necessary utility plan adjustments will be incorporated into the final plans as required by the CITY; however actual design of relocated or adjusted utility facilities such as water, telephone, gas, fiber optic, power, or other is not included within this scope of services. The exception will be storm or sanitary sewer adjustments or relocations required to coordinate with existing utilities. This work will be limited to reasonable revisions (up to two) related to avoiding conflicts as identified during the initial utility coordination phase.
2) The CONSULTANT will NOT be responsible for the preparation, negotiation and execution of all utility agreements as may be required to adjust existing utilities as a result of this project. However, the CITY may elect to add this work by Supplemental Agreement at a later date when the scope is better defined.

m. QA/QC - A QA / QC check on all calculations and drawings will be performed prior to submittal in accordance with our job specific quality plan.

n. Subconsultant coordination (Surveyors, HR Green, etc.) - work shall consist of the management of subconsultants within the Jacobs Team (only) used on the project for to ensure consistency of team. This includes team meetings, coordination phone calls, etc.

o. Opinion of Probable Construction Cost – Based on the 90% Complete Design Plans, a revised OPC will be provided.

p. Construction Workday Study. The construction scope will be evaluated and a preliminary construction schedule will be generated in the form of construction days needed to be used by CITY.

q. Meet with City to discuss progress of project and answer any questions of City or project team.

IV. 100% DESIGN PLANS / CONSTRUCTION PROCUREMENT ASSISTANCE SERVICES

It is assumed that minor comments from the 90% Plan Submittal will be picked up in this phase, and the plans will be adjusted accordingly. However, these City comments are expected to only be minor in nature, and the time spent addressing the comments will be limited to two and one half days (2.5) days of FTE time. Specific tasks attributed to the Construction Procurement assistance Services phase will include:

a. Final Revisions to Plan Set – Pick up final City comments and assemble final plans and special provisions.

b. Opinion of Probable Construction Cost – Based on the 100% Complete Design Plans, a revised OPC will be provided.

c. Assemble the bidding package for the project

d. Distribute Plans – Distribute plans and bid proposal to appropriate bidding outlets. Develop the advertisement of the bid opportunity to City newspapers, City websites, and other media distribution outlets as determined with City influence.

e. Maintain a list of plan holders and tracking bidding questions.

f. Manage Pre-Bid Conference - Scheduling, preparing the addenda for, attending, and issuing meeting minutes of a pre-bid meeting.

g. Answering and issuing written clarifications in response to RFI's (in the form of addenda to the advertisement for bids)

h. Attend the bid opening and tabulation of the bids

i. Verification of the bid requirements, checking of references, and recommendation to City of the apparent low bidder.

V. NEPA ENVIRONMENTAL REVIEW

This project will be subject to a site-specific Environmental Review. This environmental review will follow the procedures and requirements presented in 24 CFR Part 58 and in HUD's *Environmental Review Guide for Community Block Grant Programs*. It is anticipated that this project, because of the nature of the proposed work, will be determined to be categorically excluded from NEPA requirements.

An environmental field review will be conducted of the specific project area to note site-specific conditions requiring evaluation. Coordination with design engineers will be conducted to fully document the extent and nature of the proposed improvements. Where necessary, coordination will be conducted with federal, state, or local agencies to define existing conditions, regulatory requirements, and potential impacts, if any.

A Statutory Checklist (Chapter 4, page 22, of the *Environmental Review Guide*) will be completed, along with all necessary research and coordination to resolve each checklist item. Compliance documentation will be included as required. A preliminary checklist will be prepared during the 60% Design Phase, and the final checklist will be prepared during the 90% Design Phase. The final Statutory Checklist will serve as the documentation of the Environmental Review process and findings.

VI. DELIVERABLES PROVIDED BY CONSULTANT

CONSULTANT will deliver or provide the labor and materials for the following submittals:

a. The services of all professionals and technical personnel required for the performance of the services described under the Scope of Services above.

b. Technical Memorandums as specified.

c. Electronic plan sets (for those drawings completed at time of submittal) and Opinion of Probable Construction Cost (OPC) to be submitted via email to the City, Program Manager, and utility providers for the following project milestones:
   1) 30% Plans
   2) 60% Plans
   3) 90% Plans
   4) Final Plans

d. Electronic copy of complete Bid Proposal utilizing the City's standard boilerplate documents (front end contract, general provisions, requirements, etc.) plus other

standard documents such as the City Standard Specifications, Federal and State Wage Rates, Job Special Provisions, and other required documents.

VII. ESTIMATED SCHEDULE

CONSULTANT estimates that **139-calendar days** will be required to complete design through the 90% Design Plans phase.

	CONTRACT STAGE	INDIVIDUAL CALENDAR DAYS	ACCUMULATED CALENDAR DAYS
	Start Date		
II	Preliminary (30%) Design Plans	30	30
	CITY Review (Includes Meeting)	10	40
III	60% Design Plans	30	70
	CITY Review (Includes Meeting)	10	80
IV	90% Design Plans	45	125
	CITY Review (Includes Meeting)	14	139
		TOTAL:	**139 Days**

100% Design Plans/Bidding Services shall be completed within 45-calendar days after property rights agreements are executed.

SCOPE OF ENGINEERING SERVICES
S. Oliver Avenue Sidewalks
(32nd to 26th Streets)

(Approx. 2700 LF) of sidewalk on either one, or both sides of Olive Avenue plus drainage improvement to the existing paved swale north of 32nd Street

PROJECT UNDERSTANDING

Olive Avenue is a north/south roadway located in the "Yellow Area". The specific limits of the sidewalk project described herein is along Oliver bounded by the east/west collector street of 26th Street as the northern limit, and the east/west connector street of 32nd Street as the southern limit, in the City of Joplin, Missouri. The purpose of the project is to increase pedestrian mobility and connectivity in the "Yellow Area" of the area affected by the tornado zone, through the addition of Americans with Disability Act (ADA) compliant sidewalks and curb ramps throughout the corridor. At the present time, the entire corridor (with the exception of the roadway projects currently in design or under construction) is devoid of pedestrian accommodations, and this project will bisect the Yellow Area in a north/south direction (between Shifferdecker Road and Maiden Lane) with additional pedestrian options.

In addition, the project aims to improve the drainage patterns of the existing paved swale that starts on the west side of Oliver Avenue, crosses Oliver Avenue overland and over pavement via curb cut, and flows across the roadway pavement to an open ditch/channel on the east side of the roadway. By improving this situation and eliminating the overland drainage, we can improve motorist and pedestrian safety in icy or wet conditions.

PROJECT APPROACH

The CONSULTANT has been retained by the City to engineer the improvements and to prepare plans, specifications and estimates (PS&Es). In addition, the CONSULTANT shall provide professional services during the procurement of construction bids. If desired by the City, amendments to this agreement can be prepared in the future for post-design services.

In order to achieve the goals and objectives established for this project, the CONSULTANT will provide the following scope items:

I. PROJECT COORDINATION

a. Internal team meetings will be held as needed to ensure each Jacobs team member (prime and subconsultant team members alike) are operating under the same directions and following the same guidance for the project. Meetings will last no longer than one hour and will be held either face to face, or by phone conference. Four (4) meetings are assumed for this task.

b. Coordinate proposal information and have internal kick-off meeting.

II. ENGINEERING STUDY, PRELIMINARY 30% DESIGN

A preliminary concept plan, recommendations and an opinion of probable construction cost for improvements to be made in the project area will be provided (2 options maximum).

a. Download & Review City / Available Data
   1) Perform record data research/collection including, but not limited to:
      i. Utility Service Provider available facility record data
      ii. Existing and future land use/zoning
      iii. Property data including ownership
      iv. FEMA/FIS data and mapping

v. NRCS soil survey data
vi. USGS 7.5-minute Topographic Quadrangle Map(s)
vii. Municipal records of completed and proposed projects in the area
viii. Relevant watershed data, maps, reports
ix. Completed and proposed projects in the area
x. Complaint records

2) Perform regulatory agency record data search/initial contact
   i. Contact appropriate regulatory authorities (namely DNR, EPA and the USACE) to confirm the need for their involvement in the project and to solicit:
   ii. Record data, plans, maps, etc. for known facilities located at the vicinity of the site.
   iii. Applicable rules and/or regulations
   iv. Permit application requirements and procedures
   v. Construction requirements and standards
   vi. Plan review and approval requirements and procedures

b. Site Visit and City Meeting - Review and assimilate the information and data collected and identify data gaps. Meet with the City to discuss findings and map out path forward.

c. Topographic Survey Coordination - Work shall consist of generating a scope of work for the surveyor to perform necessary topographic and right of way survey of the project site and the performance of these respective field surveys as defined in Appendix "D". Survey will be reviewed for completeness once data is received.

d. Concept Design: Based on information gathered, prepare preliminary analysis of problem as follows:
   1) Watershed sizing; identify nature and source of storm water discharges present and future; estimate quantity and flowrate (specifically for swale near 32nd Street).
   2) High-level assessment of pedestrian volumes and needs, as well as ROW widths and quantity of parcels which would require interaction should ROW/easements be needed.
   3) Develop preliminary concepts for the proposed improvements:
      i. Conceptual conveyance facility route location
      ii. Preliminary sizing and layout of drainage features.
      iii. Location of sidewalk (both sides or single side), ADA curb ramps, and crosswalks
   4) Prepare preliminary alignment map(s) and appurtenant schematics as appropriate to assist in defining the scope of work.

e. ROW Investigation - Identify target property access/rights that will be necessary to construct the proposed improvements.

f. Opinion of Probable Construction Cost - Prepare a scope of work narrative and Opinion of Probable Construction Cost (OPC) for the project.

g. Utility Coordination – Utility providers will be contacted to discuss the project and outline major conflicts. The preliminary plans assembled in this phase will be provided to the utility companies. High level costs will be obtained from each utility for relocating services as needed.

h. QA/QC - A QA / QC check will be performed on all calculations and drawings prior to submittal in accordance with our job specific quality plan.

i. Subconsultant coordination (Surveyors, Jacobs, etc.) - work shall consist of the management of subconsultants within the Jacobs Team (only) used on the project for specialty services, and shall include the project management associated with processing invoices, answering questions, directing work, managing schedules and deliverables, and other general administrative work to this cause.

j. Meet with City to discuss options moving forward and choose the best option.

III. 60% DESIGN PLANS

After CITY direction is given, the CONSULTANT will develop plans that correspond with any CITY driven changes and proceed towards a 60% design plan set. The plans will show a refined set of details, including:

a. Cover Sheet - Legend, sheet index, locator map, and abbreviations.

b. Typical Sections.

c. Reference-Tie Sheet - Depicts and sets control for the project. Each reference point shall be three-point tied to existing features located outside proposed construction limits. Reference points should be located approximately five hundred feet (500') apart.

d. Plan / Profile Sheets – Split plans drawn to a scale of 1" equals 20' horizontally and 1" equals 5' vertically. Design of horizontal and vertical alignment shall be sufficient to provide construction limits and cross sections.
   1) Proposed geometrics of the design features will be shown and detailed.
   2) Approximate construction limits and easement / new right of way lines will be shown on the plan/profile sheets and will be based on the approximate construction limits.
   3) The location of all utilities, and book and page if the easement is on private property, based on available information.

e. Cross Sections - Cross sections for sidewalks will be shown at fifty-foot intervals along the proposed centerlines of the alignment, drawn at a scale of 1" equals 5' both horizontally and vertically. Cross sections will be required to determine the potential extent of ROW / easement impacts only. Cross sections will also be shown at each driveway entrance to evaluate cross slopes ensuring compliance with ADA requirement.

f. Drainage Design –The drainage design for the project will include:
   1) Assessment of the existing and proposed watershed and drainage areas.
   2) Assessment of the existing storm sewer drainage network (condition, location, capacity, etc.) to determine the extent it can be reused, specific to swale near 32nd Street.
   3) Type, size, and location of the necessary drainage features for the project, including enclosed drainage features (inlets and pipes), specific to swale near 32nd Street.

4) Proposed water quality measures will be evaluated specific to potentially improving paved swale near 32nd Street.
5) Design submittals and approvals acquired through the appropriate channels.

g. Storm Sewer Profiles - Proposed profiles for storm sewer pipe to be drawn at a scale of 1" equals to 20' horizontally and 1" equals 5' vertically.

h. Detail Sheets: Limited to 2 Sheets
   1) Details of non-standard design features will be provided on these sheets as necessary (crosswalk striping, ADA ramps, utility details, curb details, grading, etc.).
   2) Intersection geometrics and warping details will NOT be provided for intersections. Since the existing infrastructure is in place and not being replaced, only driveway cross slopes will be evaluated for compliance with ADA since they will be within the Pedestrian Access Route.

i. The City of Joplin's Standard Specifications current edition will be adopted for the specifications of this project and appended as needed in the Job Special Provisions (JSPs). A list of known JSP's at this stage of design will be prepared.

j. Utility Coordination – A preliminary phase plan will be submitted to utility providers. This will include electronic plans (which will include title sheet, typical section sheets, plan sheets, and cross section sheets. A utility coordination log of events and communications will also be developed and maintained.

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m. Opinion of Probable Construction Cost – Based on the 60% Complete Design Plans, a revised OPC will be provided.

n. Meet with City to discuss progress of project and answer any questions of City or project team.

IV. 90% DESIGN PLANS

It is assumed that the 90% Plan Submittal will be of bid quality, and that the majority of City design comments will occur during the 60% plan review or through communications between the City and CONSULTANT between submittals. The Final Plans, Specifications, and Estimate (PS&E) submittal will specifically include the following information:

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a result of this project. However, the CITY may elect to add this work by Supplemental Agreement at a later date when the scope is better defined.

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q. Construction Workday Study. The construction scope will be evaluated and a preliminary construction schedule will be generated in the form of construction days needed to be used by CITY.

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b. Technical Memorandums as specified.

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   1) 30% Plans
   2) 60% Plans
   3) 90% Plans
   4) Final Plans

d. Electronic copy of complete Bid Proposal utilizing the City's standard boilerplate documents (front end contract, general provisions, requirements, etc.) plus other standard documents such as the City Standard Specifications, Federal and State Wage Rates, Job Special Provisions, and other required documents.

VIII. ESTIMATED SCHEDULE

CONSULTANT estimates that **139-calendar days** will be required to complete design through the 90% Design Plans phase.

	CONTRACT STAGE	INDIVIDUAL CALENDAR DAYS	ACCUMULATED CALENDAR DAYS
	Start Date		
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IV	90% Design Plans	45	125
	CITY Review (Includes Meeting)	14	139
		TOTAL:	**139 Days**

100% Design Plans/Bidding Services shall be completed within 45-calendar days after property rights agreements are executed.

SCOPE OF PROPOSED SERVICES:

"Yellow Area" Analysis and Prioritization Study

I. PROJECT UNDERSTANDING

The City of Joplin is undertaking a program to mitigate roadway and drainage problems that have a detrimental affect on both the public infrastructure and private properties. The program will be funded from CDGB-DR funds allocated in the First Action Plan of the *Joplin Phase II Recovery Plan.* As a part of this Analysis and Prioritization Study (hereinafter referred to as the "study"), the Jacobs Team will identify various infrastructure improvement projects within the "Yellow Area" to be completed through remaining and subsequent Action Plan dollars. A preliminary Scope of Work (including conceptual plan exhibits depicting the proposed work), a Schedule of Proposed Completion, and an Opinion of Probable Construction Cost (OPC) will be prepared for each candidate project.

The Jacobs Team will present the project scopes of work, schedules and OPC's to the City of Joplin for approval. During the process, and as directed by the City, a public meeting will be held with the public. All stakeholders, and particularly those affected property owners, will be encouraged to attend and provide comments to the project team. Based on review of the information presented to the City and public input, the City will either accept the list of projects and their scheduled priority, or alter the listing priority and/or quantity of projects as they deem necessary in the overall scope of the tornado area.

The Jacobs Team shall present the program to the City of Joplin in the form of a five-year implementation plan as a part of the City's overall need to expend the entire CDBG funding within the 8-year window of available funding. **All derived schedules of work will show completion by March 1, 2019.** In addition to the overall priority ranking, deliverables of the study will be to provide the City a roadmap by which they can create additional action plans requesting design, right of way, and construction monies on intervals mindful of the two-year spending window that follows all CDBG-DR funds (starting the date HUD obligates funds to a grantee).

Specifically, the services which the Jacobs Team will provide for this study will include:

- The collection of supporting data form field observation and record data research;
- Evaluation of storm water and street infrastructure improvement projects based on observed needs or defects;
- Comparison of observed needs or defects with the previous condition assessment data already collected for the tornado corridor;
- Creation of infrastructure project scopes of work and OPC's;
- Meetings with stakeholders and property owners to solicit reaction to proposed scopes of work from the standpoint of problem definition and practicality.
- Determining the requirements of regulatory agencies having jurisdiction;
- Preparation of schedule of projects and schedule of additional Action Plan requests;
- Documentation and presentation of findings to City for approval

II. PROJECT APPROACH

The team proposes a program of 4-stages to complete this study:

1. Condition Assessment
2. Preliminary Design
3. Project Prioritization
4. Presentation of Findings

The work tasks to be performed, and a list of associated deliverables, are provided with each stage description below.

III. SCOPE OF SERVICES

1. Condition Assessment

A. Record Search / Collect Data
   a. Perform record data research/collection including, but not limited to:
      i. Utility Service Provider available facility record data
      ii. Existing and future land use/zoning
      iii. Property data including ownership
      iv. FEMA/FIS data and mapping
      v. NRCS soil survey data
      vi. USGS 7.5-minute Topographic Quadrangle Map(s)
      vii. Municipal records of completed and proposed projects in the area
      viii. Relevant watershed data, maps, reports
      ix. Completed and proposed projects in the area
      x. Complaint records

   b. Perform regulatory agency record data search/initial contact
      i. Contact appropriate regulatory authorities (namely DNR, EPA and the USACE) to confirm the need for their involvement in the project and to solicit:
         1. Record data, plans, maps, etc. for known facilities located at the vicinity of the site.
         2. Applicable rules and/or regulations
         3. Permit application requirements and procedures
         4. Construction requirements and standards
         5. Plan review and approval requirements and procedures

B. Review and assimilate the information and data collected and identify data gaps. Work with various City and State agencies to try and close data gaps.

C. Site Visit
   a. Perform four day (4) site visit to observe and/or confirm existing site conditions, features and facilities to identify:
      i. Drainage patterns, problems or issues with existing drainage features or the lack thereof, upstream issues causing issues downstream, low maintenance opportunities to improve water quality, or opportunities to create detention (either regional or site specific) to improve downstream storm water discharge.

      ii. Presence of sidewalks and ADA facilities, opportunities for connectivity and roadblocks preventing it (including utilities, grades, right of way (ROW), improvements to private property within the ROW, drainage, origin/destination observations, or required signal improvements to be made with the addition of sidewalks.

      iii. Roadway width, slopes, perceived traffic volumes (capacity), any improvements needed in conjunction with drainage or sidewalk work, new roadway corridors for connectivity or economic development, or differences in assessment of existing condition of roadway pavement.

D. Compilation of Data
   a. Summarize information from record data gathering and field visits into a written memorandum of findings by street name. Include pertinent information in appendices.

   b. At this time, compilation of the field information into a GIS layer is not anticipated; however, should the inclusion of the record data be something the City desires, this can be added to the contract by supplemental agreement after the completion of the overall Analysis and Prioritization Study at a later date.

2. Preliminary Design

A. Goal: The goal for this stage is to prepare scopes of work, schedules (high level for the estimated time to complete the project, including design, any ROW acquisition, and construction), and high level OPC for all needs identified in the Condition Assessment Task.

B. Prepare Preliminary Engineering Schematics:
   a. Sort the defined problems into groupings for drainage, sidewalks, and roadway issues
      i. Drainage Projects: (assumes **5** standalone drainage projects for estimating)
         1. Watershed sizing; identify nature and source of storm water discharges present and future; estimate quantity and flowrate.
         2. Develop preliminary concepts for the proposed improvements:
            a. Conceptual conveyance facility route location
            b. Preliminary sizing and layout
            c. Identify alternates
         3. Identify target property access/rights that will be necessary to construct the proposed improvements.
         4. Prepare preliminary conveyance facility alignment map(s) and appurtenant schematics as appropriate to assist in defining the scope of work.
         5. Prepare a scope of work narrative and Opinion of Probable Construction Cost (OPC) for each potential project

      ii. Sidewalk Projects: (assumes **5** standalone sidewalk projects for estimating)
         1. High-level assessment of pedestrian volumes and needs, as well as ROW widths and quantity of parcels which would require interaction should ROW/easements be needed.
         2. Develop preliminary concepts for the proposed improvements:
            a. Conceptual alignment and width
            b. Location of ADA curb ramps
            c. Need for crosswalks
         3. Identify target property access/rights that will be necessary to construct the proposed improvements.
         4. Prepare preliminary alignment map(s) and schematics as appropriate to assist in defining the scope of work.
         5. Prepare a scope of work narrative and Opinion of Probable Construction Cost (OPC) for each potential project.

      iii. Roadway Projects: (assumes **5** roadway projects for estimating)
         1. High-level assessment of traffic volumes and needs, as well as ROW widths and quantity of parcels which would require interaction should ROW/easements be needed.
         2. Develop preliminary concepts for the proposed improvements:

a. Conceptual alignment and width
b. Location of drainage structures
c. Need for sidewalks and curb ramps
d. Aesthetic (lighting or landscaping) opportunities

3. Identify target property access/rights that will be necessary to construct the proposed improvements.
4. Prepare preliminary alignment map(s) and schematics as appropriate to assist in defining the scope of work.
5. Prepare a scope of work narrative and Opinion of Probable Construction Cost (OPC) for each potential project

C. Develop plan identifying overlapping functions of the groupings and combine projects accordingly. (i.e. Taking the opportunity to rebuild a roadway and add sidewalks in an area where a potential drainage improvements will disturb these existing features)

D. Team Meetings
   a. Hold two (2) team meetings to collaborate, discuss findings, develop concepts, discuss project opportunities and set a path forward prior to project prioritization.

E. City Review Meeting
   a. The Jacobs Team will meet with City staff to review any comments regarding the proposed project scopes, review proposed allocation of CDBG-DR grants with the Program Manager, and to provide a project schedule update.

   b. Meeting minutes summarizing the discussions and conclusions reached at the meeting will be created and distributed.

3. Project Prioritization

A. Prioritize Projects
   a. Prioritize the projects in an order to be completed based on the following considerations:
      i. Scopes of work
      ii. Timeframe to complete
      iii. Opinion of Probable Construction Cost
      iv. Need for ROW/easement acquisition
      v. Adjacent construction activities to the project, both in the "Yellow Area" and in neighboring study areas

   b. Prepare and deliver a roadmap to the City which describes the following:
      i. A recommendation of infrastructure improvement projects and their scopes of work
      ii. High level OPC with their corresponding schedules
      iii. Recommendations on when the City should apply for their funding (i.e. when the Action Plan should be submitted, thus triggering the two-year window of expenditures)
      iv. What specific line items should be asked for in the appropriate Action Plan (i.e. ROW dollars for project X and Construction dollars for projects Y and Z, etc.)

   c. Prepare an overall project completion timeline for the subject "Yellow Area", and prepare a cashflow projection.

B. QA/QC - A QA / QC check will be performed on all calculations and drawings prior to submittal in accordance with our job specific quality plan.

4. **Presentation/deliverables of Findings**

A. Presentation/deliverables to City Staff
   a. Conduct presentation of the project scopes of work and apparent rankings to City staff and the Program Manager for their input and approval.

   b. Prepare meeting minutes summarizing the discussions and conclusions reached at the presentation.

   c. With approval, prepare public meeting boards and documents to convey high-level program and schedule to the affected public.

   d. Submit an action item report of the study findings.

B. Create Exhibits for Public Meeting – Prepare exhibits to be used at meeting.

C. Administration for Public Meeting
   a. Make arrangements for a public open house for interested stakeholders/property owners located adjacent to the proposed improvements.
      i. Reserve a meeting room;
      ii. Prepare an agenda;
      iii. Mail meeting notification information (date, time, location) to property owners located adjacent to the proposed improvements.

D. Attend and participate in the open house.

IV. ASSUMPTIONS & LIMITATIONS

A. The scope of services does not provide construction documents for any of the projects identified, nor does the scope contain any detained design tasks for these projects. The scope herein is a study of the "Yellow Area" and prioritization only. Detailed design and construction documents of these projects can be added to the overall Jacobs Team scope of work by supplemental agreement after the completion of this Study.

B. The scope of services does not include property owner solicitation by the Jacobs Team for acquisition of property rights or rights of access. This scope of services assumes that any such solicitation will occur after the Study portion and will be included in the design work as described in the exception above.

V. ESTIMATED TIME SCHEDULE

The Jacobs Team understands that the services to be provided under this Study are a critical component of current and future funding streams and must be completed as soon as practical. Therefore, upon Notice to Proceed (NTP), the team will begin the Condition Assessment portion of the project and submit a completed "Yellow Area" Analysis and Prioritization Study (through Item 4A) within **72-calendar days** (10-weeks) of NTP.

APPENDIX C

Rate Schedule

JACOBS®

501 North Broadway
St. Louis, Missouri 63102 USA
1.314.335.4000 Fax 1.314.335.5112

July 25, 2014

St. Louis North American Infrastructure Rate Schedule

Rates shown include the all-inclusive rates (include overhead & profit)

Year (period)	Manager of Operations	Project Manager	Sr. Civil Engineer	Civil Engineer	Project Controls	Geotechnical Engineer	Sr. Structural Engineer	Jr. Structural Engineer	Civil SDesiner (Cadd)	Cost Estimator
2014 (October 1, 2013-September 30 2014)	$252.20	$192.06	136.77	113.08	144.53	$192.06	$74.35	$110.84	$53.95	$192.06
2015 (October 1, 2014-September 30 2015)	$260	$198	$141	$116.47	$149	$198	$76.58	$114.16	$55.54	$198
2016 (October 1, 2015-September 30 2016)	$267.80	$203.94	145.23	$119.97	$153.47	$203.94	78.88	$117.58	$57.20	$203.94

HRGreen

July 24, 2014

Mr. Jeff Farah P.E., P.Eng
Senior Project Manager
JACOBS
One Financial Plaza
501 North Broadway
Saint Louis, Missouri 63102

RE: Contract Rates by Classification
Joplin Disaster Relief Project

Dear Mr. Farah,

HR Green, Inc. is pleased to be taking part in the ongoing disaster relief efforts in the City of Joplin, and pleased to be working with JACOBS to prioritize and complete construction documents for the "Yellow Area" of the tornado zone. Accordingly, we would like to present the contract rates to be used by HR Green staff for the first work order of the project:

Classification	Rate thru 12/31/14	Rate from 1/1/15 thru 12/31/15
Principal:	$225.00/hr	$232.00/hr
Senior Professional:	$175.00/hr	$181.00/hr
Professional:	$135.00/hr	$140.00/hr
Junior Professional:	$100.00/hr	$103.00/hr
Senior CAD Technician:	$105.00/hr	$108.00/hr
Technician:	$85.00/hr	$88.00/hr
Administrative:	$65.00/hr	$67.00/hr

Should you have any questions about the information contained herein, please don't hesitate to contact me directly at (636) 812.4209, by cell phone at (314) 974.0229, or by email at jdohrmann@hrgreen.com.

Sincerely,
HR GREEN INC.

Jason S. Dohrmann, PE
Regional Director – Transportation / St. Louis Site Leader

HRGreen.com
Phone 636.519.0990 Fax 636.519.0996 Toll Free 800.728.7805
16020 Swingley Ridge Road, Suite 205, St. Louis, Missouri 63017

APPENDIX D

Subconsultant – Survey

JACOBS®

Memorandum

501 North Broadway
St. Louis, MO 63102
Phone: 1.314.335.4000

Date 7/21/201

To Jaymie Mitchell

From Jeff Farah

Subject Joplin Yellow Corridor Surveying Scope

Mr. Mitchell, the following is a scope of work related to the Joplin Yellow Corridor Infrastructure Project that Jacobs would like you to provide a cost estimate on:

1.0 Projects:

Project A: *(Ditch Improvements between 26th/27th and Oliver/Cunningham*

The survey limits for this project are defined generally as a 60-foot corridor as shown in the exhibit. More specifically, the following better describe the areas labeled on the exhibit:

1. Topo should only provide enough detail to allow the design of sidewalks on both sides of Adele Avenue between 26th and the end of Adele. This includes picking up the ADA ramps and existing sidewalk at 26th, as well as any other information between the back of curb and the right of way line. The survey should be dense enough to produce cross sections at a 25-foot interval.

2. Topo should generally follow the limits as shown on the exhibit and pick up existing features from the centerline of 26th street southerly for 60-feet in the areas shown, and more liberally in the areas to the east of Adele and south of 26th Street. The survey in this area should be dense enough to produce cross sections at a 25-foot interval.

Topo should generally follow the limits shown on the exhibit, starting with the existing fence on the south property line of 2609 Oliver and generally holding the alignment of the fence easterly to its projected intersection with Adele. This imaginary line would be the northern limit of the 60-foot survey corridor between Oliver and Adele. In addition, survey should also pick up the ditch to the west of Oliver so that any improvements required upstream can be identified and designed. This area should be limited to approximately 50-feet upstream. The survey should be dense enough to produce cross sections at a 25-foot interval.

Project B: *(McCoy Ave / 23rd St.)*

The survey limits for this project are defined generally as a the corridors of McCoy Avenue between 26th Street and 23rd Street, 23rd Street between Maiden Lane and Cunningham Avenue and adjacent property owned by the Joplin Housing Authority as shown on the attached exhibit.

Information pertaining to the two open surface large drainage ditches east of McCoy shall be obtained.

Information pertaining to the existing box culvert beginning just north of 26th Street and ending south of 27th Street shall also be obtained. Surface information above this box culvert is not needed at this time, just information regarding it's flow path.

Project C: *(Willard Ave.)*

The survey limits for this project are defined generally as the roadway corridor of Willard Avenue from 26th Street to 20th Street. Enough information shall be provided to design sidewalks on both sides of this street.

Project D: *(Oliver Ave.)*

The survey limits for this project are defined generally as the roadway corridor of Oliver Avenue from 32nd Street to 26th Street. Enough information shall be provided to design sidewalks on both sides of this street.

2.0 Survey Requirements:

A. General:

1. The approximate area of coverage for each project is as described in the above sections which are shown on the attached site plans.

2. Previous surveys performed in this area should not be used or combined with the new topographic survey w/o prior approval from Jacobs.

3. The Surveyor of record shall be a Registered Land Surveyor registered in the State of Missouri.

4. Horizontal and vertical control shall be Missouri State Plane Coordinate System of 1983, West Zone.

5. The Surveyor shall perform all field work necessary to accurately determine the property line and existing physical conditions of the areas, set monument markers, establish benchmarks and ascertain and record on a "topo" map and boundary survey drawing the information and data as specified in this document.

B. Right of Way / Boundary Survey:

1. Property research for each parcel along the alignment, including property owner name, assessor's map number, deed book and page, and size of parcel (in square feet and acres) obtained from the Jasper County courthouse (or GIS system online).

2. Show and locate all existing easements of record for the property either from the record plat or recited in the landowner's conveyance deed. Surveyor will not be responsible for providing a title search for all affected properties; only easements showing up on subdivision plat will be shown on properties. If additional right of way is required for a parcel, the subsequent title

insurance / report and the labor required to append the property stripmap will be considered extra work and subject to a supplemental agreement.

3. Locate all existing property corners.

4. CAD file (AutoCAD format) with property line work and other information as described in the above item in the State Plane coordinate system.

5. All property lines shall have a bearing (to the nearest second) and a length (to the nearest hundredth of a foot) shown and the parcel shall close within acceptable tolerances governed by the State of Missouri. Any parcel bordering the proposed alignment will need bearings and distances on each line of that property as required by Jasper County for exhibit preparation

C. <u>Topographic Survey:</u>

1. Trees: Indicate the location, size and species of trees over 3 in. in trunk diameter and wooded areas where trees of smaller diameter are in profusion. Locate perimeter only of thickly wooded areas or scrub brush. Landscaping shall also be included (shrubs, bushes, mulched planting beds).

2. Provide benchmarks used (Benchmark to be adopted) or control points set, and any reference datum required for the project in an electronic file suitable for use in the plans. Control points shall be three-point tied to existing monuments outside of the proposed construction limits of the project and spaced no more than five hundred (500') feet apart. Also provided in the electronic file shall be a description of the coordinate system / zone used, geographic reference station used, coordinate values held for azimuth and direction, the grid factor, and the origin point for scaling. If possible, benchmarks from projects currently in design or construction within the yellow corridor shall be referenced and adopted.

3. Building Line: Note whether or not an "official building line" has been established and if so, its location with respect to streets and property lines. Indicate location, if any, of adjacent building lines.

4. Streets, Alleys and Parking Lots: The following data shall be indicated on the Survey. Drawings for all roads or lots adjacent to the site:

    a. Name and /or route number.
    b. Direction of traffic.
    c. Distance between curbs.
    d. Type, dimension and condition of paving, where no paving exists, so note.
    e. Location and dimension of existing paving striping, if any.
    f. Elevations along center lines at twenty-five foot (25') intervals and intersections.
    g. Edge of pavement and type of pavement.
    h. Spot elevation on paved parking lots at a grid interval of 25'± and at any obvious ridge points, low points and parking lot depressions.
    i. Driveway pavement, type and jointing.
    j. Raised islands (and type).
    k. Street signs.

l. Mailboxes.
m. Traffic signal bases, posts and pull boxes.
n. Subdivision monuments.
o. Right of way markers.

5. Sidewalks, Curbs and Gutters: The following data shall be indicated for all sidewalks, curbs, and gutters on or adjacent to the site (where no sidewalks, or curbs or gutters exist, the fact shall be noted):

    a. Whether it is curb only, or curb and gutter.
    b. Elevations of sidewalks along the edge nearest to the site at twenty-five foot (25') intervals, at corners, at points of curvature and points of slope change.
    c. Elevations of tops of curbs and flow lines of gutters at twenty-five foot (25') intervals, at corners, at points of curvature and points off slope change.
    d. Edges of sidewalk and sidewalk type.
    e. Sidewalk widths and elevations.
    f. Curb ramps including truncated domes and landing areas at top of ramps.
    g. Crosswalk markings and tinted / patterned pavement treatment at crosswalks.

6. Utilities: The following information pertaining to utilities at the site shall be shown and noted on the Survey Drawing:

    a. Electric & Telephone: Location of available electric and telephone service. Location of electric and telephone lines, poles and manholes. Location of street lights, traffic signal equipment and utility boxes.
    b. Water: Location of water mains, hydrants, valves and manholes. Indicate size of water mains.
    c. Gas: Location and size of gas mains including type, pressure, and source of gas supply.
    d. Sewers: Location, size, direction of flow, rate of fall, and type of material of sanitary, storm or combined sewer mains. Indicate whether public or private and whether the use is exclusively for sanitary waste or storm drainage. Indicate elevations of structure top, flow line, location of manholes and elevations of all "in" and "out" inverts. Indicate dimensions of existing storm drain out fall protection (riprap). When a sanitary, storm, or combined sewer manhole falls within the limits of survey, the inverts and top elevation of the next downstream and/or upstream manhole "outside" the limits of the survey shall also be obtained.
    e. Irrigation Systems: Location or sprinkler heads, control boxes and backflow preventers.

7. Elevations and Contour Lines: Elevations of the site shall be taken on a grid suitable to the topography and size of the site and shall include elevations twenty-five feet (25') outside of the property boundary or as indicated.

    a. Contour lines shall be drawn at intervals that accurately reflect the existing topography of the site but in no case more than one foot (1') intervals unless otherwise approved by Jacobs.

b. Spot elevations shall be provided specifically in areas to clearly define the site topography (e.g. at swales, ridges, valleys, etc.). Spot elevations shall be to the nearest .01 foot.
c. Elevations shall be marked on contour lines at regular intervals.
d. Where concrete or grassed ditches exist, spot elevations shall be provided at 50 feet intervals. At a minimum, the low point and approximate top of slope of the swale shall be included at each interval.
e. All ridges or valleys or any other breaklines necessary for an accurate Digital Terrain Model (DTM) of the project, and all other pertinent existing features which may affect the proposed design

D. Deliverables:

1. The Survey Drawing(s) shall contain a signed certification by the surveyor that the survey of the described property was made under its supervision and that the data shown thereon is true and correct.

2. The Survey Drawing shall be prepared in a format compatible with Bentley MicroStation V8i. Survey features shall be placed on separate layers per CAD standards set by the Missouri Department of Transportation (MoDOT). The layering system shall to make easily manageable to turn layers on and off in drawings.

3. The Survey Drawing shall be prepared at a scale of not less than 1" = 40', except when authorized otherwise by Jacobs.

4. The Drawing(s) shall be of such material (bond) and shall be so delineated that will assure quality reproduction of easily readable prints. The Surveyor shall submit three (3) hard copies of the Drawings.

5. The following electronic files on a CD (or by email):

    a. Separate files containing the topographic survey, right of way survey and digital terrain model information for the project in MicroStation format.
    b. The digital terrain model file shall contain the information (e.g. 3D elements, tags, breaklines, random points, etc.) necessary to generate a digital terrain model (DTM). The file shall also contain the surface triangles used by the surveyor to produce the contours shown on the drawings. This DTM data shall be provided on separate layers in the MicroStation file.
    c. Electronic file containing reference ties, benchmarks, control points, etc. as described above.
    d. ASCII file containing points for project.

6. Paper copies of all deeds and maps obtained for use for the project.

7. Copies of the pages in the field book pertaining to the job (benchmark/level loop calculations, reference tie drawings, etc.).


S-Mckinley-Ave
Roosevelt-Ave
S-Willard-Ave
W-25th-St
S-Ingram-Ave
W-27th-St
S-Oliver-Ave
Survey Area - Project A
Approx. 13 Acres
1986
Imagery Date: 1/25/2014


W-24st-St-Terrace
Survey Area - Project B
Approx. 20 Acres
S-Sharon-Ave
S-Spencer-Ave
S-Tyler-Ave
W-25th-St
Need to
understand where
this large culvert
outlets.
Large Culvert
Outlets here
Google earth
1996


Survey Street for Sidewalk Construction
Survey Area - Project C Approx. 5 Acres
W 21st St Terrace
W 25th St
S Ingram Ave
S McCoy Ave
Google earth
Imagery Date: 1/25/2014

APPENDIX E

Subconsultant – Geotechnical

JACOBS®

Memorandum

501 North Broadway
St. Louis, MO 63102
Phone: 1.314.335.4000

Date 7/22/201

To Brandon Parrish, P.E.

From Jeff Farah, P.E.

Subject Joplin Yellow Corridor – Action Plan #1, phase 1, Geotech Scope

Mr. Mitchell, the following is a scope of work related to the Joplin Yellow Corridor Infrastructure Project that Jacobs would like you to provide a cost estimate on:

1.0 Projects:

Project A: *(Ditch Improvements between 26th/27th and Oliver/Cunningham*

The survey limits for this project are defined generally as a 60-foot corridor as shown in the exhibit. More specifically, the following better describe the areas labeled on the exhibit:

1. Topo should only provide enough detail to allow the design of sidewalks on both sides of Adele Avenue between 26th and the end of Adele. This includes picking up the ADA ramps and existing sidewalk at 26th, as well as any other information between the back of curb and the right of way line. The survey should be dense enough to produce cross sections at a 25-foot interval.

2. Topo should generally follow the limits as shown on the exhibit and pick up existing features from the centerline of 26th street southerly for 60-feet in the areas shown, and more liberally in the areas to the east of Adele and south of 26th Street. The survey in this area should be dense enough to produce cross sections at a 25-foot interval.

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Project B: *(McCoy Ave / 23rd St.)*

The survey limits for this project are defined generally as a the corridors of McCoy Avenue between 26th Street and 23rd Street, 23rd Street between Maiden Lane and Cunningham Avenue and adjacent property owned by the Joplin Housing Authority as shown on the attached exhibit.

Information pertaining to the two open surface large drainage ditches east of McCoy shall be obtained.

Information pertaining to the existing box culvert beginning just north of 26th Street and ending south of 27th Street shall also be obtained. Surface information above this box culvert is not needed at this time, just information regarding it's flow path.

Project C: *(Willard Ave.)*

The survey limits for this project are defined generally as the roadway corridor of Willard Avenue from 26th Street to 20th Street. Enough information shall be provided to design sidewalks on both sides of this street.

Project D: *(Oliver Ave.)*

The survey limits for this project are defined generally as the roadway corridor of Oliver Avenue from 32nd Street to 26th Street. Enough information shall be provided to design sidewalks on both sides of this street.

2.0 Survey Requiements:

A. General:

1. The approximate area of coverage for each project is as described in the above sections which are shown on the attached site plans.

2. Previous surveys performed in this area should not be used or combined with the new topographic survey w/o prior approval from Jacobs.

3. The Surveyor of record shall be a Registered Land Surveyor registered in the State of Missouri.

4. Horizontal and vertical control shall be Missouri State Plane Coordinate System of 1983, West Zone.

5. The Surveyor shall perform all field work necessary to accurately determine the property line and existing physical conditions of the areas, set monument markers, establish benchmarks and ascertain and record on a "topo" map and boundary survey drawing the information and data as specified in this document.

B. Right of Way / Boundary Survey:

1. Property research for each parcel along the alignment, including property owner name, assessor's map number, deed book and page, and size of parcel (in square feet and acres) obtained from the Jasper County courthouse (or GIS system online).

2. Show and locate all existing easements of record for the property either from the record plat or recited in the landowner's conveyance deed. Surveyor will not be responsible for providing a title search for all affected properties; only easements showing up on subdivision plat will be shown on properties. If additional right of way is required for a parcel, the subsequent title

insurance / report and the labor required to append the property stripmap will be considered extra work and subject to a supplemental agreement.

3. Locate all existing property corners.

4. CAD file (AutoCAD format) with property line work and other information as described in the above item in the State Plane coordinate system.

5. All property lines shall have a bearing (to the nearest second) and a length (to the nearest hundredth of a foot) shown and the parcel shall close within acceptable tolerances governed by the State of Missouri. Any parcel bordering the proposed alignment will need bearings and distances on each line of that property as required by Jasper County for exhibit preparation

C. <u>Topographic Survey:</u>

1. Trees: Indicate the location, size and species of trees over 3 in. in trunk diameter and wooded areas where trees of smaller diameter are in profusion. Locate perimeter only of thickly wooded areas or scrub brush. Landscaping shall also be included (shrubs, bushes, mulched planting beds).

2. Provide benchmarks used (Benchmark to be adopted) or control points set, and any reference datum required for the project in an electronic file suitable for use in the plans. Control points shall be three-point tied to existing monuments outside of the proposed construction limits of the project and spaced no more than five hundred (500') feet apart. Also provided in the electronic file shall be a description of the coordinate system / zone used, geographic reference station used, coordinate values held for azimuth and direction, the grid factor, and the origin point for scaling. If possible, benchmarks from projects currently in design or construction within the yellow corridor shall be referenced and adopted.

3. Building Line: Note whether or not an "official building line" has been established and if so, its location with respect to streets and property lines. Indicate location, if any, of adjacent building lines.

4. Streets, Alleys and Parking Lots: The following data shall be indicated on the Survey. Drawings for all roads or lots adjacent to the site:

    a. Name and /or route number.
    b. Direction of traffic.
    c. Distance between curbs.
    d. Type, dimension and condition of paving, where no paving exists, so note.
    e. Location and dimension of existing paving striping, if any.
    f. Elevations along center lines at twenty-five foot (25') intervals and intersections.
    g. Edge of pavement and type of pavement.
    h. Spot elevation on paved parking lots at a grid interval of 25'± and at any obvious ridge points, low points and parking lot depressions.
    i. Driveway pavement, type and jointing.
    j. Raised islands (and type).
    k. Street signs.

l. Mailboxes.
m. Traffic signal bases, posts and pull boxes.
n. Subdivision monuments.
o. Right of way markers.

5. Sidewalks, Curbs and Gutters: The following data shall be indicated for all sidewalks, curbs, and gutters on or adjacent to the site (where no sidewalks, or curbs or gutters exist, the fact shall be noted):

    a. Whether it is curb only, or curb and gutter.
    b. Elevations of sidewalks along the edge nearest to the site at twenty-five foot (25') intervals, at corners, at points of curvature and points of slope change.
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    a. Electric & Telephone: Location of available electric and telephone service. Location of electric and telephone lines, poles and manholes. Location of street lights, traffic signal equipment and utility boxes.
    b. Water: Location of water mains, hydrants, valves and manholes. Indicate size of water mains.
    c. Gas: Location and size of gas mains including type, pressure, and source of gas supply.
    d. Sewers: Location, size, direction of flow, rate of fall, and type of material of sanitary, storm or combined sewer mains. Indicate whether public or private and whether the use is exclusively for sanitary waste or storm drainage. Indicate elevations of structure top, flow line, location of manholes and elevations of all "in" and "out" inverts. Indicate dimensions of existing storm drain out fall protection (riprap). When a sanitary, storm, or combined sewer manhole falls within the limits of survey, the inverts and top elevation of the next downstream and/or upstream manhole "outside" the limits of the survey shall also be obtained.
    e. Irrigation Systems: Location or sprinkler heads, control boxes and backflow preventers.

7. Elevations and Contour Lines: Elevations of the site shall be taken on a grid suitable to the topography and size of the site and shall include elevations twenty-five feet (25') outside of the property boundary or as indicated.

    a. Contour lines shall be drawn at intervals that accurately reflect the existing topography of the site but in no case more than one foot (1') intervals unless otherwise approved by Jacobs.

b. Spot elevations shall be provided specifically in areas to clearly define the site topography (e.g. at swales, ridges, valleys, etc.). Spot elevations shall be to the nearest .01 foot.
c. Elevations shall be marked on contour lines at regular intervals.
d. Where concrete or grassed ditches exist, spot elevations shall be provided at 50 feet intervals. At a minimum, the low point and approximate top of slope of the swale shall be included at each interval.
e. All ridges or valleys or any other breaklines necessary for an accurate Digital Terrain Model (DTM) of the project, and all other pertinent existing features which may affect the proposed design

D. Deliverables:

1. The Survey Drawing(s) shall contain a signed certification by the surveyor that the survey of the described property was made under its supervision and that the data shown thereon is true and correct.

2. The Survey Drawing shall be prepared in a format compatible with Bentley MicroStation V8i. Survey features shall be placed on separate layers per CAD standards set by the Missouri Department of Transportation (MoDOT). The layering system shall to make easily manageable to turn layers on and off in drawings.

3. The Survey Drawing shall be prepared at a scale of not less than 1" = 40', except when authorized otherwise by Jacobs.

4. The Drawing(s) shall be of such material (bond) and shall be so delineated that will assure quality reproduction of easily readable prints. The Surveyor shall submit three (3) hard copies of the Drawings.

5. The following electronic files on a CD (or by email):

    a. Separate files containing the topographic survey, right of way survey and digital terrain model information for the project in MicroStation format.
    b. The digital terrain model file shall contain the information (e.g. 3D elements, tags, breaklines, random points, etc.) necessary to generate a digital terrain model (DTM). The file shall also contain the surface triangles used by the surveyor to produce the contours shown on the drawings. This DTM data shall be provided on separate layers in the MicroStation file.
    c. Electronic file containing reference ties, benchmarks, control points, etc. as described above.
    d. ASCII file containing points for project.

6. Paper copies of all deeds and maps obtained for use for the project.

7. Copies of the pages in the field book pertaining to the job (benchmark/level loop calculations, reference tie drawings, etc.).


Boring Location (Typ.)
Project A
(2 Total)
S-Nicholas-Ave
Roosevelt-Ave
S-W-Lane-Ave
W-25th-St
S-Oliver-Ave
S-Sheridan-Ave
S-Bellingham-Ave
Google earth
1998
Imagery Date: 1/25/2014


S Wallace Ave
S Harrison Ave
S Golden Ave
S Wilcox Ave
W 25th St
S Mt. Carmel Way
S Mt. Goyer Ave
Boring Location (Typ.)
Project B
(7 Total)

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 08/11/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER LIC #0437153 1-212-948-1306 Marsh Risk & Insurance Services CIRTS_Support@internal.jacobs.com 777 S. Figueroa Street Los Angeles, CA 90017-5822 Fax to: 1-212-948-1306	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS: PRODUCER CUSTOMER ID #:
INSURED Jacobs Engineering Group Inc. 155 North Lake Avenue, 9th Floor Pasadena, CA 91101	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: ACE AMER INS CO — 22667 INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** 41020722 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY			HDO G25529030	07/01/14	07/01/15	EACH OCCURRENCE	$ 2,687,594
	[X] COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 250,000
	[ ] CLAIMS-MADE [X] OCCUR						MED EXP (Any one person)	$ 5,000
	[X] CONTRACTUAL LIABILITY						PERSONAL & ADV INJURY	$ 2,687,594
	[ ]						GENERAL AGGREGATE	$ 2,687,594
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$ 2,687,594
	[ ] POLICY [ ] PRO-JECT [ ] LOC							$
A	AUTOMOBILE LIABILITY			ISA H08635651	07/01/14	07/01/15	COMBINED SINGLE LIMIT (Ea accident)	$ 2,687,594
	[X] ANY AUTO						BODILY INJURY (Per person)	$
	[ ] ALL OWNED AUTOS						BODILY INJURY (Per accident)	$
	[ ] SCHEDULED AUTOS						PROPERTY DAMAGE (Per accident)	$
	[ ] HIRED AUTOS							$
	[ ] NON-OWNED AUTOS							$
	[ ]							
	[ ] UMBRELLA LIAB [ ] OCCUR						EACH OCCURRENCE	$
	[ ] EXCESS LIAB [ ] CLAIMS-MADE						AGGREGATE	$
	[ ] DEDUCTIBLE							$
	[ ] RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			WCU C47888335 (LA, OH, TX)	07/01/14	07/01/15	[X] WC STATU-TORY LIMITS [ ] OTH-ER	
A	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [N] (Mandatory in NH)	N/A		WLR C47888281 (AOS)	07/01/14	07/01/15	E.L. EACH ACCIDENT	$ 1,000,000
A	If yes, describe under DESCRIPTION OF OPERATIONS below			SCF C47888293 (WI)	07/01/14	07/01/15	E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
A	PROFESSIONAL LIABILITY "CLAIMS MADE"			EON G21655065 005	07/01/14	07/01/15	PER CLAIM/PER AGG AGGREGATE DEFENSE INCLUDED	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

PROJECT MGR: Jeff Farah. CONTRACT MGR: Frank Joyce. SENIOR CONTRACT MGR: Glenn Young. RE: CITY OF JOPLIN, CDBG-DR2 INFRASTRUCTURE IMPROVEMENTS PROJECT. Civil engineering design for storm water, sidewalks and street improvements. CONTRACT NUMBER: Work Authorization Number JCB-DR2AP1-1. CONTRACT END DATE: January 2016. PROJECT NUMBER: C1X33300. PROPOSAL NUMBER: CLS000CM. SECTOR: Public. *$2,000,000 SIR FOR STATES OF: LA, OH, TX. City of Joplin is added as an additional insured for general liability & auto liability as respects the negligence of the insured in the performance of insured's services to cert holder under contract for captioned work. Coverage is primary and certificate holder's insurance is excess and noncontributory; *THE TERMS, CONDITIONS, AND LIMITS PROVIDED UNDER THIS CERTIFICATE OF INSURANC

CERTIFICATE HOLDER

CITY OF JOPLIN, MISSOURI

602 S. MAIN STREET

Joplin, MO 64801

USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



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All other terms and conditions of the Policy remain unchanged.

Authorized Representative

All other terms and conditions of the Policy remain unchanged.

Authorized Representative

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

Named Insured **Jacobs Engineering Group Inc.**			Endorsement Number **22**
Policy Symbol **EON**	Policy Number **G21655065 005**	Policy Period **07/01/2014 to 07/01/2015**	Effective Date of Endorsement **07/01/2014**
Issued By (Name of Insurance Company) **ACE American Insurance Company**			

TERMINATION AMENDED ENDORSEMENT

A. If the Insurer cancels the Policy prior to its expiration date by notice to the Named Insured for any reason other than nonpayment of premium, the Insurer will endeavor, as set out below, to send written notice of cancellation, via such electronic notification as the Insurer determines, to the persons or organizations listed in the schedule that the Named Insured or the Named Insured's representative provide or have provided to the Insurer (the Schedule). The Named Insured or the Named Insured's representative must provide the Insurer with the e-mail address of such persons or organizations, and the Insurer will utilize such e-mail address that the Named Insured or the Named Insured's representative provided to the Insurer on such Schedule.

B. The Schedule must be initially provided to the Insurer within 30 days after:

   1. The beginning of the Policy period, if this endorsement is effective as of such date; or

   ii. This endorsement has been added to the Policy, if this endorsement is effective after the Policy Period commences.

C. The Schedule must be in an electronic format that is acceptable to the Insurer; and must be accurate.

D. The Insurer's delivery of the notification as described in Paragraph A.of this endorsement will be based on the most recent Schedule in the Insurer's records as of the date the notice of cancellation is mailed or delivered to the Named Insured.

E. The Insurer will endeavor to send such notice to the e-mail address corresponding to each person or organization indicated in the Schedule at least 30 days prior to the cancellation date applicable to the Policy.

F. The notice referenced in this endorsement is intended only to be a courtesy notification to the person(s) or organization(s) named in the Schedule in the event of a pending cancellation of coverage. The Insurer has no legal obligation of any kind to any such person(s) or organization(s). The Insurer's failure to provide advance notification of cancellation to the person(s) or organization(s) shown in the Schedule shall impose no obligation or liability of any kind upon the Insurer, our agents or representatives, will not extend any Policy cancellation date and will not negate any cancellation of the Policy.

G. The Insurer is not responsible for verifying any information provided to the Insurer in any Schedule, nor is the Insurer responsible for any incorrect information that the Named Insured or the Named Insured's representative provide to the Insurer. If the Named Insured or the Named Insured's representative does not provide the Insurer with a Schedule, the Insurer has no responsibility for taking any action under this endorsement. In addition, if neither the Named Insured nor the Named Insured's representative provides the Insurer with e-mail address information with respect to a particular person or organization, then the Insurer shall have no responsibility for taking action with regard to such person or entity under this endorsement.

SUPPLEMENT TO CERTIFICATE OF INSURANCE

DATE
08/11/2014

NAME OF INSURED: Jacobs Engineering Group Inc.

WILL NOT EXCEED OR BROADEN IN ANY WAY THE TERMS, CONDITIONS, AND LIMITS AGREED TO UNDER THE APPLICABLE CONTRACT.*