AGREEMENT
Between
THE SHELBY COUNTY GOVERNMENT
And
KIMLEY-HORN & ASSOCIATES, INC.

THIS Agreement, made and entered into this 10th day of March, 2003 by and between the Shelby County Government, party of the first part, herein referred to as "COUNTY" and Kimley-Horn & Associates, Inc. whose office is located at 6000 Poplar Avenue, Suite 201, Memphis, TN 38119, and whose Federal I.D. number is 56-0885615, party of the second part, herein referred to as "Consultant", is for professional services required.

WITNESSETH:

WHEREAS, the COUNTY desires to employ the Consultant to provide the COUNTY with the preparation of plans for the Congestion Management Program Design, referred to as the "Project"; and

WHEREAS, such services are of a distinct professional and non-competitive nature; and

WHEREAS, the COUNTY is authorized under the Shelby County Charter to enter into this Agreement; and

WHEREAS, the Consultant has the personnel, professional associates, experience and abilities required to assist the COUNTY in furtherance of the Project.

NOW, THEREFORE, in consideration of these premises and of the mutual covenants herein set forth, it is agreed by and between the parties hereto as follows:

The COUNTY agrees to employ the Consultant and the Consultant agrees to provide the required professional engineering services in regard to the Project. The COUNTY agrees to pay the Consultant compensation for having rendered such services, as described herein. The Consultant agrees and covenants that all work under this Agreement shall be performed under the direct supervision of the Consultant by professional engineers and architects with experience in the type of work contemplated, and that all work will be otherwise performed in accordance with this Agreement.

SECTION II. CONSULTANT'S SERVICES

The professional services to be provided in connection with the "Project" will include those items listed in the attached Consultant's proposal, incorporated herein as ATTACHMENT A.

SECTION III. TIME OF BEGINNING AND COMPLETION

The Consultant agrees to begin work on the Project within five (5) calendar days after receiving written authorization to proceed with phases of the Project as authorized by the COUNTY through its County Engineer. The Consultant agrees to prosecute each of its assignments in an orderly and expeditious manner, upon a schedule mutually agreed upon between Consultant and the COUNTY Engineer.

The term of this Agreement shall be 1095 days from the date of execution or until Project completion whichever comes first.

SECTION IV. PAYMENT AND CHANGES

For the satisfactory performance of all services, and including the assumption of all responsibilities and obligations contained in and throughout this Agreement, the COUNTY

agrees to pay, and the Consultant agrees to accept, as full compensation, fees as outlined in Attachment A hereinafter.

A. COMPENSATION

For satisfactory performance of services rendered in accordance with the terms of this Agreement, the COUNTY shall reimburse the Consultant on a monthly basis, based on invoices and progress reports submitted by the Consultant.

It is agreed and understood by both parties that the ceiling amount under this Agreement is One Million, Eight Hundred Eighty Eight Thousand, Six Hundred Sixty Six Dollars and Thirty-Two Cents ($1,888,666.32) unless modified in writing by the COUNTY and accepted by the Consultant.

B. METHOD OF PAYMENT

The Consultant shall submit itemized monthly invoices to the COUNTY, which shall contain statements of progress made. The invoices shall reflect the total previous payments. The COUNTY shall pay the amount which is due and payable within thirty (30) days of its approval of each invoice. The making of any partial payments by the COUNTY and the receipt thereof by the Consultant shall not constitute acceptance of the Project or of any portion thereof, and shall not lessen any obligation of the Consultant under this Agreement, including, but not limited to replacing or correcting work which does not conform to this Agreement, though the character of such work may not have been apparent or detected at the time such payment was made.

SECTION V. MISCELLANEOUS PROVISIONS

Consultant and COUNTY mutually agree as follows:

1. CONTROL

All services by the Consultant will be performed in a manner satisfactory to the COUNTY, and in accordance with the generally accepted business, engineering and architectural practices and procedures of the COUNTY.

2. CONSULTANT'S PERSONNEL

The Consultant certifies that it presently has adequate qualified personnel to perform all services required under this Agreement. All work under this Agreement will be supervised by the Consultant. The Consultant further certifies that all of its employees assigned to serve the COUNTY have such knowledge and experience as required to perform the duties assigned to them. Any employee of the Consultant who, in the opinion of the COUNTY, is incompetent, or whose conduct becomes detrimental to the work, shall immediately be removed from association with services under this Agreement.

3. INDEPENDENT STATUS

Nothing in this Agreement shall be deemed to represent that the Consultant, or any of the Consultant's employees or agents, are the agents, representatives, or employees of the COUNTY. The Consultant will be an independent contractor over the details and the means for performing its obligations under this Agreement. Anything in this Agreement which may appear to give the COUNTY the right to direct the Consultant as to the details of the performance of its obligations under this Agreement or to exercise a measure of control over the Consultant is solely for purposes of compliance with local, state, and federal regulations and means that the Consultant will follow the desires of the COUNTY only as to the intended results of the scope of this Agreement.

It is further expressly agreed and understood by the Consultant that neither it nor its employees or agents are entitled to any benefits which normally accrue to employees of the COUNTY; that the Consultant has been retained by the COUNTY to perform the services specified herein (not hired) and that the remuneration specified herein is considered fees for

services performed (not wages) and that invoices submitted to the COUNTY by the Consultant for services performed shall be on the Consultant's letterhead.

4. DELAYS AND EXTENSIONS

Time is of the essence in this Agreement. Any and all reasonable extensions of promised times, including but not limited to those caused by unavoidable delays shall be mutually agreed to by the parties and approved in writing by COUNTY. Consultant will be given credit and extension of time for delays beyond his control, or for delays caused by tardy approval of work in progress by various official agencies, but no additional compensation shall be allowed for such delays.

5. AMENDMENTS

This Agreement may be modified or amended, only if the amendment is made in writing and is signed by both parties. Such modification shall be effective only after receipt by Consultant of COUNTY'S Notice to Proceed.

6. TERMINATION OR ABANDONMENT

It shall be cause for the immediate termination of this Agreement if, after its execution, the COUNTY determines that either the Contractor or any of its principals, partners or corporate officers, if a corporation, including the corporation itself, has plead nolo contendere, or has plead or been found guilty of a criminal violation, whether state or federal, involving, but not limited to, governmental sales or purchases, including but not limited to the rigging of bids, price fixing, or any other collusive and illegal activity pertaining to bidding and governmental contracting.

It shall be cause for the immediate termination of this Agreement if, after its execution, the COUNTY determines that the Consultant subcontracted, assigned, delegated, or transferred its rights, obligations or interest under this Contract without the COUNTY'S consent or approval.

It shall be cause for the immediate termination of this Agreement if, after its execution, the COUNTY determines that the Consultant files bankruptcy, becomes insolvent or makes an assignment for the benefit of creditors, or a receiver, or similar officer is appointed to take charge of all or part of the Consultant's assets.

The COUNTY may terminate the Agreement upon five (5) days written notice by the COUNTY or its authorized agent to the Consultant for Consultant's failure to provide the services specified under this Agreement.

This Agreement may be terminated by either party by giving thirty (30) days written notice to the other, before the effective date of termination. In the event of such termination, the Consultant shall be entitled to receive just and equitable compensation for any satisfactory work performed as of the termination date; however, the Consultant shall not be reimbursed for any anticipatory profits that have not been earned as of the date of termination.

All work accomplished by the Consultant prior to the date of such termination shall be recorded and tangible work documents shall be transferred to and become the sole property of the COUNTY prior to payment for services rendered.

Notwithstanding the above, the Consultant shall not be relieved of liability to the COUNTY for damages sustained by the COUNTY by virtue of any breach of the Agreement by the Consultant and the COUNTY may withhold any payments to the Consultant for the purpose of setoff until such time as the exact amount of damages due the COUNTY from the Consultant determined.

7. SUBCONTRACTING, ASSIGNMENT OR TRANSFER

Any subcontracting, assignment, delegation or transfer of all or part of the rights, responsibilities, or interest of either party to this Agreement is prohibited unless by written consent of the other party. No subcontracting, assignment, delegation or transfer shall relieve the Consultant from performance of its duties under this agreement. The COUNTY shall not be responsible for the fulfillment of the Consultant's obligations to its transferors or subcontractors.

Upon request of the other party, the subcontracting, assigning, delegating or transferring party shall provide all documents evidencing the assignment.

8. CONFLICT OF INTEREST

The Consultant covenants that it has not public or private interest, and will not acquire directly or indirectly any interest which would conflict in any manner with the performance of its services. The Consultant warrants that no part of the total contract amount provided herein shall be paid directly or indirectly to any officer or employee of the COUNTY as wages, compensation, or gifts in exchange for acting as officer, agent, employee, subcontractor or consultant to the Consultant in connection with any work contemplated or performed relative to this agreement

9. COVENANT AGAINST CONTINGENT FEES

The Consultant warrants that it has not employed or retained any company or person other than a bona fide employee working solely for the Consultant, to solicit or secure this Agreement, and that it has not paid or agreed to pay any company or person, other than a bona fide employee working solely for the Consultant any fee, commission, percentage, brokerage fee, gift, or any other consideration contingent upon or resulting from the award or making of this Agreement. For breach of violation of this warranty, the COUNTY will have the right to recover the full amount of such fee, commission, percentage, brokerage fee, gift, or other consideration.

10. EMPLOYMENT OF COUNTY WORKERS

The Consultant will not engage, on a full or part-time, or other basis during the period of this Agreement, any professional or technical personnel who are or have been at any time during the period of the Agreement in the employ of COUNTY.

11. ACCESS TO RECORDS AND REPORTS

During all phases of the work and services to be provided under this Agreement, Consultant agrees to permit duly authorized agents and employees of the COUNTY to enter Consultant's offices for the purpose of inspections, reviews and audits during normal working hours. Reviews may also be accomplished at meetings that are arranged at mutually agreeable times and places. The Consultant will maintain all books, documents, papers, accounting records, and other evidence pertaining to the fee paid under this Agreement and make such materials available at their offices at all reasonable times during the period of the Agreement and for three (3) years from the date of payment under the Agreement for inspection by the COUNTY or by any other governmental entity or agency participating in the funding of this Agreement, or any authorized agents thereof; copies of said records to be furnished if requested.

Consultant shall prepare and submit quarterly reports of its activities, funded under this contract to the originating department and Contracts Administration. The reports shall include an itemization of the use of the COUNTY's funds, inclusive of specific services delivered. Any such reports provided to the COUNTY shall be prepared with the understanding that the COUNTY may make such reports available to the public. The monthly reports and all books of account and financial records that are specific to the work performed in accordance with this contract may be subject to audit by the Director of the Division of Administration and Finance. The COUNTY shall have the right to withhold future disbursement of funds under this contract, other existing contracts and future contracts until the requirements of this provision have been met.

12. ARBITRATION

Any dispute concerning a question of fact in connection with the work not disposed of by agreement between the Consultant and the COUNTY will be referred to the Shelby County Contract Administrator or his/her duly authorized representative, whose decision regarding same will be final.

13. RESPONSIBILITIES FOR CLAIMS AND LIABILITIES

The Consultant shall indemnify, defend, save and hold harmless COUNTY, its elected officials, officers, agents and employees, assigns, and instrumentalties from and against any and all claims, liability, loses or damages-including but not limited to Title VII and 42 USC 1983 prohibited acts-arising out of or resulting from any wrongful conduct; whether actions or omissions; whether intentional, unintentional, or negligent; whether legal or illegal; or other wise that occur in connection with or in breach of this Agreement or in the performance of the duties hereunder, whether performed by the Consultant or its subcontractors, agents, employees or assigns. This indemnification shall survive the termination or conclusion of this Agreement.

The Consultant expressly understands and agrees that any insurance protection required by this Agreement or otherwise provided by the Consultant shall in no way limit the responsibility to indemnify, defend, save and hold harmless the County or its elected officials, officers, employees, agents, assigns, and instrumentalities as herein provided.

The COUNTY has no obligation to provide legal counsel or defense to the Consultant or its subcontractors in the event that a suit, claim, or action of any character is brought by any person not party to this Agreement against the Consultant as a result or relating to the Consultant's obligations under this Agreement.

The COUNTY has no obligation for the payment of any judgments relating to the settlement of any claims against the Consultant or its subcontractors as a result of or relating to the Consultant's obligations under this Agreement.

Except as expressly provided herein, the COUNTY has no obligation for the payment of any judgment or the settlement of any claims against the Consultant as a result of or relating to obligations under this agreeement.

The Consultant shall immediately notify the COUNTY, c/o Shelby County Government, Contracts Administration, 160 N. Main St., Suite 1109, Memphis, Tennessee, 38103, of any claim or suit made or filed against the Consultant or its subcontractors regarding any matter resulting from or relating to the Consultant's obligations under the Agreement, and will cooperate, assist, and consult with the COUNTY in the defense or investigation thereof.

14. GENERAL COMPLIANCE WITH LAWS

If required, the Consultant certifies that it is qualified or will take steps necessary to qualify to do business in the state of Tennessee and that it will take such action as, from time to time, may be necessary to remain so qualified and it shall obtain, at it expense all licenses, permits, insurance, and governmental approvals, if any, necessary to the performance of its obligations under this agreement.

The consultant certifies that it is qualified to do business in the State of Tennessee and that it will take such action as, from time to time, may be necessary to remain so qualified and it shall obtain, at its expense all licenses, permits, insurance, and governmental approvals, if any, necessary to the performance of its obligations under this Agreement.

The Consultant is assumed to be familiar with and agrees that at all times it will observe and comply with all federal, state, and local laws, ordinances, and regulations in any manner affecting the conduct of the work. The preceding shall include, but is not limited to, compliance with all Equal Employment Opportunity laws, the Fair Labor Standards Act,

Occupational Safety and Health Administration (OSHA) requirements, and the Americans with Disabilities Act (ADA).

This Agreement will be interpreted in accordance with the laws of the State of Tennessee. By execution of this Agreement the Consultant agrees that all actions, whether sounding in Agreement or in tort, relating to the validity, construction, interpretation and enforcement of this Agreement will be instituted and litigated in the courts of the State of

Tennessee, located in Shelby County, Tennessee, and in no other. In accordance herewith, the parties to this Agreement submit to the jurisdiction of the courts of the State of Tennessee located in Shelby County Tennessee.

15. NON-DISCRIMINATION

The Consultant hereby agrees, warrants, and assures that no person shall be excluded from participation in be denied benefits of, or be otherwise subjected to discrimination in the performance of this Agreement or in the employment practices of the Consultant on the grounds of handicap and/or disability, age, race, color, religion, sex, nation origin, or any other classification protected by Federal, Tennessee State constitutional, or statutory law. The Consultant shall upon request show proof of such nondiscrimination and shall post in conspicuous places available to all employees and applicants notices of nondiscrimination.

16. ENTIRE AGREEMENT

This Agreement contains the entire agreement of the parties and there are no other promises or conditions in any other agreement whether oral or written. This Agreement supersedes any prior written or oral agreements between the parties as to the Project.

17. SEVERABILITY

If any provision of this Agreement is held to be unlawful, invalid or unenforceable under any present or future laws, such provision shall be fully severable; and this Agreement shall then be construed and enforced as if such unlawful, invalid or unenforceable provision had not been a part hereof. The remaining provisions of this Agreement shall remain in full force and effect and shall not be affected by such unlawful, invalid or unenforceable provision or by its severance here from. Furthermore, in lieu of such unlawful, invalid, or unenforceable provision, there shall be added automatically as a part of this Agreement a provision as similar in terms to such unlawful, invalid or unenforceable provision as may be possible, and be legal, valid and enforceable.

18. WAIVER OF CONTRACTUAL RIGHTS

No waiver of any term, condition, default, or breach of this Agreement, or of any document executed pursuant hereto, shall be effective unless in writing and executed by the party making such waiver; and no such waiver shall operate as a waiver of either (a) such term, condition, default, or breach on any other occasion or (b) any other term, condition, default, or breach of this Agreement or of such document. No delay or failure to enforce any provision in this Agreement or any document executed pursuant hereto shall operate as a waiver of such provision or any other provision herein or in any document related hereto. The enforcement by any party of any right or remedy it may have under this Agreement or applicable law shall not be deemed an election of remedies or otherwise prevent such party from enforcement of one or more other remedies at any time.

19. MATTERS TO BE DISREGARDED

The titles of the several sections, subsections, and paragraphs set forth in this Agreement are inserted for convenience of reference only and shall be disregarded in construing or interpreting any of the provisions of this Agreement.

20. SUBJECT TO FUNDING

This Agreement is subject to annual appropriations of funds by the Shelby COUNTY Government. In the event Shelby County Government does not appropriate sufficient funds for any of its fiscal period during the term hereof, then this Agreement will be terminated. In the event of such termination, the Consultant shall be entitled to receive just and equitable compensation for any satisfactory work performed as of the termination date.

21. CONTRACTING WITH SMALL AND MINORITY FIRMS AND WOMEN'S BUSINESS ENTERPRISE

The Consultant shall take affirmative action to assure that Small and Minority Businesses are utilized when possible as sources of supplies, equipment and services and will in addition take similar appropriate affirmative action in support of Women's Business Enterprises.

22. INCORPORATION OF WHEREAS CLAUSES

The foregoing whereas clauses are hereby incorporated into this Agreement and made a part hereof.

23. WAIVER OF PROPRIETARY INTEREST

Notwithstanding anything to the contrary contained herein or within any other document supplied to COUNTY by Consultant, Consultant understands and acknowledges that COUNTY is a governmental entity subject to the to the laws of the State of Tennessee and that any reports, data or other information supplied to COUNTY by Consultant due to services performed pursuant to this Agreement is subject to being divulged as a public record in accordance with the laws of the State of Tennessee.

24. INSURANCE REQUIREMENTS

1. Professional Liability coverage with limits of $1,000,000.00 per occurrence/$2,000,000.00 annual aggregate for this contract, coverage written on claims-made policy form. Insurer to be rated A or better by A. M. Best & Co.

2. Commercial General Liability - Minimum limit of $1,000,000.00 per occurrence single limit for bodily injury and property damage. Shelby County shall be named additional insured.

3. Worker's Compensation. The Consultant will provide Worker's Compensation Coverage for all eligible employees in accordance with the laws of the State of Tennessee.

4. Automobile liability – Minimum limit of $1,000,000.00 per occurrence on all owned hired and non-owned autos. Shelby County to be named additional insured.

All policies will provide for 30 days written notice to Shelby County of cancellation or material change in coverage provided.

25. INCORPORATION OF OTHER DOCUMENTS

Consultant shall provide services pursuant to this Agreement in accordance with the terms and conditions set forth within the Shelby County Request for Proposals/Bids as well as the Response of the Consultant thereto, all of which are maintained on file within the Shelby County Purchasing Department and incorporated herein by reference.

It is understood and agreed between the parties that in the event of a variance between the terms and conditions of this Agreement and any amendment thereto and the terms and conditions contained either within the Request for Proposals/ Bids or the Response thereto, the terms an conditions of this Agreement as well as any amendment shall take precedence and control the relationship and understanding of the parties.

26. EMPLOYMENT OF CONVICTED FELONS

The Consultant agrees it will not, during the remaining term of this Agreement assign any employee to perform security services or who serves in a supervisory capacity over security services personnel to either the Shelby County Criminal Justice Center or Shelby County Court House who has previously been convicted of a felony and any employee who is found to have a felony record with a conviction shall immediately be removed from association with services under this contract.

27. ORGANIZATION STATUS & AUTHORITY

Organizational Status. Consultant represents and warrants that it is a corporation, limited liability company, partnership, or other entity duly organized, validly existing and in good standing under the laws of the State of Tennessee; it has the power and authority to own its properties and assets and is duly qualified to carry on its business in every jurisdiction wherein such qualification is necessary.

Power and Authority. The execution, delivery and performance of this Agreement by the Consultant has been duly authorized by all requisite action and will not violate any provision of law, any order of any court or other agency of government, the organizational documents of the Consultant's, any provision of any indenture, agreement or other instrument to which the Consultant is a party, or by which the Consultant's respective properties or assets are bound, or be in conflict with, result in a breach of, or constitute (with due notice or lapse of time or both) ad default under any such indenture, agreement or other instrument, or result in the creation or imposition of any lien, charge or encumbrance of any nature whatsoever upon any of the properties or assets.

IN WITNESS WHEREOF, the Parties hereto have affixed their hands and seals at Memphis, Shelby County, Tennessee, the day, month, and year first above written.

(This Agreement executed in multiples)

COUNTY OF SHELBY, TENNESSEE

By: _____
A C Wharton, Jr., Mayor

By: _____
County Engineer

APPROVED AS TO LEGAL FORM
EFFICACY AND PROPRIETY

By _____
Contract Administrator/
Assistant County Attorney

CONSULTANT'S:

By: _____
KIMLEY-HORN &
ASSOCIATES, INC,

ADDRESS:
6000 Poplar Avenue, Suite 201
Memphis, TN 38119
374-9109

CORPORATE ACKNOWLEDGEMENT

State of Tennessee

COUNTY of Shelby

I, Barbara J. Smith, a Notary Public in and for the said County, in the State aforesaid, duly commissioned and qualified, Personally appeared, James F. Collins, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same for the purposes therein contained.

WITNESS my hand and Notarial Seal at this office this 16th day of Jan A.D. 2003.

Barbara J. Smith
Notary Public

My Commission Expires: MY COMMISSION EXPIRES JULY 13, 2005

BARBARA J. SMITH
NOTARY PUBLIC AT LARGE
SHELBY CO., TN

Project Understanding

The purpose of this project is to improve intersection operations so that delay and congestion are reduced, and as a result, air quality is improved by reduced emissions. Kimley-Horn will follow a programmatic approach in which intersections are evaluated and recommendations for changes are provided to the County. Thus, the initial step in all of the tasks listed below includes data collection, field work, traffic observations, traffic analysis, air quality analysis, and reporting. Reporting will include recommendations for specific locations such as installation of signals, modifications to existing signal equipment, and improvements to signal operations and timing. Upon review and approval of the recommendations by the County, Kimley-Horn will undertake design, signal timing and operational improvement steps. As required, Kimley-Horn will assist the County with the bidding and construction administration of the construction projects.

The exact scope of the design activities to be conducted under this project will be determined in detail after the initial analyses are conducted, issues are presented by the local agencies and projects are identified that will produce air quality benefits. The following paragraphs outline the range of the activities that are expected to be conducted as part of this project. The exact design and improvement activities will be defined by the County and Kimley-Horn as the project progresses. The process for initiating design and analysis activities will be as follows. The County and Kimley-Horn will receive requests from the local jurisdictions to provide analyses and improvements at specific locations. In addition, Kimley-Horn will collect data regarding improvements that are needed as part of the field work, traffic counts and inventories that are conducted as part of this project. The County and Kimley-Horn will meet periodically to review the requests received and list of needed improvements and develop a prioritized list of projects. The County and Kimley-Horn will define which projects are to be undertaken and a work order will be prepared by Kimley-Horn and approved by the County defining the scope and fee of those activities. That work order will serve as authorization for Kimley-Horn to proceed with those projects.

The scope of this project will focus on projects that provide air quality improvements. Therefore, historical crash data and other safety considerations will not be the primary consideration for determining the improvements to be provided. If historical crash data is provided by the County or some other agency for a particular intersection, that data will be considered during the final design of the improvements. However, that data will not be a determining factor in the evaluation of project priorities. The scope of this project will be divided into ten basic activities. The activities and Kimley-Horn's approach to each of these activities are listed below.

1. ***Air Quality Analyses*** - One of the requirements for funding projects under the Congestion Mitigation/ Air Quality Improvement (CMAQ) program is to demonstrate that the proposed project will

improve or have a neutral impact on air quality. This activity, which is common to all tasks, will provide the appropriate air quality analyses to meet this requirement.

Some of the projects that will be proposed will not create quantifiable criteria by which to judge air quality improvements. These projects are more appropriately assessed by a qualitative analysis. Typical projects for which a qualitative air quality analysis will be conducted are the installation of the video detection devices and the emergency preemption devices. The qualitative analyses will be developed for the first group of projects identified for implementation and utilized with each successive group of projects.

Other projects provide measurable means to determine the impact they will have on air quality. Projects such as the isolated intersection improvements, the signal system improvements and expansion, and the unsignalized intersection improvements can be evaluated based on the changes in emissions caused by reductions in traffic delay and congestion. For the purposes of conducting before-after air quality analyses, individual projects will be grouped for analysis. The level of improvement or degradation in air quality will be determined based on reductions or increases in intersection delays. Intersection delays will be determined for the existing and improved intersection conditions utilizing accepted methods, such as the Highway Capacity Manual methodology. Utilizing emission factors from the regional air quality model, the level of air quality improvement will be determined for each group of projects as those projects are completed.

Deliverables: The overall air quality analysis results, findings and recommendations will be summarized and documented in a report provided to the County.

2. ***State Environmental Clearance*** – This activity will include the preparation of documentation for submittal to the Tennessee Department of Transportation (TDOT) Environmental Planning Department to request Environmental Clearance for the projects to be implemented as part of this program. The documentation will be provided for groups of intersections, not individual projects. The documentation will consist of a brief description of the activities to be conducted for that group of intersections and will attempt to demonstrate that the construction activities will have no negative environmental impacts. Kimley-Horn will submit draft documentation to TDOT on behalf of the County. Kimley-Horn will address the comments that TDOT may have and submit the final documentation to TDOT for approval.

Deliverables: The State environmental clearance and approval will be documented in a report provided to the County.

3. ***Unsignalized Intersection Operational Improvements*** – This activity will include the investigation of up to 20 existing unsignalized intersections to determine if changes to the operation of the intersection would result in improved traffic flow and reduced congestion assuming the implementation of the identified changes. This activity will also include the preparation of plans for the implementation of the

projects that are found to provide air quality benefits, as authorized by the County. The improvements at these intersections could include the conversion of multi-way stops to two-way or one-way stops or the conversion of multi-way stops to traffic signals.

The local agencies will identify the 20 unsignalized intersections to be evaluated . Kimley-Horn will conduct unsignalized intersection analyses using the following steps:

- Obtain 12 hour intersection turning movement counts for up to 20 intersections,
- Perform intersection operational analyses using Highway Capacity Software (HCS),
- Conduct traffic signal warrants analyses or conduct multi-way stop warrants analyses, and
- Conduct air quality analyses using parametric factors contained in the HCS.

Before-after air quality analyses will be conducted to determine the potential reduction in vehicle emissions as a result of the recommended intersection traffic control device improvements. The air quality findings will stem directly from the output of HCS.

Deliverables: Technical memorandum outlining the intersections evaluated, potential air quality benefits, and the ensuing recommendations for traffic control device improvements.

Intersection traffic signal warrant analyses and air quality analyses will be performed at agency-identified intersections to determine if they meet the warrants for the installation of a traffic signal and to determine if the installation of a traffic signal will improve the air quality. At the locations where both conditions are met, it will be recommended that plans be prepared for the installation of these signals. If the County agrees that these intersections should be signalized, the plans, specifications, bid documents, and engineer's quantities/estimates will be prepared for use by the County in construction of the traffic signals. It is understood that future signal construction will be handled in groups of intersections and the plans prepared by Kimley-Horn will reflect that process. For purposes of establishing a budget for this scope of services, Kimley-Horn assumes that the plans for these 20 signalized intersections will be included in packages containing multiple other traffic signal improvements.

Deliverables: Final signal plans originals on mylar and in electronic file format, and specifications/bid documents in hard copy and electronic file format.

4. ***Signalized Intersection Operational Improvements*** - This activity includes investigations at all existing 94 signalized intersections within the subject jurisdictions to determine if modifications to signal operations will provide air quality improvements. This task includes a program to conduct traffic counts at these 94 intersections, analyze the operation of these intersections and develop improvement plans, as appropriate, that improve the efficiency of traffic operations of these intersections. Typically, improvements at these intersections will involve the implementation of signal timing or simple phasing

changes that better reflect existing traffic patterns and address changes in traffic flow that have occurred as the area has developed.

Kimley-Horn will conduct signalized intersection analyses using the following steps:

- Obtain intersection turning movement counts for weekday AM, PM, and noon peak periods (two-hour counts),
- Obtain current signal timing settings,
- Perform signal operational analyses using HCS and/or Synchro software, and
- Conduct air quality analyses using parametric factors contained in the level of service analysis software.

Deliverables: Technical memorandum outlining the intersections evaluated, potential air quality benefits, and the ensuing recommendations for signal timing and phasing improvements.

It is anticipated that up to 20 intersections will require improvements that will require the development of construction plans. If the County agrees, Kimley-Horn will develop the construction plans, specifications, bid documents and engineer's quantities and estimates. It is understood that future signal construction will be handled in groups of intersections and the plans prepared by Kimley-Horn will reflect that process.

This activity will also include the implementation of signalized intersection improvements and fine-tuning of the signal timing improvements in the field. Kimley-Horn will prepare signal controller input sheets reflecting the proposed timing and phasing enhancements. For purposes of establishing a budget for this scope of services, it is assumed that Kimley-Horn will provide revised timings and phasing recommendations for up to 94 intersections. The agencies responsible for the signals will be responsible for inputting the controller settings. Kimley-Horn will accompany agency personnel in the field and assist in fine-tuning the signal timings based on field observations.

Before-after air quality analyses will be performed to quantify the reduction of emissions resulting from the signalized intersection improvements and to prioritize the proposed improvements. These analyses will be conducted as outlined in the **Air Quality Analyses** section.

As part of this task, inventories of the existing signalized intersections will be obtained. These inventories will be documented on 8.5 x 11 pages in a standard format. The inventory sheets will be placed in a notebook for each jurisdiction included in the project. These notebooks will be kept current as part of the program management portion of the project. The inventory information will include:

- Cabinet and contents, detection equipment and communication interface (if any),
- Poles, signal heads, pedestrian indications, and related equipment,
- Phasing diagram with cycle lengths, splits and offsets,
- Sketch of intersection layout and general equipment locations, and
- Photographs of each intersection approach and the interior of the controller cabinet.

Deliverables: Notebook with signal inventory sheets for each jurisdiction. This is assumed to be a hardcopy submittal, but electronic files can be provided, if requested.

5. ***Signal System Improvements and Expansion*** - In certain instances, individual signalized intersections operating in isolated modes should be operating in coordination with the adjacent signalized intersections in order to improve the overall traffic operations. In other instances, signalized intersections that are part of a coordinated signal system may function at less than peak efficiency due to out-dated signal or system timings. Both instances can result in traffic congestion along arterial roadways. This activity will identify the need and develop plans to improve the operations of the existing signal systems by incorporating more isolated intersections into signal systems as needed and improving the timing plans of existing signal systems. The goal of these signal system improvement projects will be to improve the flow of traffic, reduce congestion and improve air quality.

Before-after air quality analyses will be performed to quantify the reduction of emissions resulting from the signal system improvements and to prioritize the proposed improvements. These analyses will be conducted as outlined in the **Air Quality Analyses** section.

Utilizing the traffic data collected as part of other tasks, coupling analyses will be conducted between adjacent intersections to determine if it will be beneficial to provide coordination between the adjacent traffic signals. Preliminary Synchro evaluations will be conducted to determine what benefits may accrue and what air quality improvements may be achieved. It is anticipated that 85 of the existing intersections will be evaluated. The results of the coupling analyses and preliminary air quality analyses will be used to establish improvement priorities.

Deliverables: Technical memorandum outlining the intersections evaluated, potential air quality benefits, and the ensuing recommendations for signal groupings, system timing improvements, and method of coordination.

Upon authorization from the County, Kimley-Horn will develop construction plans for the implementation of coordinated traffic signal systems. These plans will identify the intersections to be coordinated, the equipment to be installed at each intersection and the routing of the interconnect cable for hardwire interconnected systems. Timing plans will be developed using the signal timing software for the weekday AM and PM peak hours and off peak periods.

Kimley-Horn will assist the County with obtaining construction bids for these projects and will provide the construction administration activities required for the implementation of the project. The construction contractors will be responsible for implementing the new signal system timing plans and inputting the new controller settings. Kimley-Horn will conduct field fine-tuning of the signal timings based on field observations.

Deliverables: Construction plans for the implementation of coordinated signal systems and signal timing plans for the signal systems.

6. ***Traffic Signal Detection Device Upgrade*** - Failed inductive loop detectors are major causes of delays that are experienced at signalized intersections. This activity will replace the inductive loop detectors at all 94 existing signalized intersections with a detector that is not placed in the pavement and, thereby, not subjected to the cyclical fatigue experienced by wire loop detectors.

This activity will include the replacement of existing in-pavement inductive loop detectors with non-intrusive technology detection units (such as optical detection units) at all signalized intersections within the project area in conjunction with other upgrades or improvements. At intersections where other construction activity will be conducted, the installation of the new detection devices will be included in the preparation of the construction plans for those improvements. For intersections at which there will be no other major construction activity, plans will be prepared for the installation of the new detection devices. In these instances, multiple intersections will be identified for the installation of these devices as part of one construction contract. A list of these intersections will be developed by Kimley-Horn and provided to the County for approval. Kimley-Horn will then prepare documents suitable for obtaining construction bids for this work. It is assumed that the bid documents to be prepared under this activity will be in conjunction with other traffic signal improvement/construction projects. Kimley-Horn will provide construction assistance activities for the implementation of these improvements.

Deliverables: Construction plans for the upgrade of traffic signal detection devices.

7. ***Emergency Vehicle Preemption*** - Some of the communities in Shelby County presently use Opticom emergency vehicle preemption (EVP) devices. These devices allow emergency vehicles to move through traffic signals more safely by causing the traffic signal phasing to provide a green indication to the emergency vehicle and stopping conflicting or cross traffic.

Kimley-Horn will coordinate with the local jurisdictions to identify the locations that presently have EVP devices and identify the key emergency vehicle routes. Kimley-Horn will identify the signalized intersections that will benefit from the addition of EVP devices.

Deliverables: Technical memorandum outlining the intersections for which EVP devices are desired and the recommended deployment sequence.

Kimley-Horn will develop plans for the installation of EVP devices at up to 25 intersections. These installations will be coordinated with other signal upgrades. Thus the plans and specifications will be integrated into other bid document packages.

Deliverables: Final signal upgrade plans in hard copy and electronic format integrated with other signal upgrade bid packages.

8. ***Development of Systems Engineering Analysis and Project Architecture*** – Because the Memphis and Shelby County area does not yet have an approved ITS Regional Architecture and because this project is considered an ITS project of major significance, it will be necessary to develop a Systems Engineering Analysis and Project Architecture for the project. This activity will include an evaluation and recommendation for how this project can be integrated into other ITS projects within the MPO. This analysis will insure that the improvements provided as part of this project are compatible with the other ITS projects. This activity will include the preparation of short report providing the information required by the Federal Highway Administration.

Deliverables: Report providing the information and documentation required by the Federal Highway Administration.

9. ***Program Management*** – This activity will include developing a database of information to track roadway data and intersection performance data that will be used as a benchmark for future Congestion Management Program improvements. This database will include traffic counts, laneage information and current signal timing. This activity will include a system to provide current traffic count data that will be used to re-evaluate the signal operations and to flag intersections as they become congested or need improvements.

The benefits of this program will be improved air quality through the implementation of timely traffic control measures that improve traffic flow and reduce delays. The signalized intersections within the various jurisdictions will be evaluated at set intervals and improvements will be identified.

10. ***Construction Phase Services*** – For each improvement that is identified, Kimley-Horn will assist the County to determine which projects should proceed to construction. Kimley-Horn will develop a list of projects to be bid by the County. Kimley-Horn will prepare the bid documents, assist the County with the solicitation of bids, prepare the bid comparisons and make a recommendation to the County regarding

which bid is the lowest and best bid. Once the selected bidder is identified, Kimley-Horn will assist the County with the administration of the contract with activities such as conducting the pre-construction meetings, reviewing and recommending submittals for approval, administering pay requests and submittal of the appropriate documents to the Tennessee Department of Transportation for reimbursement to the County of funds expended for construction. Kimley-Horn will monitor the day to day construction activities and will respond to all contractor questions on behalf of the County. Kimley-Horn will conduct the final inspections and recommend to the County when the contractor has completed his work. Kimley-Horn will work with the Contractors to produce record drawings of the construction activities and will update the traffic signal inventory notebooks to reflect the construction activities.

Upon substantial completion of the construction, Kimley-Horn will conduct the field fine-tuning of the traffic signal timings. This activity will focus on making the traffic signals operate with maximum efficiency to reduce delays and provide the maximum air quality benefits.

The following list of tasks is a comprehensive description of the construction phase services that can be provided by Kimley-Horn under this contract. Once the analysis and design phases are completed, this list will be revisited by the County and Kimley-Horn to specifically determine what services are best suited to the construction phase of this CMAQ program.

Project Management -- This task contains those elements which are vital to integrating all work efforts, conveying/sharing data with the County, and maintaining accurate, organized records of the project during the construction phase of the project.

Pre-Construction Activities -- Kimley-Horn shall conduct a pre-construction conference to review the requirements of the construction contract and answer detailed questions of the construction Contractor. Representatives of the County, the Contractor, utility companies, surveyors, testing laboratories and others who will be affected by the construction will be in attendance at this conference. Details of the construction phasing will be covered in this meeting, as well as: project scheduling, notice to proceed, administrative procedures, payment estimates, testing procedures, material sources, material certifications, submittals, and other matters common to construction projects. Kimley-Horn will prepare a "Record of Pre-construction Conference," which will be distributed to all attendees.

Submittal Review/Approval Process -- Using County procedures, Kimley-Horn will log, track the status of, and distribute each Contractor submittal to appropriate County personnel. Kimley-Horn will perform review of submittals against the Plans and specifications. Kimley-Horn will provide written comments (as needed) to County personnel and support the County in dealings with the Contractor regarding Contractor submittals.

Develop Documentation Process -- Kimley-Horn will utilize the standard County document control process for recording daily construction logs and tracking construction progress. This may include development of a Critical Path Method (CPM) schedule. Kimley-Horn will also develop for County review and approval, a summary report format for reporting to the County the daily logs and CPM schedule performance on a monthly basis.

Construction Administration -- Kimley-Horn shall furnish the services of a Resident Engineer, who shall act on behalf of and/or serve as an assistant to the County's program manager. The Resident Engineer shall make recommendations to the County's program manager on claims of the Contractor for extra work not covered in the contract documents. For all changes additions or deletions requested by the County's program manager, the Resident Engineer shall obtain relevant information and present their recommendations. The County's program manager shall either approve or deny the recommendations.

The Resident Engineer shall establish a submittal control sheet to monitor the timeliness of Contractor submissions and review and make recommendation to County's program manager relating to the execution and progress of the project. The Resident Engineer shall coordinate with the County's program manager for recommended approval or disapproval of schedules, shop drawings, construction traffic control plans, and other submissions for conformance with the requirements of the project. The Resident Engineer shall also coordinate with the County's program manager for compliance with the information given by the contract documents, and collect and disseminate written guarantees required of the Contractor. Such review and approvals or other action will not extend to means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction or to related safety precautions and programs.

The Resident Engineer shall review field orders approved by the County's program manager and prepare change order requests and final contract change orders for extra work and time extensions not covered in the contract documents brought about by Contractor(s) claims, and submit to County's program manager. The Resident Engineer shall monitor and log Contractor correspondence and provide the County with all documents, reports and correspondence pertaining to the project.

Upon review of field observations made by Kimley-Horn field staff, the Resident Engineer will determine the amount owing to the Contractor, and upon presentation of the Contractor's applications for payment, will provide to the County an "Estimate for Payment," in such amount. These will constitute a representation to the County's program manager, based on such observations and the data comprising the application for payment, that the work has progressed to the point indicated. By issuing an "Estimate for Payment," the Resident Engineer will also represent to the County's program manager that, to the best of his knowledge, information and belief, and to the best knowledge of the Kimley-Horn construction observation staff, and based on what their observations have revealed, the quality of the work is in

accordance with the contract documents; but such presentations and acknowledgment is not a guarantee of the work of the Contractor as regards the performance of his contract.

The Resident Engineer shall conduct monthly progress meetings for the duration of the construction phase. These meetings will be conducted at Kimley-Horn or County offices and will review current schedule and work progress.

Kimley-Horn will prepare meeting minutes and distribute to all attendees. The Resident Engineer's staff shall compute requisite quantities as required for payment of the Contractor and to document final project quantities. The Resident Engineer shall furnish the County's program manager with final quantities and a letter recommending acceptance of the work based upon the Resident Engineer's construction observation staff reports, and any material acceptance testing reports. The Contractor shall provide certification of materials testing of all materials supplied for the site, as well as in-place testing of all materials for acceptance testing. The Resident Engineer shall coordinate all such testing.

As necessary, the Resident Engineer will prepare written decisions on all claims by the County and/or the Contractor relating to the acceptability of Contractor's work or the interpretation of the requirements of the Contract Documents pertaining to the progress of Contractor's work. In rendering such decisions, Kimley-Horn shall be fair and not show partiality to the County or Contractor and shall not be liable in connection with any decision rendered in good faith in such capacity.

Oversight of Construction Activities -- The purpose of Kimley-Horn's efforts in this task will be to enable Kimley-Horn to carry out the duties and responsibilities assigned in this agreement to Kimley-Horn during the construction phase. In addition, Kimley-Horn's efforts will focus on determining that the completed work conforms in general to the Contract Documents and that the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents has been implemented and preserved by Contractor. Kimley-Horn shall not, during time spent at construction sites, or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work. Nor shall Kimley-Horn have authority over or responsibility for the means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction selected by Contractor, for safety precautions and programs incident to Contractor's work. Kimley-Horn shall not have responsibility nor for any failure of the Contractor to comply with laws and regulations applicable to Contractor's furnishing and performing the Work. Accordingly, Kimley-Horn neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

The Resident Engineer will recommend to the County that the Contractor's work be disapproved and rejected while it is in progress if, on the basis of such observations, Kimley-Horn believes that such work will not produce a completed Project that conforms generally to Contract Documents. Kimley-Horn may also make a disapproval recommendation if Kimley-Horn believes the work in progress will prejudice the integrity of the design concept of the completed project as a functioning whole as indicated in the Contract Documents.

The general duties of the inspector will be to monitor construction progress by the Contractor and report any inconsistencies to the Resident Engineer, the County, or the Contractor at the time of occurrence. The Resident Engineer, the inspector, and the project design team will not be responsible for the means and methods employed by the Contractor for accomplishment of the requisite project elements.

Summary

Activity	Fee
1. Unsignalized Intersection Operation Improvements	224,087.17
2. Signalized Intersection Operational Improvements	563,378.44
3. Signal System Improvements and Expansion	379,615.09
4. Traffic Signal Detection Device Upgrade	219,017.77
5. Installation of Emergency Preemption Devices	16,801.11
6. Air Quality Analysis of Proposed Improvements	Included in other Tasks
7. Program Management	19,081.68
8. Construction Administration	466,685.06
Total	1,888,666.32