

RESOLUTION 14-56

A RESOLUTION TO APPROVE A PROFESSIONAL SERVICES AGREEMENT (CITY OF SPRING HILL CONTRACT NO 2014-0006) WITH RPM TRANSPORTATION CONSULTANTS, LLC TO PROVIDE TRAFFIC ENGINEERING SERVICES FOR THE US 31 SIGNAL TIMING OPTIMIZATION STUDY IN THE LUMP SUM AMOUNT OF \$81,875.00.

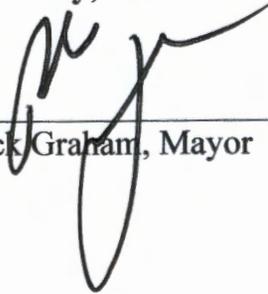
WHEREAS, the City of Spring Hill desires to be proactive in the development of future infrastructure plans; and

WHEREAS, the City of Spring Hill desires to provide for the health, safety, and welfare of it's citizens; and

WHEREAS, the City of Spring Hill desires to address significant congestion traffic concerns in the US 31 corridor; and

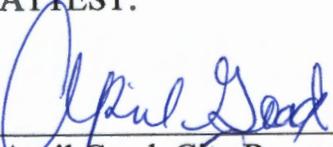
NOW, THEREFORE BE IT RESOLVED, that the City of Spring Hill, Board of Mayor and Aldermen approves City of Spring Hill Contract No 2014-0006 with RPM Transportation Consultants, LLC in the lump sum amount of \$81,875.00.

Passed and adopted by the Board of Mayor and Aldermen of the City of Spring Hill, Tennessee on the 19th day of May, 2014.



Rick Graham, Mayor

ATTEST:



April Goad, City Recorder

LEGAL FORM APPROVED:



Patrick Carter, City Attorney

CITY OF SPRING HILL, TENNESSEE
PROFESSIONAL SERVICES AGREEMENT
CITY OF SPRING HILL CONTRACT No. 2014-0006

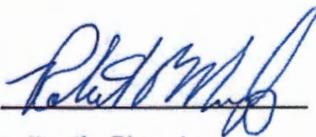
THIS PROFESSIONAL SERVICES AGREEMENT ("Agreement") is by and between the City of Spring Hill, Tennessee, hereinafter referenced as "City", and RPM Transportation Consultants, LLC, hereinafter referenced as "Consultant", who mutually agree as follows:

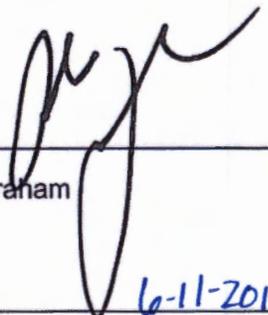
DECLARATIONS. City desires to retain Consultant to provide professional services in connection with the City's project hereinafter referenced as Project. The Project is described as follows:

US 31 SIGNAL TIMING OPTIMIZATION STUDY

1. SCOPE OF SERVICES. Consultant shall provide traffic engineering services for the Project in accordance with the Scope of Work as defined in the May 2nd, 2014 letter (Attachment A). Attachment A shall be considered as an integral part hereof.
2. Consultant shall receive a total lump sum fee of **Eighty-One Thousand, Eight Hundred Seventy-Five and No/100 Dollars (\$81,875.00)** as detailed in Attachment A.
3. In the event of a conflict between this Agreement and the attached document(s), this Agreement shall supersede conflicting terms and conditions.

The Spring Hill Board of Mayor and Alderman Approved this Agreement on the 19th day of May 2014.

BY: 
Consultant's Signature
Title: President
Date: 5/20/14

BY: 
Rick Graham
Mayor
Date: 6-11-2014

TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES

ARTICLE 1. SERVICES. Consultant will:

- 1.1 Act for City in a professional manner, using that degree of care and skill ordinarily exercised by and consistent with standards of competent consultants using the standards in the industry:
- 1.2 Consider all reports to be confidential and distribute copies of the same only to those persons specifically designated by the City.
- 1.3 Perform all services under the general direction of a senior professional employee, licensed and/or registered in the State of Tennessee, when appropriate.
- 1.4 Retain pertinent records relating to the services performed for a period of seven (7) years following the completion of the work; during this period, the records shall be available for review by City at all reasonable times.

ARTICLE 2. CITY'S RESPONSIBILITIES. City, or its authorized representative, will:

- 2.1 Provide Consultant with all information regarding the Project, which is available to, or reasonably obtainable by, the City.
- 2.2 Furnish right-of-entry onto the Project site for Consultant's necessary field studies and surveys. Consultant will endeavor to restore the site to its original condition and shall remain solely liable for all damages, costs and expenses, including reasonable attorneys' fees, for failure to make such restoration.
- 2.3 Designate, in writing, the sole Project representative to coordinate with and direct the Consultant, including all contact information.
- 2.4 Guarantee to Consultant that it has the legal capacity to enter into this contract and that sufficient monies are available to fund Consultant's compensation.

ARTICLE 3. GENERAL CONDITIONS.

- 3.1 Consultant, by the performance of services covered hereunder, does not in any way assume, abridge or abrogate any of those duties, responsibilities or authorities customarily vested in other professionals or agencies participating in the Project.
- 3.2 Consultant shall be responsible for the acts or omissions of any party involved in concurrent or subsequent phases of the Project acting upon written instruction issued by the Consultant.
- 3.3 Neither City nor Consultant may assign or transfer its duties or interest in this Agreement without written consent of the other party. However, nothing in this Article shall prevent Consultant from engaging independent consultants, associates, and subcontractors to assist in the performance of the Services at Consultant's cost.

3.4 **ALLOCATION OF RISK AND LIABILITY; GENERAL.** Considering the potential liabilities that may exist during the performance of the services of this Agreement, the relative benefits and risks of the Project, and the Consultant's fee for the services rendered, and in consideration of the promises contained in this Agreement, the City and the Consultant agree to allocate and limit such liabilities in accordance with this paragraph.

3.5 **INDEMNIFICATION.** Consultant agrees to indemnify and hold City harmless from and against legal liability for all judgments, losses, damages, and expenses to the extent such judgments, losses, damages, or expenses are caused by Consultant's negligent act, error or omission in the performance of the services of this Agreement. In the event judgments, losses, damages, or expenses are caused by the joint or concurrent negligence of Consultant and City, they shall be borne by each party in proportion to its own negligence.

3.5.1 **SURVIVAL.** The terms and conditions of this paragraph shall survive completion of this services agreement.

3.6 **LIMITATIONS OF RESPONSIBILITY.** Consultant shall not be responsible for (a) construction means, methods, techniques, sequences, procedures, or safety precautions and programs in connection with the Project unless specifically undertaken in Attachment A, **SCOPE OF SERVICES**; (b) the failure of any contractor, subcontractor, consultant, or other Project participant, not under contract to Consultant, to fulfill contractual responsibilities to City or to comply with federal, state, or local laws, regulations, and codes; or (c) procuring permits, certificates, and licenses required for any construction unless such procurement responsibilities are specifically assigned to Consultant in Attachment A, **SCOPE OF SERVICES**.

ARTICLE 4. TERMINATION BY THE CITY. The City may terminate this Agreement in accordance with the following terms and conditions:

4.1 **Termination for Convenience.** The City may, when in the interests of the City, terminate performance under this Agreement with the Consultant, in whole or in part, for the convenience of the City. The City shall give written notice of such termination to the Consultant specifying when termination becomes effective. The Consultant shall incur no further obligations in connection with the work so terminated, other than warranties and guarantees for completed work and installed equipment, and the Consultant shall stop work when such termination becomes effective. The Consultant shall also terminate outstanding orders and subcontracts for the affected work. The Consultant shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The City may direct the Consultant to assign the Consultant's right, title and interest under termination orders or subcontracts to the City or its designee. The Consultant shall transfer title and deliver to the City such completed or partially completed work and materials, equipment, parts, fixtures, information and contract rights as the Consultant has in its possession or control. When terminated for convenience, the Consultant shall be compensated as follows:

(1) The Consultant shall submit a termination claim to the City specifying the amounts due because of the termination for convenience together with costs, pricing or other data required by the City. If the Consultant fails to file a termination claim within

one (1) year from the effective date of termination, the City shall pay the Consultant the amount the City deems the Consultant is due.

(2) The City and the Consultant may agree to the compensation, if any, due to the Consultant hereunder.

(3) Absent agreement to the amount due to the Consultant, the City shall pay the Consultant the following amounts:

(a) Contract costs for labor, materials, equipment and other services accepted under this Agreement;

(b) Reasonable costs incurred in preparing to perform and in performing the terminated portion of the work, and in terminating the Consultant's performance, plus a fair and reasonable allowance for direct job site overhead and earned profit thereon (such profit shall not include anticipated profit or consequential damages); provided however, that if it reasonably appears that the Consultant would have not profited or would have sustained a loss if the entire Agreement would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss, if any;

The total sum to be paid the Consultant under this Section shall not exceed the total Agreement Price, as properly adjusted, reduced by the amount of payments otherwise made, and shall in no event include duplication of payment.

4.2 Termination for Cause. If the Consultant does not perform the work, or any part thereof, in a timely manner, supply adequate labor, supervisory personnel or proper equipment or materials, or if it fails to timely discharge its obligations for labor, equipment and materials, or proceeds to disobey applicable law, or otherwise commits a violation of a material provision of this Agreement, then the City, in addition to any other rights it may have against the Consultant or others, may terminate the performance of the Consultant, in whole or in part, at the City's sole option, and assume possession of the Project Plans and materials and may complete the work.

In such case, the Consultant shall not be paid further until the work is complete. After completion has been achieved, if any portion of the Contract Price, as it may be modified hereunder, remains after the cost to the City of completing the work, including all costs and expenses of every nature incurred, has been deducted by the City, such remainder shall belong to the Consultant. Otherwise, the Consultant shall pay and make whole the City for such cost. This obligation for payment shall survive the termination of the Agreement.

In the event the employment of the Consultant is terminated by the City for cause pursuant to this Section and it is subsequently determined by a Court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination for Convenience under this Section and the provisions of Section 4.1 shall apply.

4.3 Termination for Non-Appropriation. The City may also terminate this Agreement, in whole or in part, for non-appropriation of sufficient funds to complete or partially complete the Project, regardless of the source of such funds, and such termination shall be on the terms of Section 4.1.

4.4 The City's rights under this Section shall be in addition to those contained elsewhere herein or provided by law.

ARTICLE 5. SCOPE OF SERVICES. Consultant shall provide the Services as described in Attachment A, SCOPE OF SERVICES.

5.1 By mutual agreement, this contract and scope can be amended by the parties. The scope and fee for any additional tasks or services under such amendment shall be mutually negotiated and agreed to in writing prior to beginning such additional tasks or services.

5.2 ENVIRONMENTAL RESPONSIBILITY.

Where drilling/sampling services are involved, the samples obtained from the Project site are the property of the City. Should any of these samples be recognized by the Consultant to be contaminated, the City shall remove them from the Consultant's custody and transport them to a disposal site, all in accordance with applicable government statutes, ordinances, and regulations. For all other samples, the Consultant shall retain them for a sixty (60)-day period following the submission of the drilling/sampling report unless the City directs otherwise; thereafter, the Consultant shall discard the samples in accordance with all federal, state and local laws.

ARTICLE 6. SCHEDULE.

6.1 TIME OF THE ESSENCE. The parties agree that TIME IS OF THE ESSENCE with respect to the parties' performance of all provisions of the Agreement.

6.2 FORCE MAJEURE. Neither party will be liable to the other for any delay or failure to perform any of the services or obligations set forth in this Agreement due to causes beyond its reasonable control, and performance times will be considered extended for a period of time equivalent to the time lost because of such delay plus a reasonable period of time to allow the parties to recommence performance of their respective obligations hereunder. Should a circumstance of force majeure last more than ninety (90) days, either party may, by written notice to the other, terminate this Agreement. The term "*force majeure*" as used herein shall mean the following: acts of God; strikes, lockouts or other industrial disturbances; acts of public enemies; orders or restraints of any kind of the government of the United States or of the State or any of their departments, agencies or officials, or any civil or military authority; insurrections, riots, landslides, earthquakes, fires, storms, tornadoes, droughts, floods, explosions, breakage or accident to machinery, transmission pipes or canals; or any other cause or event not reasonably within the control of either party.

6.3 Should City request changes in the scope, extent, or character of the Project, the time of performance of Consultant's services as indicated in Attachment A shall be adjusted equitably.

ARTICLE 7. USE OF DOCUMENTS AND DATA.

7.1 All Documents, including, but not limited to, reports, drawings, specifications, and computer software prepared by Consultant pursuant to this Agreement are instruments of service with respect to the Project. Consultant shall retain an ownership and property interest therein (including the right of reuse, at the discretion of the Consultant) whether or not the Project is completed.

7.1.1 USE OF DATA SYSTEMS: Ownership, property interests and proprietary rights in data systems used by Consultant do not extend to the data created by or supplied to Consultant by the City; all rights to that data (including derivative or hidden data such as metadata) shall vest solely in City at the moment of creation.

7.1.2 DISCLOSURE OF DOCUMENTS AND DATA. City may be required to disclose documents or data under state or federal law. City shall notify Consultant if a request for data or documents has been made and shall give Consultant a reasonable opportunity under the circumstances to respond to the request by redacting proprietary or other confidential information. Consultant waives any right to confidentiality of any document, e-mail or file it fails to clearly mark on each page as confidential or proprietary. In exchange, Consultant agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of (i) the City's failure to disclose such documents or information required to be disclosed by law, or (ii) the City's release of documents as a result of City's reliance upon Consultant representation that materials supplied by Consultant (in full or redacted form) do not contain trade secrets or proprietary information, provided that the City impleads Consultant and Consultant assumes control over that claim.

7.2 City -furnished data that may be relied upon by Consultant is limited to the printed copies that are delivered to the Consultant pursuant to Article 2 of this Agreement. Any copyrighted electronic files furnished by City shall be used by Consultant only for the Project as described herein. City's posting or publication of such documents created by Consultant for City shall constitute fair use and shall not constitute an infringement of Consultant's copyright, if any.

7.3 Documents that may be relied upon by City are limited to the printed copies (also known as hard copies) that are signed or sealed by the Consultant. Files in electronic media format of text, data, graphics, or of other types that are furnished by Consultant to City are only for convenience of City, unless the delivery of the Project in electronic media format has been dictated in Attachment A, SCOPE OF SERVICES. Any conclusion or information obtained or derived from electronic files provided for convenience will be at the user's sole risk.

7.4 Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the party delivering the electronic files. Unless stated otherwise herein, Consultant shall not be responsible to maintain documents stored in electronic media format after acceptance by City.

7.5 When transferring documents in electronic media format, Consultant makes no representations as to long term compatibility, usability, or readability, of documents resulting

from the use of software application packages, operating systems, or computer hardware differing from that as required of, and used by, Consultant at the beginning of this Project.

7.6 City may make and retain copies of documents for information and reference in connection with use on the Project by the City, or their authorized representative. Such documents are not intended or represented to be suitable for reuse by City or others on extensions of the Project or on any other project. Any such reuse or modifications without written verification or adaptation by Consultant, as appropriate for the specific purpose intended, will be at City's sole risk and without liability or legal exposure to the Consultant or to Consultant's consultants.

7.7 If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

7.8 Any verification or adaptation of the documents for extensions of the Project or for any other project will entitle Consultant to further compensation at rates to be agreed upon by City and Consultant.

ARTICLE 8. INSURANCE.

8.1 During the performance of the Services under this Agreement, Consultant shall maintain the following minimum insurance:

- a) General Liability Insurance with a combined single limit of \$1,000,000 per occurrence and \$2,000,000 annual aggregate.
- b) Automobile Liability Insurance with a combined single limit of \$1,000,000 for each person and \$1,000,000 for each accident.
- c) Workers' Compensation Insurance Coverage A in accordance with statutory requirements and Coverage B, Employer's Liability Insurance, with a limit of ~~\$500,000~~ ^{\$100,000} for each occurrence.
- d) Professional Liability Insurance with a limit of \$1,000,000 annual aggregate.

8.2 Consultant shall add the City an additional insured on all policies unless otherwise prohibited.

8.3 Consultant shall, upon execution of this Agreement, furnish City certificates of insurance, which shall include a provision that such insurance shall not be canceled without at least thirty (30) days' written notice to City.

8.4 No insurance, of whatever kind or type is to be considered as in any way limiting other parties' responsibility for damages resulting from its activities in the execution of the Project. City agrees to include, or cause to be included, in the Project's construction contract, such requirements for insurance coverage and performance bonds by the Project's construction contractor as City deems adequate to indemnify City, Consultant, and other concerned parties against claims for damages and to insure compliance of work performance and materials with Project requirements.

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- c) Workers' Compensation Insurance Coverage A in accordance with statutory requirements and Coverage B, Employer's Liability Insurance, with a limit of \$500,000 for each occurrence.
- d) Professional Liability Insurance with a limit of \$1,000,000 annual aggregate.

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ARTICLE 9. PAYMENT.

9.1 City will pay Consultant for services and expenses in accordance with the Fee Schedule proposal submitted for the Project as part of the Scope Of Services. Consultant's invoices will be presented at the completion of the work or monthly and will be payable upon receipt. Payment is due upon presentation of invoice and is past due thirty (30) days from invoice date. City shall give prompt written notice of any disputed amount and shall pay the remaining amount.

9.2 Consultant shall be paid in full for all services under this Agreement, including City-authorized overruns of the Project budget or unforeseen need for Consultant's services exceeding the original Scope Of Services.

9.3 TRAVEL EXPENSES

The City shall reimburse reasonable expenses, including travel and meals, when specified in the Scope Of Services, but only in accordance with the City's Travel and Expense Policy and Procedures Manual. The maximum amount will be applied as of the date of travel and as listed in the per diem reimbursement rates on the "CONUS" website developed by the United States General Services Administration, located at www.gsa.gov [click on 'per diem rates' under the 'etools' category].

ARTICLE 10. MISCELLANEOUS PROVISIONS

10.1 EQUAL EMPLOYMENT OPPORTUNITY. In connection with this Agreement and the Project, the City and the Consultant shall not discriminate against any employee or applicant for employment because of race, color, sex, national origin, disability or marital status. The City and Consultant will take affirmative action to ensure that any contractor used for the Project does not discriminate against any employee and employees are treated during employment without regard to their race, age, religion, color, gender, national origin, disability or marital status. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination, rates of pay or other forms of compensation; and selection for training, including apprenticeship.

10.1.1 The Consultant shall insert the foregoing provision in all contracts relating to this Project.

10.2 TITLE VI - CIVIL RIGHTS ACT OF 1964. The City and the Consultant shall comply with all the requirements imposed by Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d), 49 C.F.R., Part 21, and related statutes and regulations.

10.2.1 The Consultant shall insert the foregoing provision in all contracts relating to this Project.

10.3 NO THIRD PARTY RIGHTS CREATED. City and Consultant each binds itself and its successors, executors, administrators, permitted assigns, legal representatives and, in the case of a partnership, its partners, to the other party to this Agreement and to its successors, executors, administrators, permitted assigns, legal representatives and partners of such other party in respect to all provisions of this Agreement. The Services provided for in this Agreement

are for the sole use and benefit of City and Consultant. Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than the City and the Consultant.

10.4 WARRANTIES/LIMITATION OF LIABILITY/WAIVER. The City reserves all rights afforded to local governments under law for all general and implied warranties. The City does not waive any rights it may have to all remedies provided by law and, therefore, any attempt by Consultant to limit its liability shall be void and unenforceable.

ARTICLE 11. EXTENT OF AGREEMENT:

11.1 APPLICABLE LAW/CHOICE OF FORUM AND VENUE. This Agreement is made under and will be construed in accordance with the laws of the State of Tennessee without giving effect to that state's choice of law rules. The parties' choice of forum and venue shall be in the courts of Maury County or Williamson County, Tennessee based on the location of the project. If the Project provides services that cover the whole City or the services are not tied to a physical location, then the choice of forum and venue shall be in the courts of Maury County, Tennessee. Any provision of this Agreement held to violate a law or regulation shall be deemed void, and all remaining provisions shall continue in force.

11.2 ENTIRE AGREEMENT. This Agreement, including these terms and conditions, represent the entire Agreement between City and Consultant for this Project and supersedes all prior negotiations, representations or agreements, written or oral. This Agreement may be amended only by written instrument signed by City and Consultant.

ARTICLE 12. DISPUTE RESOLUTION, BREACH.

12.1 If a dispute should arise relating to the performance of or payment for the services under this Agreement, the aggrieved party shall notify the other party of the dispute within a reasonable time after such dispute arises. During the pendency of any dispute, the parties shall continue diligently to fulfill their respective obligations hereunder. No arbitration or mediation shall be required as a condition precedent to filing any legal claim arising out of or relating to the Contract. No arbitration or mediation shall be binding.

12.2 Upon deliberate breach of the Contract by either party, the non-breaching party shall be entitled to terminate the Agreement with notice, with all of the remedies it would have in the event of termination, and may also have such other remedies as it may be entitled to in law or in equity.

ARTICLE 13. SURVIVAL.

The provisions contained in this Professional Services Agreement shall survive the completion of or any termination of the Agreement or other document to which it may accompany or incorporate by reference or which subsequently may be modified, unless expressly excepted from this Article upon consent of both parties.



May 2, 2014

Mr. Dan Allen, P.E.
Utility Director
City of Spring Hill
3893 Mahlon Moore Road
Spring Hill, TN 37174

Re: US ROUTE 31 SIGNAL TIMING OPTIMIZATION STUDY
Spring Hill, TN
Subject: Proposal for Engineering Services

Mr. Allen,

I am writing to outline the scope of services and compensation associated with RPM Transportation Consultants, LLC (RPM) providing engineering services for the above referenced project. Specifically, RPM's role for this project will be to prepare and implement optimized signal timings for the US Route 31 corridor from Crossings Boulevard to Thompson's Station Road as well as develop recommendations for short, mid and long-term improvements. Following is our understanding of the project, scope of work, and fee for the project.

PROJECT UNDERSTANDING

The principal purpose of this project is to develop optimized traffic signal timings for the US 31 corridor for immediate implementation. Optimized traffic signal timings will be developed and implemented for typical weekday peak and off-peak conditions. Due to commercial development that has occurred since the last signal optimization study (Walmart, Waffle House, Dunkin Donuts/Baskin Robins, O'Reilly's, etc.), it is critical that focus also be given to weekend conditions. For this reason, peak conditions will be evaluated for not only weekday AM, Midday, and PM time periods but also Weekend peak conditions. This will include immediately modifying the current signal timings at the new southern Walmart Access based on field observations followed by data collection and optimization of the entire corridor.

Secondly, through the process of detailed inventory and analysis; short, mid and long-term strategies will be identified for improving and maintaining optimized operations. Strategies will consider access management, modified signal phasing, signal timing, intersection laneage, and in-depth consideration of Intelligent Transportation System (ITS) and new technologies.

The study area will extend from Thompson's Station Road on the northern end to Saturn Parkway on the southern end. The study will focus on the intersections that are currently signalized or planned to be signalized along the Main Street corridor. These include the following eleven (11) intersections:

1. Crossings Boulevard
2. Town Center Parkway
3. Kedron Road/Kedron Parkway
4. Depot Street/McLemore Avenue
5. Beechcroft Road (SR 247)/Duplex Road (SR 247)
6. Miles Johnson Parkway (planned signal)
7. Belshire Way/Commonwealth Drive (Lowe's Access)
8. Southern Walmart Access (signalized)
9. Campbell Station Parkway

10. Buckner Road/Thompsons Ridge Road
11. Thompson's Station Road (located within the Town Limits of Thompson's Station)

In order to develop an accurate and complete model of the signalized network, it is necessary to include key unsignalized intersections that may be located between signalized intersections along the corridor. In this instance, the signal timing project will include the following fifteen (15) unsignalized intersections:

1. Access at Spring Hill Medical
2. Home Depot Access
3. Access at First Farmers Bank
4. Maury Hill Street
5. Ayers Street
6. Locke Avenue
7. Witt Hill Drive
8. Bess Blvd (un-signalized Lowe's access)
9. Nasdaq Street
10. Publix Full Access
11. Publix Partial Access
12. Wilkes Lane
13. Spring Hill Circle
14. Williford Court
15. Spring Hill Circle/Traders Way

At the conclusion of this project a system of optimized signal timing plans will be in place and operational, tailored for peak conditions and time of day. A recommended path for next step improvements and future technologies will be identified and an analysis of infrastructure in place will be provided to ensure continued maintenance of timings and operations. With proper upkeep of these products, this project will provide the City of Spring Hill with an operational strategy for managing the US 31 corridor.

SCOPE OF WORK

In order to achieve the objectives the City has established for this effort, the scope has been divided into seven (7) tasks, which are described as below:

Task 0.0 – Walmart Signal Timing Adjustment

Reports and observations of existing conditions at the southern Walmart Access indicate that the signal timings at this intersection are in need of immediate attention.

Sub-Task 0.1 – Field Observations

Upon notice to proceed, the RPM team will evaluate the conditions at the intersection based on field observations and available data.

Sub-Task 0.2 – Field Modifications

Based on the teams observations and evaluation the RPM team will field modify signal timings and offsets at the intersection.

Task 1.0 – Project Management

A critical part of this project will be effective communication with the City staff throughout the duration of the project. Our goal will be for the RPM team to essentially serve as an extension of the City staff. This will require frequent and consistent communication between the RPM Team and City staff. For this reason, the following scope of work includes multiple coordination and review meetings, as well as frequent communication via phone calls and e-mails throughout the course of the project. Our local presence also enables us to quickly respond if there are needs for sudden face to face meetings. This task will also include administrative and accounting activities for the project.

Sub-Task 1.1 – Agency Interview

At the inception of the project, the RPM Team will meet with the City to identify specific goals, objectives, deliverables, and timeframes. The following specific items will be discussed:

- Points of contact
- Review process
- Existing signal timing philosophies (cycle lengths, phasing sequencing, etc.)
- Analysis techniques
- Traffic signal equipment, system capabilities, pedestrian requirements, and physical limitations;
- Citizen-perceived problems
- Agency-perceived problems
- Format of timing plans
- Project schedule
- Process of submittals and outline of deliverables

Sub-Task 1.2 – Existing Conditions Review Meeting

Following data collection and the development of the base model for the signal timing network, the RPM Team will meet with City staff to review the base model and calibration to ensure the accuracy and completeness of the model.

Sub-Task 1.3 – Signal Timing Review Meeting

Following the development of updated signal timings, the RPM Team will meet with City staff for review of the proposed timing plans prior to the development of coding sheets and implementation.

Sub-Task 1.4 – General Coordination

General correspondence throughout the course of the project, including phone calls and e-mails necessary to accomplish the study objectives, as well as general administration and accounting activities will be classified as general coordination. In addition to City staff, officials from the Tennessee Department of Transportation (TDOT) Headquarters and Region 3 Traffic Office will be invited to participate in the initial agency interview meeting and project status meetings.

Task 2.0 – Data Collection

The RPM Team will compile and review data from various sources to achieve the objectives described for this project. This will include current data collected by the RPM Team as well as historical data obtained from various sources including data to be obtained from TDOT and the City. Data collection will include traffic counts to supplement the City's counts, intersection geometry, signal timing settings, and field observations of existing traffic operations.

Sub-Task 2.1 – Existing Historical Data

The RPM Team will compile and review available existing historical data for the project area. This includes items such as previous traffic studies, signal designs, and data collected by the City and State. Specifically this includes but is not limited to:

- Historical count data, such as historical turning movement counts (TMC) and historical average daily traffic (ADT) data collected by the City and/or TDOT
- Record design information for traffic signals and intersections
- Existing traffic signal operational settings, such as phasing and timings as well as existing controller information and coding formats
- Current signal controller user's manual and coding sheets

Sources will include GIS and record information to be made available by the City, and data collected as part of TDOT's annual count program.

Sub-Task 2.2 – New Count Data

This task is being performed under a separate contract by RPM.

Sub-Task 2.3 - Existing Network and Signal System Inventory:

The RPM Team will compile a detailed inventory of the existing roadway network and signal system. The network and signal system inventory will include photographs, field measurements and documentation of key features such as speed limits, lane widths and turn lane storage, bicycle and pedestrian facilities, adjacent land uses, documentation of visible traffic signal components such as signal heads, traffic signs, detector loops, video detection cameras, emergency pre-emption equipment, pull boxes, and controller cabinet location and type. This will include a photograph of each signal cabinet with the participation of City staff to oversee access to each cabinet.

The RPM Team will assemble current signal timings and operation settings for each signalized intersection in the network, record signal designs (where available), current signal controller user's manuals and coding sheets. GIS data made available by the City will be utilized to document inventory information. In cooperation with City staff, the RPM Team will compile this information for use in the study and analyses of existing conditions.

Sub-Task 2.4 – Existing Signal System Observations:

Once count data has been obtained, the RPM Team will perform field visits as a part of the signal system inventory during peak periods. The RPM Team will observe existing platooning and progression of traffic, verify existing timing plans (cycle lengths, phasing sequences, etc.), identify and observe traffic flow and queuing patterns, as well as monitor potential sub-peaks within the peak periods.

Sub-Task 2.5 – Pre and Post Condition Travel Time and Delay Analysis

Travel time runs are a good measurement of signal timing efficiency along a corridor as well as a means of model calibration. The RPM Team will collect and compile travel time and delay data for the signal system corridor before and after signal timing implementation, "pre" and "post" conditions respectively. Travel time and delay data will be collected for weekday AM, MD, and PM peak periods. No fewer than four travel time runs will be conducted during each time period and corridor. Data collected will include the total travel time, the running time, the stopped time, the average speed, the running speed, and the number of stops.

Following implementation and fine-tuning of the new timings, "post" conditions will be collected. The "post" travel time data will be collected once the system has had ample time to stabilize after the new timings have been implemented. Using the travel time data collected in the field, the RPM Team will prepare "pre" and "post" comparisons of the data collected.

Task 3.0 – Traffic Simulation Model and Existing Conditions Analysis

Using the data collected a simulation model of the network will be developed and calibrated. Utilizing the calibrated model operational analysis of existing conditions will be performed.

Sub-Task 3.1 – Traffic Simulation Model:

In order to develop updated signal timings as well as identify needed improvements, the RPM Team will utilize the traffic simulation and modeling software Synchro and SimTraffic. The use of traffic simulation and modeling software is extremely valuable in developing signal timings and optimizing a synchronized network; however, the software must be accurately configured and carefully calibrated in order to obtain good results. Utilizing the base information collected in Task 2, a Synchro network will be constructed of the intersections that make up the study area network. The model will be coded with geometric and volume data as well as existing signal phasing and timing information. This model will be provided to City staff at project conclusion.

Sub-Task 3.2 Model Calibration:

Using field observation information and pre-condition travel time, SimTraffic will be used to calibrate the Synchro model by comparing it to the existing field conditions. Factors such as speeds within intersections, headways, and reaction times will be adjusted to ensure the model accurately reflects existing conditions. Models will be developed and calibrated for each time-period studied.

Sub-Task 3.3 – Existing Operational Analysis

Once the model has been fully calibrated, existing operational conditions will be evaluated. To determine the current operation of the area intersections, capacity analyses will be performed for the peak hours at the signal timing project intersections. The capacity calculations will be performed according to the methods outlined in the *Highway Capacity Manual*, TRB 2010. This evaluation will establish the base condition to which all future modifications will be compared. In addition, these capacity analyses will be used to evaluate the need for roadway and traffic control improvements at the project area intersections. This information will be compiled in a summary memorandum submitted to the City in an electronic format and discussed at the second project meeting.

Sub-Task 3.4 – Existing Conditions Report

The RPM Team will prepare an existing conditions report documenting the existing operating conditions along the corridor, which includes existing performance measures such as level of service (LOS), average vehicle delay, and volume to capacity (v/c) ratio for each intersection. Furthermore, a summary of the existing operational analysis will be provided as part of this report.

Task 4.0 – Timing Plan Development

Once the Synchro model is built and calibrated, it will be utilized to optimize the signal phasing and timings of the signalized intersections on the corridor. Using the data collected in Task 2 and files developed in Task 3, the RPM Team will develop timing plans for each of the signalized intersections. It is anticipated that five (5) timing plans will be developed for each intersection. These include the following:

- Weekday AM Peak timing plan
- Weekday MD Peak timing plan
- Weekday PM Peak timing plan
- Off-Peak timing plan
- Weekend peak timing plan

Timing plans will be developed in five (5) sub-tasks:

Sub-Task 4.1 – Local Controller Settings Development

Using the criteria set forth in ITE's *Manual of Traffic Signal Design*, the RPM Team will calculate and recommend values for the following local controller settings: minimum vehicular green, yellow clearance interval, all-red clearance interval, pedestrian walk time, and pedestrian flashing don't walk time. These values will be tabulated in a spreadsheet format and submitted to City staff for review and comment prior to finalization.

Sub-Task 4.2 – System Boundary Determination

The RPM Team will evaluate signal system boundaries throughout the corridor and use the following criteria to determine the system boundaries:

- ADT and TMC count data
- Signal spacing
- Cycle length requirements
- Driver expectancy
- Existing features (line of sight, topography, land use, etc.)
- Synchro coordinatability factors
- Coupling Index ($I = V/D$, where D = distance, V = link volume, and I = coupling index)

Sub-Task 4.3 – Cycle Length Evaluation

Using the base model developed in Task 3, the consultant will begin the re-timing process by performing peak hour cycle length evaluations in Synchro by evaluating the natural cycle lengths and coordinatability factors for each signal. Using evaluations from Synchro along with knowledge gained via observations in the field, a cycle length will be recommended for each timing plan. Preliminary cycle length recommendations will be tabulated for City staff review along with accompanying remarks. This information will then be provided to City staff and agreed upon prior to further timing plan development.

Sub-Task 4.4 – Cycle, Split, Offset, and Phase Sequence Development

Once the cycle lengths for each period have been finalized, each intersection will be evaluated to determine the optimal phase splits for each vehicle movement. Next, offset manipulation will be analyzed in an effort to maximize the arterial greenbands and reduce vehicle stops and delay. Both Synchro and SimTraffic will be used to analyze and observe coordination options. Recommended timing plans will be reviewed by City staff and approved prior to field implementation as part of the third project meeting.

Sub-Task 4.5 – Coding Sheet/TOD Clock Development

Using the ADT counts collected in Task 2, the RPM Team will develop a Time-of-Day (TOD) Clock for each signal system to determine the optimal timing plan for each hour of a typical weekday or weekend. The RPM Team will also discuss overnight flash operation preferences with City staff and make the appropriate changes in each signal's TOD Clock if flash operation is to be implemented at select intersections along the corridor.

The RPM Team will transfer the recommended timings for each intersection into a coding sheet format that is compatible with the City's signal controllers. Coding sheets will be provided to City staff electronically in Microsoft Excel format.

Task 5.0 – Signal Timing Implementation

The RPM Team will implement and fine-tune recommended phasing and timings. Subtasks associated with this work are described below.

Sub-Task 5.1 – Field Implementation

The RPM Team will field implement the timing data into the local controllers once field implementation begins. Coding sheets will be provided to City staff in electronic format after timing plans have been successfully implemented by the RPM Team.

Sub-Task 5.2 - Field Monitoring and Adjustments

The RPM Team will conduct field observations of each signalized intersection. Using the Time Space Diagrams (TSD's, developed in Synchro) for each signal, the coordinated timings will be verified as to effectiveness and fine-tuned as necessary. Progression, as well as split times, TOD settings or other settings, may be adjusted based on these observations. During field implementation any immediate adjustments recognized will be made that day in the field. The RPM Team will revisit and monitor the implemented timings after the initial field implementation to make any final adjustments. These changes will also be documented via a second field implementation memorandum, and the Synchro files will be updated accordingly.

Task 6.0 – Analysis and Recommendations

Building on the materials and work performed to develop and implement new signal timings; analyses will be performed to identify potential improvements and strategies for improving and maintaining optimized operations. Strategies will consider access management, modified signal phasing, signal timing, intersection laneage, and in-depth consideration of Intelligent Transportation System (ITS) and new technologies.

Sub-Task 6.1 – Development of Recommended Improvements

Initial analysis will focus on identifying how well can the corridor operate with its existing infrastructure. It is anticipated that the opportunity exists to improve traffic operations along the corridor with minimal or no improvements to the existing network infrastructure. Specifically, signal phasing and timing adjustments are likely to offer immediate/short-term cost effective benefits to traffic operations.

Analyses will likely reveal that some key roadway improvements would substantially improve the benefit of a fully coordinated and interconnected traffic signal system. Analysis of the benefits of more significant infrastructure and signal system modifications such as traffic responsive systems will also be performed. Improvements identified as such will be considered as potential long-term improvements, along with the recommended infrastructure improvements.

Identified improvements will be categorized as Short-Term Improvements (STI), with Mid-Term Improvements (MTI), or Long-Term Improvements (LTI). Network improvements and estimated costs necessary for implementation will be identified for each scenario. Following the completion of each analysis phase, RPM will meet with City staff to discuss its findings.

Sub-Task 6.2 – Final Signal Timing Report

Following the development of recommended improvements, RPM will prepare a summary report documenting the following:

- Project overview
- Data collection summary
- Analysis techniques and approaches used
- Timing plan data development summary
- Results of field implementation/fine-tuning
- Project results (before and after studies: travel time results (stop / delay reductions), emissions results, fuel consumption results, benefit to cost ratio results)
- Recommended improvements

This report will be provided in electronic and hard copy format to the City of Spring Hill and TDOT Headquarters and Region 3 Traffic Office. Any recommended improvements identified will be discussed as a part of the report. The anticipated improvements performance measures (LOS, average vehicle delays, and v/c ratios) will also be determined.

Sub-Task 6.3 – Presentation of Analyses and Recommendations

Following the completion of implementation and analysis of the project, the RPM Team will be available to make a presentation of the results.

ADDITIONAL SERVICES

Any work, other than the scope of services outlined herein, shall be designated additional services. At such time that it is determined that these additional services are required, RPM Transportation Consultants, LLC reserves the right to amend this proposal or execute a separate agreement that will provide such services. Services desired by the client, but not specifically outlined herein, can be provided on an hourly basis in accordance with RPM Transportation Consultants, LLC's standard hourly rates. The following tasks are provided to illustrate that there may be a need for additional service items that could arise beyond the services identified above in support of this project. These service items may include:

- Additional Traffic Data Collection (including potential counts that may be necessary due to adverse traffic conditions impacting normal travel day counts)
- Additional Timing Plans for Holiday Operations (i.e. Black Friday, December 1st thru December 24th)
- Intersection Signal and Geometric Design/Modifications



- Signal System Design
- Traffic Signal Designs/Modifications
- Training (both on the coordinated signal timing approach and on the use of the Synchro/SimTraffic software packages)
- Others services, as requested by the City

COMPENSATION

Compensation for the work specified above is as follows:

Task	Description of Work	Fee
0.0	Walmart Signal Timing Adjustment	\$3,800.00
	- Estimated Expenses	\$425.00
	Sub-Total (Task 0.0)	\$4,225.00
1.0	Project Management	\$13,850.00
2.0	Data Collection*	\$9,800.00
3.0	Traffic Simulation Model & Existing Conditions Analysis	\$9,500.00
4.0	Timing Plan Development	\$8,500.00
5.0	Signal Timing Implementation	\$21,500.00
	- Estimated Expenses	\$3,400.00
	Sub-Total (Task 1.0-5.0)	\$66,500.00
6.0	Analysis and Recommendations	\$10,750.00
	- Estimated Expenses	\$350.00
	Sub-Total (Task 6.0)	\$11,100.00
	Project Total (Labor Fee and Expenses)	\$81,875.00

*Does NOT include any fee associated with Task 2.2, New Data Collection under other contract

Work performed will be billed on a lump sum basis. Individual task amounts are provided for budgeting purposes only. RPM reserves the right to reallocate amounts among tasks as necessary.

We appreciate the opportunity to assist you on this project. Please contact our office if you have any questions or need any additional information.

Sincerely,
RPM Transportation Consultants, LLC

Daniel J. Spann, P.E., PTOE