

**AN ORDINANCE AUTHORIZING THE CITY MANAGER TO EXECUTE A COOPERATIVE AGREEMENT BETWEEN THE CITY OF GLADSTONE AND THE MID-AMERICA REGIONAL COUNCIL (MARC) FOR FUNDING OPERATIONS OF THE OPERATION GREEN LIGHT TRAFFIC CONTROL SYSTEM.**

**Legislative Findings**

1. MARC performed a feasibility study, "*Operation Green Light Feasibility Report, June 2000*," which created a regional arterial traffic signal coordination system known as "Operation Green Light;" and
2. The City of Gladstone operates and maintains six (6) traffic signals on North Oak Trafficway that are included in the Operation Green Light Traffic Control System; and
3. The first cooperative agreement to fund operations was executed by the City of Gladstone covering 2009 through 2014; and
4. A second agreement was executed in 2014 to fund operations in 2015 and 2016; and
5. A third agreement is required to fund operations in 2017 and 2018 at a cost of \$4,800.00 per year for a total amount not to exceed \$9,600.00.

**NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF GLADSTONE, MISSOURI, AS FOLLOWS:**

**THAT**, the City Manager of the City of Gladstone, Missouri, is hereby authorized to execute the agreement with the Mid-America Regional Council (MARC) for funding operations of the Operation Green Light Traffic Control System in an amount not to exceed \$9,600.00.

**FURTHER**, Funds for the program costs are budgeted in the City of Gladstone's General Fund.

**INTRODUCED, READ, PASSED AND ADOPTED BY THE COUNCIL OF THE CITY OF GLADSTONE, MISSOURI, THIS 24<sup>th</sup> DAY OF APRIL, 2017.**

  
R.D. Mallams, Mayor

Attest:

  
Ruth E. Bocchino, City Clerk

1<sup>st</sup> Reading: April 24, 2017

2<sup>nd</sup> Reading: April 24, 2017





***Department of Public Works  
Memorandum***

**DATE:** April 18, 2017  
**TO:** Scott Wingerson, City Manager  
**FROM:** Timothy A. Nebergall, Director of Public Works *TAN*  
**RE:** Operation Green Light Operations Funding

Operation Green Light (OGL) is a regional initiative managed by the Mid-America Regional Council (MARC) with a goal of coordinating traffic signals to improve travel times and reduce vehicle emissions. The program includes 22 partner agencies and incorporates nearly 700 signalized intersections across the region. The N. Oak Trafficway corridor, which begins at NE 42<sup>nd</sup> Street and ends at New Mark, includes a total of 21 intersections, 6 of which are located within the City of Gladstone.

OGL uses a regional wireless communication and software system that allows traffic signals to be monitored in real-time. Cities still maintain full control of each traffic signal, however, OGL has the ability to monitor, make changes, and troubleshoot; sometimes without even visiting the site. Coordination of the traffic signals along the corridor is based on timing plans.

In 2014, MARC published a report that estimated an annual economic savings of \$425,000 each year in reduced travel time and fuel consumption for motorists that utilize the corridor based upon \$3.50 per gallon. In addition to the economic benefits, OGL has proven to be an invaluable resource in monitoring existing traffic signals. OGL staff has contacted the City on a variety of issues including non-operational traffic loops and pedestrian signals. Furthermore, OGL staff assisted in collecting traffic counts and controller programming at N. Oak Trafficway and NE 76<sup>th</sup> Street.

Gladstone first executed a cooperative agreement in 2009. That agreement was renewed in 2014 for a period of 2-years at an annual cost to the City of \$4,800. A new agreement is required to fund operations in 2017 and 2018. Staff is recommending that the City execute a new funding agreement with MARC for 2017 and 2018 at an annual cost to the City of \$4,800. OGL operations is budgeted in the General Fund.

If you have any questions, please contact me at your convenience.



## Operation Green Light Traffic Signal Coordination Report North Oak Trafficway - New Mark Drive to NE 42nd Street

### Introduction

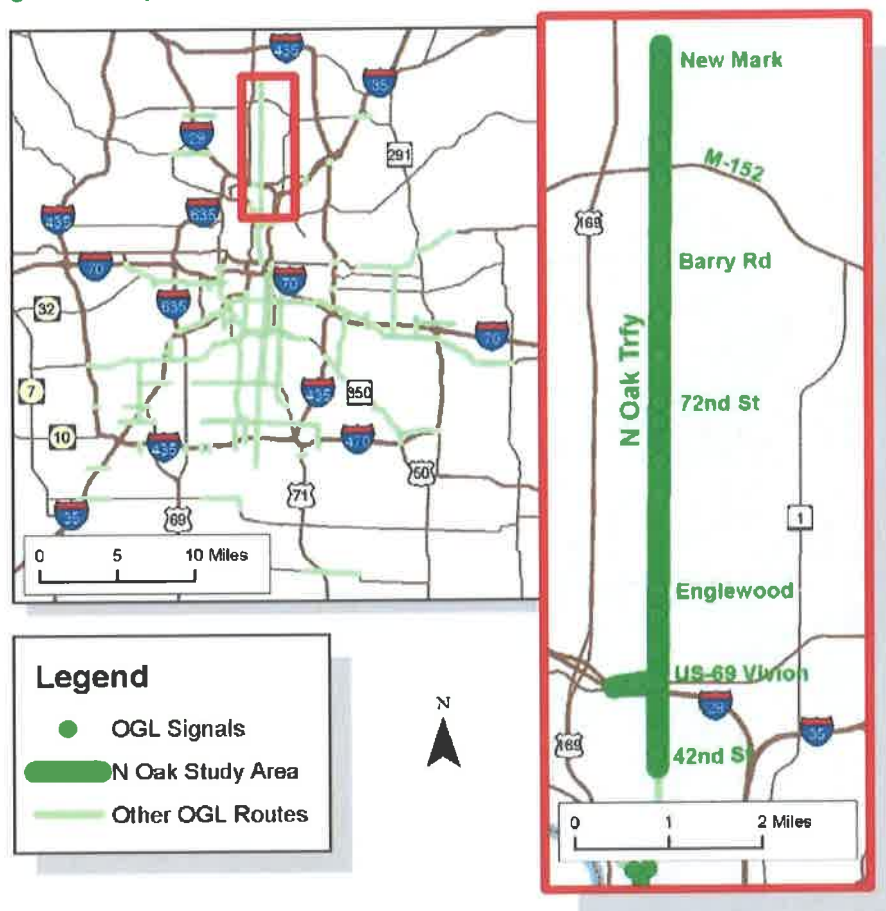
Operation Green Light (OGL) is a regional effort to improve traffic flow and reduce vehicle emissions. Managed by the Mid-America Regional Council (MARC), Operation Green Light works with federal, state and local agencies to develop and implement a system to coordinate traffic signal timing plans and communication between traffic signal equipment across jurisdictional boundaries.

This report details the work performed on the North Oak Trafficway corridor in 2008 and 2011, and the benefits to the traveling public resulting from this work.

### Corridor Orientation

The North Oak corridor from New Mark Drive to NE 42nd Street is a part of the OGL system. The 19 signalized intersections on North Oak itself are spread over approximately 7.3 miles. The study area also includes two intersections on US-69 just west of North Oak. See **Figure 1** for a map of the area.

**Figure 1. Map of the North Oak study area.**





The intersections at the M-152 ramps (1) and on US-69 (3) are maintained by the Missouri Department of Transportation (MoDOT). The intersections from 76th to Englewood (6) are maintained by the city of Gladstone, Missouri. The remaining intersections (11) are maintained by the city of Kansas City, Missouri. North Oak is a four-lane road with a speed limit of 35 miles per hour in Gladstone and 40 miles per hour outside of Gladstone. The average daily traffic is approximately 27,000 vehicles per day near M-152. All intersections have vehicle detection for all movements except 76th, 70th, and 67th which do not have detection for the primary northbound and southbound through movements. Communications between the signal controllers and the Traffic Operations Center is through the OGL wireless network. M-152 on the north end of the corridor and I-29 and US-69 in the south are significant traffic generators for the corridor, which is characterized by mixed retail and residential land use.

### Pre-existing Conditions

Prior to the changes made in September of 2008, the intersections from 96th to Sherrydale and the three intersections on US-69 were each running coordination plans. The north section's plans were cycle lengths of 100, 70, and 100 seconds for AM peak, off peak and PM peak periods respectively. The US-69 section ran plans with 120, 90, and 120 second cycle lengths for AM peak, off peak and PM peak periods respectively. All the other signals on the corridor ran free.

### New Coordination Plans

The services of a consulting firm were utilized to analyze the corridor and develop the signal coordination plans for the AM and PM Peak periods in 2008, which plans were installed in September of 2008. In 2011 a consulting firm was again utilized, this time to develop off peak / midday coordination plans which were installed in June of 2011. See **Table 1** for times and cycle lengths.

**Table 1. New weekday coordination plans**

| Plan     | Section               | Plan Active Weekdays         | Plan Active Weekends | Cycle Length |
|----------|-----------------------|------------------------------|----------------------|--------------|
| AM Peak  | New Mark - 64th       | 6:30 - 9:00                  | -----                | 100          |
|          | Englewood - 42nd      | 6:30 - 9:00                  | -----                | 120          |
| Off Peak | 96th - Barry Rd       | 9:00 - 15:30, 18:30 - 21:00* | 8:00 - 21:00*        | 100          |
|          | 79th - 64th           | 9:00 - 15:30                 | -----                |              |
|          | Englewood - 42nd      | 9:00 - 15:30, 18:30 - 20:00* | 8:30 - 18:00*        |              |
| PM Peak  | New Mark - Sherrydale | 15:30 - 18:30                | -----                | 100          |
|          | 85th Terr - Barry Rd  | 15:30 - 18:30                | -----                | 125          |
|          | 79th - 64th           | 15:30 - 18:30                | -----                | 100          |
|          | Englewood - 42nd      | 15:30 - 18:30                | -----                | 120          |

\*Schedules vary from intersection to intersection on the off peak plan due to some being less travelled and requiring coordination less.







As per the 2009 Manual on Uniform Traffic Control Devices (MUTCD) the yellow and red vehicle clearance intervals, as well as the pedestrian crossing times were updated to the new standards as a part of the 2011 re-timing process.

## Results

For a detailed explanation of the Measures of Effectiveness (MOEs) used by MARC staff to evaluate timing plan changes, please see the document titled [OGL MOE Methodology](#) found online as referenced at the end of this report.

MARC staff performed travel time studies before and after the implementation of the coordination plans in order to gauge the effectiveness of the new plans on North Oak. The travel time runs started from the beginning of green of the first intersection. The raw results of the travel time runs can be found in **Appendix A** and a summary of these results is found in **Table 2**.

MARC staff also performed a visual inspection of all non-coordinated movements to ensure that there was no undue delay on side streets or left turns. In addition, all non-coordinated movements were examined with traffic signal coordination modeling software as detailed in the following section.

Travel time studies were not completed for the east-west crossing corridor US-69 since only three intersections are involved; however coordinated progression was provided for these movements. As part of analyzing the benefits of the retiming project, changes in delay at these movements are modeled in the signal coordination software only, rather than directly measuring the travel profile with a vehicle.



**Table 2. Results of travel time studies / entire corridor / one vehicle**

| AM                                     |                | Travel Time (sec) | Travel Delay (sec) * | Number of Stops** | Average Speed (mph) | Fuel (gal) | ----- Emissions (grams) ----- |          |         | Approx Average veh/peak hr |
|--|----------------|-------------------|----------------------|-------------------|---------------------|------------|-------------------------------|----------|---------|----------------------------|
|  |                |                   |                      |                   |                     |            | HC                            | CO       | NOx     |                            |
| NB                                     | Before         | 929.0             | 230.0                | 7.4               | 28.5                | 0.3896     | 36.2820                       | 377.3498 | 21.9519 | 296                        |
|  | After          | 860.9             | 161.8                | 5.9               | 30.7                | 0.3679     | 33.2980                       | 353.8312 | 19.8549 |                            |
|  | Change         | -68.1             | -68.1                | -1.5              | 2.2                 | -0.0217    | -2.9840                       | -23.5186 | -2.0970 |                            |
|  | Percent Change | -7.3%             | -29.6%               | -20.3%            | 7.7%                | -5.6%      | -8.2%                         | -6.2%    | -9.6%   |                            |
| SB                                     | Before         | 894.9             | 196.3                | 6.6               | 29.6                | 0.3840     | 35.7668                       | 380.3289 | 21.8634 | 586                        |
|  | After          | 838.5             | 139.9                | 4.8               | 31.5                | 0.3586     | 31.8292                       | 342.2260 | 18.6303 |                            |
|  | Change         | -56.4             | -56.4                | -1.8              | 1.9                 | -0.0254    | -3.9376                       | -38.1029 | -3.2331 |                            |
|  | Percent Change | -6.3%             | -28.7%               | -27.2%            | 6.4%                | -6.6%      | -11.0%                        | -10.0%   | -14.8%  |                            |
| Volume-weighted Average Percent Change |                | -6.6%             | -29.0%               | -24.9%            | 6.9%                | -6.3%      | -10.1%                        | -8.7%    | -13.0%  |                            |
| <b>Noon</b>                            |                |                   |                      |                   |                     |            |                               |          |         |                            |
| NB                                     | Before         | 925.0             | 226.0                | 5.9               | 28.6                | 0.3832     | 36.3686                       | 381.3717 | 22.1403 | 658                        |
|  | After          | 910.5             | 211.5                | 4.9               | 29.0                | 0.3724     | 34.6188                       | 364.2219 | 20.4041 |                            |
|  | Change         | -14.5             | -14.5                | -1.0              | 0.4                 | -0.0108    | -1.7498                       | -17.1498 | -1.7362 |                            |
|  | Percent Change | -1.6%             | -6.4%                | -17.0%            | 1.4%                | -2.8%      | -4.8%                         | -4.5%    | -7.8%   |                            |
| SB                                     | Before         | 976.4             | 277.8                | 6.4               | 27.1                | 0.3898     | 36.8912                       | 378.4706 | 21.9812 | 647                        |
|  | After          | 877.0             | 178.4                | 5.6               | 30.2                | 0.3695     | 34.1357                       | 361.2213 | 20.4909 |                            |
|  | Change         | -99.4             | -99.4                | -0.8              | 3.1                 | -0.0203    | -2.7555                       | -17.2493 | -1.4903 |                            |
|  | Percent Change | -10.2%            | -35.8%               | -12.5%            | 11.4%               | -5.2%      | -7.5%                         | -4.6%    | -6.8%   |                            |
| Volume-weighted Average Percent Change |                | -5.8%             | -21.0%               | -14.8%            | 6.4%                | -4.0%      | -6.1%                         | -4.5%    | -7.3%   |                            |
| <b>PM</b>                              |                |                   |                      |                   |                     |            |                               |          |         |                            |
| NB                                     | Before         | 1018.0            | 319.0                | 7.8               | 26.0                | 0.4036     | 39.1364                       | 394.2153 | 23.7701 | 807                        |
|  | After          | 921.7             | 222.7                | 4.7               | 28.7                | 0.3557     | 31.8918                       | 325.5376 | 17.5953 |                            |
|  | Change         | -96.3             | -96.3                | -3.1              | 2.7                 | -0.0479    | -7.2446                       | -68.6777 | -6.1748 |                            |
|  | Percent Change | -9.5%             | -30.2%               | -39.6%            | 10.4%               | -11.9%     | -18.5%                        | -17.4%   | -26.0%  |                            |
| SB                                     | Before         | 978.0             | 279.4                | 6.8               | 27.1                | 0.3887     | 36.2853                       | 370.1169 | 21.3120 | 570                        |
|  | After          | 917.3             | 218.8                | 4.5               | 28.9                | 0.3555     | 31.3883                       | 323.5651 | 17.0164 |                            |
|  | Change         | -60.7             | -60.7                | -2.3              | 1.8                 | -0.0332    | -4.8970                       | -46.5518 | -4.2956 |                            |
|  | Percent Change | -6.2%             | -21.7%               | -33.7%            | 6.7%                | -8.5%      | -13.5%                        | -12.6%   | -20.2%  |                            |
| Volume-weighted Average Percent Change |                | -8.1%             | -26.7%               | -37.1%            | 8.8%                | -10.5%     | -16.4%                        | -15.4%   | -23.6%  |                            |

(Due to rounding and linking of data from other sources, calculations may appear imprecise)

\* Travel Delay is calculated here manually as the difference between travel time measured and the ideal travel time at speed limit.

\*\* A stop is an instance where the vehicle speed drops below five mph.







**Table 4. Economic impacts on traveling public.**

|                     | Travel<br>Time   | Fuel     | Total For<br>Period |
|---------------------|------------------|----------|---------------------|
| AM Peak Savings     | \$110            | \$60     | \$180               |
| Noon Savings        | \$360            | \$110    | \$470               |
| PM Peak Savings     | \$770            | \$290    | \$1,050             |
| Total Daily Savings | \$1,240          | \$460    |                     |
| Grand Total Savings | \$1,700          | per day  |                     |
|                     | <b>\$425,000</b> | per year |                     |

(Due to rounding and linking of data from other sources, calculations may appear imprecise)

## Benefit-to-Cost Ratio

MARC staff anticipates that the continued operations of the OGL system will cost approximately \$1800 per signal per year in labor, contract costs, equipment repair and maintenance and other direct costs. Therefore the annual cost associated with the 21 signals on the North Oak corridor is \$37,800 per year. The benefit-to-cost ratio for this corridor re-timing project is therefore **11 to 1**.

## Conclusion

The new coordination plans implemented on North Oak are a benefit to the motoring public. Not all movements see improvements at all times of day, and some see more than others. However, overall benefits are significant. During the AM and Off Peak / Midday plans, the non coordinated movements suffered some increased delay, but this is more than outweighed by the benefit of reduced delay on the coordinated movements. Interestingly, during the PM Peak plan, the total change of the non-coordinated movements is a decrease in delay, rather than an increase, as one would expect, when moving from a non-coordinated system to a coordinated one. This is largely due to two areas: M-152 and US-69 & N-Oak which were running coordination plans prior to this work. At these intersections changes in phase sequence and splits greatly improved some very heavily utilized left turn movements. These movements were also helped in the AM and Off Peak plans, but not enough to outweigh all the other non-coordinated movements.

As a result of the efforts expended on this corridor, the traveling public will save around \$425,000 annually in the cost of their time and fuel, as compared with the amount of time and fuel they would have spent on this corridor without any changes. However, as time passes, traffic patterns will change that could alter the travel profile along this corridor, thus requiring additional adjustments to the signal timing to preserve efficient operation. Additionally, as the price of gasoline changes, the savings realized by the traveling public is impacted.

For more information learn about OGL online:

<http://www.marc.org/Transportation/Commuting/Operation-Green-Light/About-OGL.aspx>

[Appendix A. Raw PC-Travel results]

[Appendix B. Calculations of net results in MOEs for all significantly affected vehicles]





**COOPERATIVE AGREEMENT  
FOR FUNDING OPERATIONS OF OPERATION GREEN LIGHT  
TRAFFIC CONTROL SYSTEM**

THIS COOPERATIVE AGREEMENT FOR FUNDING OPERATIONS OF OPERATION GREEN LIGHT TRAFFIC CONTROL SYSTEM (this "Agreement") is made and entered into this 24 day of April, 2016 by and between Mid-America Regional Council ("MARC") and the City of Gladstone, Missouri, a Third-Class Missouri, Statutory City, (the "City").

**WHEREAS**, the Mid-America Regional Council performed a feasibility study "*Operation Green Light Feasibility Report, June 2000*" (hereafter, the "Feasibility Report"), which created a regional arterial traffic signal coordination system known as "Operation Green Light", for the Kansas City Urban Area including facilities under the jurisdiction of the Missouri Department of Transportation, the Cities of Belton, Gladstone, Independence, Kansas City, Lee's Summit, Liberty, North Kansas City, Raymore in Missouri and the jurisdiction of the Kansas Department of Transportation, the Cities of Bonner Springs, Fairway, Lansing, Leavenworth, Leawood, Lenexa, Merriam, Mission, Mission Woods, Olathe, Overland Park, Prairie Village, Shawnee, Westwood and the Unified Government of Wyandotte County/Kansas City in Kansas (collectively, the Member Agencies); and

**WHEREAS**, the Strategic Plan 2013-2016 established the vision, mission, objectives and goals of the program; and

**WHEREAS**, improvement in traffic operational efficiency, air quality and monetary savings to the Member Agencies and the public can be realized from a consolidated management approach of coordinated traffic signal control along arterial corridors in the roadway systems of each Member Agency; and

**WHEREAS**, the Member Agencies and MARC desire to obtain a Regional Traffic Control System, hereinafter defined, for the purpose of coordinating traffic signals within the Jurisdictional Boundaries of the Member Agencies from a single Regional Traffic Management Center; and

**WHEREAS**, Member Agencies in Missouri are authorized pursuant to the provisions of Article VI, Section 16 of the Missouri Constitution and Sections 70.210 et. seq. of the Revised Statutes of Missouri to enter into cooperative agreements for the purpose of coordinating traffic signals between and within the Jurisdictional Boundaries of the Member Agencies; and

**WHEREAS**, each Member Agency has agreed to enter into an agreement to fund the cost of operating such a Regional Traffic Control System; and

**NOW, THEREFORE**, in consideration of the covenants and conditions herein set forth, MARC and the City (collectively, the "Parties") mutually agree as follows:

**Sec. 1. STATUTORY AUTHORITY.** Pursuant to the authority set forth in Article VI, Section 16 of the Missouri Constitution and Section 70.210 et. seq. R.S.Mo the parties enter into this Agreement to operate a Regional Traffic Control System, hereinafter defined, for the

**Sec. 9. TERMINATION FOR CONVENIENCE.** Either party to this Agreement may terminate this Agreement by giving 180 days' notice to the other Party. Financial obligations will be honored up to the effective date of termination. An agency that terminates this agreement may no longer be granted access to the Regional Traffic Control System. Costs may be incurred by the agency terminating the agreement for MARC to uninstall or transfer ownership of network equipment owned by MARC.

**Sec. 10. MERGER.** This Agreement constitutes the entire agreement between City and MARC with respect to this subject matter.

**Sec. 11. INDEPENDENT CONTRACTOR.** MARC is an independent contractor and is not City's agent. MARC has no authority to take any action or execute any documents on behalf of City.

**Sec. 12. COMPLIANCE WITH LAWS.** MARC shall comply with and shall require its Private Firms to comply with all federal, state and local laws, ordinances and regulations applicable to the work and this Agreement.

**Sec. 13. DEFAULT AND REMEDIES.** If MARC shall be in default or breach of any provision of this Agreement, City may terminate this Agreement, suspend City's performance, withhold payment or invoke any other legal or equitable remedy after giving MARC written notice and opportunity to correct such default or breach within thirty (30) days of receipt of such notice; provided, however, if such default or breach cannot be cured within thirty (30) days, then MARC shall commence to cure within thirty (30) days.

**Sec. 14. WAIVER.** Waiver by City of any term, covenant, or condition hereof shall not operate as a waiver of any subsequent breach of the same or of any other term, covenant or condition. No term, covenant, or condition of this Agreement can be waived except by written consent of City, and forbearance or indulgence by City in any regard whatsoever shall not constitute a waiver of same to be performed by MARC to which the same may apply and, until complete performance by MARC of the term, covenant or condition, City shall be entitled to invoke any remedy available to it under this Agreement or by law despite any such forbearance or indulgence.

**Sec. 15. MODIFICATION.** Unless stated otherwise in this Agreement, no provision of this Agreement may be waived, modified or amended except in writing signed by City and MARC.

**Sec. 16. HEADINGS; CONSTRUCTION OF AGREEMENT.** The headings of each section of this Agreement are for reference only. Unless the context of this Agreement clearly requires otherwise, all terms and words used herein, regardless of the number and gender in which used, shall be construed to include any other number, singular or plural, or any other gender, masculine, feminine or neuter, the same as if such words had been fully and properly written in that number or gender.

**Sec. 17. AUDIT.** The City shall have the right to audit this Agreement and all books, documents and records relating thereto. MARC shall maintain all its books, documents and records relating to this Agreement and any contract during the period of this Agreement and for three (3) years after the date of final payment of the contract or this Agreement, which ever

expires last. The books, documents and records shall be made available for the City's review within fifteen (15) business days after the written request is made.

**Sec. 18. AFFIRMATIVE ACTION.** MARC shall not discriminate against any employee or applicant for employment because of race, color, religion, ancestry or national origin, sex, disability, age, or sexual orientation. MARC shall require any third party firms it contracts with ("Private Firms") to establish and maintain for the term of this Agreement an Affirmative Action Program in accordance with the provisions the Title VI of the Civil Rights Act of 1964, as amended. More specifically, any third party firm will comply with the applicable regulations of the U. S. Department of Transportation (USDOT) relative to non-discrimination in federally assisted programs of the USDOT, as contained in 49 CFR 21 through Appendix H and 23 CFR 710.405 which are herein incorporated by reference and made a part of this Agreement.

**Sec. 19. ASSIGNABILITY OR SUBCONTRACTING.** MARC shall not subcontract, assign or transfer any part or all of MARC's obligations or interests without City's prior approval which shall not be unreasonably delayed or withheld. If MARC shall subcontract, assign, or transfer any part or all of MARC's interests or obligations under this Agreement without the prior approval of City, it shall constitute a material breach of this Agreement.

**Sec. 20. CONFLICTS OF INTEREST.** MARC shall require its Private Firms to certify that no officer or employee of City, or no spouse of such officer or employee, has, or will have, a direct or indirect financial or personal interest in this Agreement or any other related agreement, and that no officer or employee of City, or member of such officer's or employee's immediate family, either has negotiated, or has or will have an arrangement, concerning employment to perform services on behalf of MARC or its Private Firms in this Agreement or any other related agreement.

**Sec. 21. RULES OF CONSTRUCTION.** The judicial rule of construction requiring or allowing an instrument to be construed to the detriment of or against the interests of the maker thereof shall not apply to this Agreement.

**Sec. 22. NOTICE:** Any notice to a party in connection with this Agreement shall be made in writing at the following address or such other address, as the party shall designate in writing:

City of Gladstone  
Attention: Tim Nebergall, Public Works Director  
4000 NE 76th St  
Gladstone, MO 64119

MARC  
Attention: Director of Transportation and Environment  
600 Broadway, Suite 200  
Kansas City, Missouri 64105

**Sec. 23. GOVERNING LAW.** This Agreement shall be construed and governed in accordance with the law of the State of Missouri. Any action in regard to this Agreement or arising out of its terms and conditions must be instituted and litigated in the courts of the State of Missouri within

Jackson County, Missouri, and in no other. The parties submit to the jurisdiction of the courts of the State of Missouri and waive venue.

**Sec. 24. INDEMNIFICATION BY PRIVATE FIRMS.** MARC shall require its Private Firms (including, without limitation, any design professionals) to defend, indemnify, and hold harmless the City and any of its agencies, officials, officers, or employees from and against all claims, damages, liability, losses, costs, and expenses, including reasonable attorney fees, arising out of any negligent acts or omissions in connection with the services preformed pursuant to this Agreement (including, without limitation, professional negligence), caused by a Private Firm, its employees, agents, contractors, or caused by others for whom the Private Firm is liable. Notwithstanding the foregoing, the Private Firm is not required under this section to indemnify the City for the negligent acts of the City or any of its agencies, officials, officers, or employees.

**Sec. 25. INSURANCE.** MARC and any Private Firms retained by MARC shall maintain the types and amounts of insurance set forth in Exhibit 4, which is incorporated herein by this reference; provided, however, the limits set forth in Exhibit 4 are the minimum limits and MARC may carry higher limits as it may deem necessary, in its discretion, or as may be required by other Member Agencies.

**Sec. 26. INITIAL TERM; RENEWAL OF TERM.** The initial term of this Agreement shall be two (2) years ("Term") unless sooner terminated in accordance with Section 9 of this Agreement. The Term of this Agreement shall automatically renew for one additional two (2) year period (the "Renewal Term") on the same terms and conditions as set forth herein; provided, the Term shall not automatically renew if City provides written notice to MARC of its intention not to renew within 180 days prior to the expiration of the Term.

**Sec. 27. CITY BUDGETING.** City represents and warrants, to the best of its knowledge and after appropriate consultation, that the terms of this Agreement conform to the requirements of the Missouri Constitution, Article VI, Section 23, 26(a). City further represents and warrants that its chief administrative office, each year during the term of this Agreement, will submit to and advocate for approval by its governing body of a budget that includes amounts sufficient to pay the City's share of the OGL Operating Costs. City also represents and warrants that its governing body, each fiscal year during the term of this Agreement, will fully consider and make all good faith and reasonable efforts to adopt a budget, for each successive fiscal period during the term of this Agreement, that specifically identifies amounts sufficient to permit City to discharge all of its obligations under this Agreement.

IN WITNESS WHEREOF, each party hereto has executed this Agreement on the day and year herein written.

**MID-AMERICA REGIONAL COUNCIL**

By: [Signature]

Title: Executive Director

Date: 3/28/17

**ACKNOWLEDGMENT**

STATE OF MISSOURI     )  
  ) ss  
COUNTY OF JACKSON    )

On this 23<sup>rd</sup> day of March, 2017, before me, the undersigned, a Notary Public, appeared David A. Warm, to me personally known, or proved to me on the basis of satisfactory evidence, who, being by me duly sworn, did say that he is the Executive Director of Mid-America Regional Council (MARC) and that this foregoing instrument was signed and sealed in behalf of MARC by authority of its Board, and said officer acknowledged said instrument to be executed for the purposes therein stated and as the free act and deed of MARC.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal the day and year last above written.

[Signature: Mark D. Johnson]  
Printed Name Mark D. Johnson  
Notary Public - State of Missouri  
Commissioned in Jackson County

My commission expires:

March 22, 2019



MARK D. JOHNSON  
My Commission Expires  
March 22, 2019  
Jackson County  
Commission #15399198

**CITY OF GLADSTONE, MISSOURI**

By: Scott Winger  
Scott Winger

Title: City Manager

Date: 4/28/17

Approved as to form:

[Signature]  
City Attorney

**ATTEST:**

Ruth E. Bocchino  
Ruth E. Bocchino  
City Clerk, City of Gladstone, MO

**Financial Certification**

I hereby certify that there is a balance otherwise unencumbered to the credit of the appropriation to which the above amount is chargeable and a cash balance otherwise unencumbered in the treasury to the credit of the fund from which payment is to be made, each sufficient to meet the above obligation and that the account has been encumbered by the estimated amount set forth above for the purpose described hereon.

\_\_\_\_\_  
Director of Finance for the City of Gladstone

**ACKNOWLEDGMENT**

STATE OF MISSOURI     )  
  ) ss  
COUNTY OF JACKSON    )

On this 28 day of April, 2017, before me, the undersigned, a Notary Public, appeared Scott Winger, to me personally known, or proved to me on the basis of satisfactory evidence, who, being by me duly sworn, did say that he is the City manager of the City of Gladstone, Missouri, and that the foregoing instrument was signed and sealed on behalf of the City of Gladstone, and said officer acknowledged said instrument to be executed for the purposes therein stated and as the free act and deed of said City.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal the day and year last above written.

Rebecca Jarrett  
Printed Name Rebecca Jarrett  
Notary Public - State of Missouri  
Commissioned in Clay County

My commission expires:

REBECCA JARRETT  
Notary Public - Notary Seal  
STATE OF MISSOURI  
Clay County  
My Commission Expires: November 11, 2018  
Commission #14392947

## EXHIBIT 1

### OPERATION GREEN LIGHT COMMITTEE

#### Role, Responsibility, and Organizational Structure

- 1.1.1 *Responsibilities: The Operation Green Light Steering Committee shall serve to approve budgets, procurement and staffing recommendations to the Mid-America Regional Council Board of Directors and to make other technical and policy decisions concerning the development, deployment and operation of the Operation Green Light regional traffic signal coordination program, including: approve the program's upcoming annual budget during the final meeting of the calendar year. Purchases and contracts shall follow MARC's established threshold guidelines as well as the following: amounts of \$15,000-\$25,000 shall be reported to the committee; amounts of \$25,001 or more shall be voted on and approved by the Steering Committee before purchase or contract is sent to MARC's Board of Directors for approval.*
- 1.1.2 Participate in program decision-making at key points by reviewing and providing comments on project deliverables and by approving or rejecting technical and policy recommendations;
- 1.1.3 Participate in the development of inter-jurisdictional agreements for the construction, operation, maintenance and other activities of the regional traffic signal coordination system; and
- 1.2 Call upon committee members to participate in Task Force work groups as technical issues rise requiring additional effort than time allows during a Steering Committee meeting. The Task Force shall submit to the Steering Committee recommendations based on its discussions.
- 1.3 Membership and Meetings: The Steering Committee shall be composed of representatives from participating agencies in the following manner:

(The following table is a current list as of May 2016)

| <b>Participating Agency</b><br>Non-Funding Agency in Bold | <b>Membership</b><br><b>(voting)</b> |
|---|--------------------------------------|
| Belton  | 1                                    |
| Bonner Springs  | 1                                    |
| Fairway   | 1                                    |
| FHWA – MO & KS  | Ex Officio                           |
| Gladstone   | 1                                    |
| Independence  | 1                                    |
| Kansas City, MO   | 1                                    |
| KCScout   | Ex Officio                           |
| KDOT  | 1                                    |
| Lansing   | 1                                    |
| Leavenworth   | 1                                    |
| Leawood   | 1                                    |
| Lee's Summit  | 1                                    |
| Lenexa  | 1                                    |
| Liberty   | 1                                    |
| MARC  | 1                                    |
| Merriam   | 1                                    |
| Mission   | 1                                    |
| Mission Woods   | 1                                    |
| MoDOT   | 1                                    |
| North Kansas City   | 1                                    |



|                        |   |
|------------------------|---|
| Olathe                 | 1 |
| Overland Park          | 1 |
| Prairie Village        | 1 |
| Raymore                | 1 |
| Shawnee                | 1 |
| Unified Government/KCK | 1 |
| Westwood               | 1 |

Each representative shall have a designated alternate with full authority to act in the absence of the representative. The Steering Committee may be expanded to include other additional members as approved by majority vote of the members of the existing Steering Committee.

The Steering Committee shall meet minimally on a quarterly basis but may meet more frequently if the business of the Steering Committee necessitates. The final meeting of the calendar year shall be designed to report on the State of the Operation Green Light Program including Budget reporting and approval of the future budget and election of the next vice-chairperson.

The chairperson of the Steering Committee shall have the authority to call a meeting of the Committee with a minimum of seven (7) calendar days' notice to all the members. Notice is deemed to have occurred from the date that it is deposited with the United States Postal Service, postage prepaid; distributed via Facsimile; OR distributed via E-mail addressed to the members of the Steering Committee. The chairperson and vice-chairperson shall help develop meeting agendas prior to meeting notices and shall preside over the meetings.

- 1.4 Chairperson and Vice-Chairperson: The Steering Committee members shall elect by majority vote of all of the voting members of the Committee, from amongst the members of the Committee, a vice-chairperson who will serve a one-year term. Said election will occur at the final regularly scheduled meeting of the calendar year of the Steering Committee prior to the expiration of the chairperson's one-year term. The vice-chairperson shall assume the responsibilities of the chairperson at the end of the chairperson's term and any time the chairperson is unable to attend committee meetings. Kansas and Missouri shall be represented in these positions in alternating years.

- 1.5 Quorum and Voting: All members of the Steering Committee shall be entitled to one vote on all matters submitted to the Committee for vote.

Any six of the voting members of the Steering Committee, including at least one member from Kansas City, Missouri, the Missouri Department of Transportation, Unified Government/Kansas City, Kansas, or Overland Park, Kansas, (based on the four largest agencies by signal count at the beginning of the current Operations contract term) shall constitute the quorum necessary to convene the meeting of the Committee. All official actions by the Steering Committee shall require a majority vote of the members present at the meeting.

All votes shall be taken and recorded in the minutes by roll call. Each member shall have the ability to recall any matter voted upon during his or her absence providing said member notifies in writing the committee chairperson or co-chairperson within 7 calendar days of when the meeting minutes are posted to the MARC website and/or delivered to committee members via email. Within 3 business days of being notified, the chairperson or co-chairperson shall collaborate with OGL staff to present the issue for a reconsideration of the vote via email to all committee members who will be asked to respond within 10 calendar days. If a response is not received by close of business on the 10th day, the member's previously cast vote shall be counted in the same manner.



## **EXHIBIT 2**

### **SCOPE OF WORK**

#### **1. Project Management**

The Mid-America Regional Council (MARC) will provide staff time, equipment and materials, and contract services necessary to accomplish the following project management services:

- Arrange and conduct regular Steering Committee meetings to discuss and develop policies and procedures governing the development, implementation and on-going operation of the program;
- Arrange and conduct Technical Committee meetings as needed to discuss and develop recommendations concerning technical issues associated with the development, implementation and on-going operation of the project;
- Arrange and conduct other meetings with project participants as necessary to develop, implement and operate the project;
- Negotiate, execute and administer agreements with state and local governments to provide federal, state and local funding for the development, implementation and ongoing operation of the program;
- Develop and publish requests for proposals, consultant agreements and other procurement documents necessary to select and hire contractors to provide system integration services, telecommunications and traffic engineering design services, computer software, computer hardware, communications network, traffic signal equipment and other items necessary for the development, implementation and ongoing operation of the program;
- Negotiate, execute and administer agreements with private firms to provide system integration services, telecommunications and traffic engineering design services, computer software, computer hardware, communications network, traffic signal equipment and other items necessary for the development, implementation and ongoing operation of the program;
- Develop and maintain project budgets and schedules;
- Develop and maintain project databases;
- Publish and distribute project documents and other deliverables to participating state and local governments; and
- Perform other tasks necessary to manage and administer the program.

#### **2. Traffic Signal Timing**

MARC shall coordinate with agency staff or their delegates to develop and implement, with agency approval, the requisite signal timing plans for OGL intersections

### **3. Operations and Maintenance**

#### ***3.1. Computer Software and Databases***

MARC will procure all required software and may engage a private firm or firms selected by the project Steering Committee to provide technical support and maintain computer software and databases at the Operation Green Light Traffic Operations Center. MARC staff shall be responsible for providing day-to-day maintenance of the computer software and databases including but not limited to data entry, backups, upgrades, etc., at the Operation Green Light Traffic Operations Center.

#### ***3.2. Computer Network***

MARC will procure all required hardware and software. Any equipment (e.g. switches, routers, hubs, etc.) that is used for the field communication back bone will be considered part of the computer network. MARC may engage a private firm or firms selected by the Steering Committee to provide technical support and maintain the Operation Green Light computer network.

#### ***3.3. Field Communications System***

All field communications equipment purchased by MARC will be maintained by MARC. The city will maintain any pre-existing, city-owned equipment that is utilized as part of the OGL field communication system. MARC staff will monitor the field communication system through monitoring software which is purchased by MARC. MARC may engage a private firm or firms selected by the project Steering Committee to maintain the regional field communications system. The scope of services for this work will be developed with and approved by the Steering Committee.

#### ***3.4. Traffic Signal Controllers***

Each member agency shall be responsible for all maintenance to the traffic signal controllers. MARC responsibility will be limited to maintaining the regional field communication system and will terminate at the traffic controller unless otherwise specified. Traffic signal controllers and cabinets that have been purchased and/or installed as part of the OGL controller upgrade project will also be owned and maintained by the local jurisdiction once they have been received and/or accepted, and the local jurisdiction will be responsible for purchasing and installing replacement controllers that are compatible with the OGL system should the MARC-purchased controller fail.

**EXHIBIT 3**  
**COMPENSATION**

- A. The amount the City will pay MARC under this contract will not exceed **Nine Thousand, Six Hundred and 00/100 Dollars (\$9,600.00)**. This amount represents the City share of the total project cost as shown in Table 1 of this Exhibit. City shall pay MARC, upon invoice, for the actual costs incurred for MARC on a yearly basis.

| Table 1                               |                    |             |                   |
|---------------------------------------|--------------------|-------------|-------------------|
| Operation Green Light Program         |                    |             |                   |
| Annual Operations Costs               |                    |             |                   |
| Annual Operating Cost per Signal      |                    |             | \$1,600           |
| Total Agency Signals in OGL           |                    |             | 6                 |
| Total Agency Unsubsidized Annual cost |                    |             | \$9,600.00        |
| Cost per Year Subsidized              |                    |             |                   |
| Year                                  | Federal Percentage | Annual Cost | Local Agency Cost |
| 2017                                  | 50%                | \$9,600.00  | \$4,800.00        |
| 2018                                  | 50%                | \$9,600.00  | \$4,800.00        |
| Total                                 |                    |             | \$9,600.00        |

- B. It shall be a condition precedent to payment of any invoice from MARC that MARC is in compliance with, and not in breach or default of, all terms, covenants and conditions of this Contract. If damages are sustained by City as a result of breach or default by MARC, City may withhold payment(s) to MARC for the purpose of set off until such time as the exact amount of damages due City from MARC may be determined.
- C. No request for payment will be processed unless the request is in proper form, correctly computed, and is approved as payable under the terms of this Contract.
- D. City is not liable for any obligation incurred by MARC except as approved under the provisions of this Contract.

## **Exhibit 6**

### **OGL Concept of Operations: Roles and Responsibilities**

#### **Introduction**

Operation Green Light (OGL) is a regional initiative to improve traffic flow and reduce vehicle emissions by coordinating traffic signals on major roadways in the Kansas City metropolitan area. OGL is a cooperative effort of the Mid-America Regional Council (MARC), state departments of transportation and local agencies working together to coordinate traffic signal timing plans and communication between traffic signal equipment across jurisdictional boundaries.

The concept of operations provides a high-level overview of the roles and responsibilities of the agencies participating in the operation and management of OGL. The concept of operations is intended to balance the need for standardization and uniformity of operations on OGL routes with the need to be responsive to the unique needs and circumstances of the agencies participating in OGL.

#### **Signal Timing**

##### **Initial Deployment of Regional Timing Plans**

The member agencies will partner with MARC and each other in developing regional traffic signal timing plans. In order to facilitate this work each member agency will provide MARC traffic counts and other relevant, available data for traffic signals that are part of regionally significant traffic corridors that pass through adjacent cities. This information may include;

- Existing timing plans and data in the existing traffic controller (controller data sheets)
- Intersection geometry via aerial mapping
- Signal phasing information (or policy)
- Historical traffic count information available
- Approved yellow and all-red clearance intervals (or policy)
- Pedestrian timing (or policy)
- Signal phasing policy (lead only/lead-lag/vary lead-lag by time-of-day)
- Historical citizen complaints on the intersection operation as needed

After providing data to MARC, each member agency will then work with MARC to cooperatively develop regionally optimized timing plans. The member agency will continue to be responsible for maintenance of timing plans for traffic signals that lie wholly within the member agency's jurisdictional boundaries and are not on OGL corridors unless the member agency decides to contract this work to MARC. The steps involved in the development of regional timing plans are:

- The member agency will either collect traffic counts on the arterials for signals maintained by the member agency and provide this information to MARC OR will contract with MARC to collect traffic counts as needed.
- In conjunction with member agency staff, MARC will conduct travel-time studies and speed profile studies on the arterial prior to implementation of the timing plans
- MARC may hold design meetings with representatives from the member agencies and other impacted agencies. At the first of these meetings the following items will be established
  - Number of timing plans and time of use (i.e., am, noon, pm, off-peaks, etc.)
  - Critical intersections of a corridor
  - An initial common corridor cycle length for each of the plans identified (i.e. am,



pm, etc.) [Note: this cycle length may need to be revisited after developing the regional timing plan.]

- The member agency will then develop the following initial parameters for individual signals maintained by the member agency for each of the timing plans to be developed, and submit them to MARC for review and incorporation into regional plans for the OGL corridor;
  - phase sequencing
  - splits
  - offsets
- MARC will develop initial splits and offsets for any remaining signals and incorporate member agency developed timing plans into regional plans for the OGL corridor.
- MARC may then incorporate the regional plans into mutually agreed upon software as needed for review by the member agencies.
- At the second meeting, MARC and the member agencies will;
  - Review the regional timing plans developed
  - Review any software models developed
  - Determine if any changes to initial timings need to be made to optimize the operation of the corridor
- Once the member agencies have agreed on the different timing plans developed, they will download the timing plans into signal controllers maintained by each member agency OR will request MARC to provide signal timing plans and download to local controllers.
- In conjunction with member agency staff, MARC will field-monitor each arterial after a timing plan has been downloaded and will work with the member agency to make any additional changes to further optimize the flow of traffic if necessary.
- In conjunction with member agency staff, MARC will conduct travel-time and speed profile studies on arterials after implementation of the optimized signal timing plans

### **Providing Maintenance Timing Plans**

As part of a regional effort, MARC will on a regular basis, or as requested, examine the operations of signals that are part of regionally significant traffic corridors that pass through the member agency and adjacent cities and determine if optimization is necessary. If minor changes to splits and offsets are to be made to individual signals along an OGL corridor the following steps will be followed:

- In conjunction with MARC, member agency staff will field-monitor the affected corridor or intersection(s)
- MARC will meet with affected member agencies if needed
- MARC will collect traffic counts as necessary OR the member agency will collect traffic counts at member agency maintained traffic signals
- The member agency will develop timing plans for member agency maintained signals and download them to controllers as necessary in coordination with MARC OR MARC will develop and provide revised arterial timing plans as needed
- In conjunction with member agency staff, MARC will field-monitor each arterial after timing plan download and provide further optimization if necessary by submitting updated timing plans for agency consideration and download

If major changes, such as changes to cycle lengths, phase sequencing and major changes to splits, are to be made along an OGL corridor, the process described above for initial deployment of regional timing plans may be used.

### **Incident Management**



The member agency will work with MARC and other member agencies to identify locations along the regionally significant arterials and interstate highways where incidents are prone to happen and have major impact on traffic flow. These locations may be manually forced to run special plans when an incident is observed at the TOC. The following steps shall be followed for planned, recurring, and anticipated incident response:

- MARC and member agencies will identify incident-prone locations
- MARC will meet with affected member agencies to discuss solutions
- MARC will develop signal timing plans for the incident
- MARC will submit such plans for review by member agencies
- MARC and member agencies will jointly determine the parameters required for invoking such a plan by the TOC
- Once the plan has been invoked (when the required parameters are met) MARC will inform the affected agencies immediately
- After the incident has been cleared, MARC will put signals back on their regular plans and inform member agencies

The member agency will inform MARC about construction and roadway closures and may request signal timing plan adjustments. MARC will provide special timing plans when requested to optimize traffic flow for agency consideration and download.

### **Citizen Complaints**

Member agencies will route/report citizen complaints/requests on OGL signals to the TOC and MARC, in cooperation with the member agency, will respond to the complaint/request in a timely manner. MARC will also route/report received citizen complaints to the member agencies and maintain a response log.

### **Dispute Resolution**

In the event that satisfactory agreement cannot be reached between member agencies on timing plans or incident plans developed for OGL, the dispute will be referred to the OGL Steering Committee, which will provide recommendations for resolution. Unless the responsible engineer for a member agency determines that such plans will create an unsafe condition within their jurisdiction, the member agency will implement the plans recommended by the Committee

### **Emergency Provisions**

In the event of an emergency not already covered under a pre-arranged incident-management plan, the member agency will take any steps it considers necessary to manage traffic signals within its jurisdiction to ensure the safety of the traveling public. The member agency will notify MARC of any emergency changes made to OGL traffic signal timing plans in a timely manner and will work expeditiously with MARC to restore all OGL corridors within its jurisdiction to normal operation when the emergency subsides.

## **Field Communication Operation and Maintenance**

MARC will be responsible for maintenance and replacement of all wireless communication infrastructure that is installed as a result of OGL initiated construction projects. Member agencies that have the capability to maintain their own communication infrastructure may do by separate agreement with MARC.



### **Controller Upgrades and Work inside the Traffic Controller Cabinet**

MARC will, with the applicable member agencies, upgrade traffic controllers that are incapable of communicating with the central system software. When work is performed that involves the opening of a traffic controller cabinet, the member agency will coordinate with the contractor and have a representative in the field. The member agency will test and approve/disapprove the work performed by the contractor and inform MARC of the fact. MARC will be responsible for administration and final approval of all OGL initiated construction projects. Member agencies are responsible for notifying and coordinating with OGL when undertaking traffic signal system construction projects on OGL corridors.

### **Technical Support for OGL Computer Network**

MARC will provide technical support for the central system software and the laptop version of the central system software. MARC will also maintain the computer network hardware along with all network components such as network switches, routers, licensed and unlicensed radios, modems etc.

### **The Traffic Operations Center**

MARC will staff OGL operations at the Traffic Operations Center (TOC). The TOC is currently co-located with the KC Scout program and offices in the MoDOT KC District offices.

The TOC will be staffed as determined by MARC. MARC expects to coordinate with Kansas City Scout and use the video monitoring capabilities available at the KC Scout TOC to alleviate congestion along arterials. It is recommended that member agencies with traffic management centers, at a minimum, staff their centers to operate on a schedule concurrent with OGL.

The staff will interact with citizens and the media and provide answers to traffic signal timing questions on OGL signals.

