OGL STEERING COMMITTEE AGENDA
Monday, July 25, 1:30 PM
MARC - Board Room

Welcome & Introductions

1. Approval of April 25 Committee Minutes* (page 3)

2. Notice of OGL Steering Committee Vice-Chair Opening for October (MO seat)

3. OGL Strategic Planning Update (page 7)

4. OGL Incident Management Planning Efforts


6. FHWA Integrated Modeling for Road Condition Prediction (page 8-9)
   - Discuss providing this project real-time traffic signal data

7. 2017-18 CMAQ Project update


9. OGL Program Funding and Agreement Status
   - STP 2015-2016 Program Invoice Update
   - OGL STP 2017-2018 Program Agreement Status
   - KS 2016 STP Funding ($163,000) Obligation Status

10. Quarterly Operations Update (page 12-24)


Getting to MARC: Information on transportation options to the MARC offices, including directions, parking, transit, carpooling, and bicycling, can be found online. If driving, visitors and guests should enter the Rivergate Center parking lot from Broadway and park on the upper level of the garage. An entrance directly into the conference area is available from this level.

Parking: Free parking is available when visiting MARC. Visitors and guests should park on the upper level of the garage. To enter this level from Broadway, turn west into the Rivergate Center parking lot. Please use any of the available spaces on the upper level at the top of the ramp.

Special Accommodations: Please notify MARC at (816) 474-4240 at least 48 hours in advance if you require special accommodations to attend this meeting (i.e., qualified interpreter, large print, reader, hearing assistance). MARC programs are non-discriminatory as stated by Title VI of the Civil Rights Act of 1964. For more information or to obtain a Title VI Complaint Form, call 816-474-4240 or visit our webpage.
12. Overland Park / KC Scout / OGL System Redundancy via fiber backbone update (page 26)

13. Agency updates, construction projects, closures, etc. affecting traffic signals

14. Open Discussion / Requests / Other Business

Next Regularly Scheduled Meeting and Schedule for 2016: Steering Committee, Monday, October 24, 2016

Adjournment

*Action Items
Welcome & Introductions

1. Approval of January 25th Committee Minutes*
The chair asked for approval of the minutes, the committee voted unanimously and the motion carried.

2. VOTE: 2017/18 MARC/Agency Program Agreements and Budget*
Ray started with the exhibits showing the funds programmed currently in the TIP. The budget breakdown is nearly identical as current budget revenue and expenses. The same 50% federal and 50% local match spending stays the same. The Missouri funds in the TIP are 70% of the federal allocation and the Kansas funds are 30% which correlates to the split for the number of signals per state. The final per signal cost is suggested to stay the same as it is at $800/signal. Approval will allow staff to begin on agreements for 2017-2018. Request was made to approve the budget as shown. The committee voted unanimously and the motion carried.

3. KDOT Oversight Update and Spend Down Plan
Ray indicated that KDOT has placed new rules (at least to the OGL program as of summer 2015) that STP funds are required to have a zero balance as of October 1. KDOT has obligated 2015 funds but 2016 funds are yet to be obligated. MARC has worked with KDOT to provide a spend-down plan that projects and shows how the federal funds will be spent to zero. However, it is not clear if the OGL program can spend the 2016 funds entirely by the end of the year which KDOT now requires. Projections appear funds could be spent by April of 2017 but that does not comply. KDOT has agreed to obligate the funds but only as much as can be spent. This does add complexity to the program to bring funds to a close every year at a given date when operations costs are unpredictable and MoDOT funds do not have this requirement. Funds that would not be used would be returned to the MARC region. Projections estimate leaving $60k of federal STP funds to reprogram in the region. To use the Federal STP funds of $60k, this is equivalent of spending $250k.
4. **OGL STP 2016 Invoice Update**
All agency invoices have been sent on March 17. KCMO annual payments were collected in 2015 for both 2015 and 2016. Four additional cities have paid. There are two agencies that indicated they would pay starting with their new fiscal year as of July 1.

5. **MO and KS STP CCTV and Network Redundancy Project Update**
Chris reported that while the project is complete, the work to test and setup the redundancy portion is OGL’s responsibility. Most links have been setup and tested except for the smaller ring in our backbone network. There have been a few configuration settings that needed to be resolved and are close to being complete. The larger backbone ring configuration is complete and functioning as designed. This work should be complete before the next quarterly meeting.

6. **I-35 Integrated Corridor Management Update**
The contract is in place and the first meeting is April 28th at MARC. A wide variety of multimodal partners have been invited. The work is budgeted for $90k. ICM is a way of bringing our current and future resources together to move traffic smoothly and effectively through the I-35 Corridor.

7. **OGL Incident Management Planning Efforts**
Olsson Associates is assisting OGL with planning for freeway incident diversion operations. We are not planning for official signed alternate routes; rather we would like to do the best we can to accommodate diversions already taking place. We have identified several stretches of freeway based on accident history, then chose I-35 around 75th St for an initial study. There was a meeting with agencies in this initial study are to brainstorm operations for each segment of impact. OA has also put together a flow chart for decision making during an incident. The next step is developing the actual traffic signal plans. CBB, a firm out of St Louis, is sub to OA and will support this effort in the new contract as CBB has done a fair amount of this type of work in St Louis.

8. **Quarterly Operations Update**
The operations report was discussed and the following are highlights discussed beyond the report.
- Westwood has added Rainbow @ 47th St and 47th Place to OGL.
- MARC staff has created an educational document; a "Traffic Signal Basics" diagram which can be seen at: [http://marc.org/Transportation/Commuting](http://marc.org/Transportation/Commuting). This is intended for a general public audience. Agency staff is requested to review the diagram and provide any feedback.
- Staff is anticipating an update to the OGL TransSuite software system in the next week or two.
- A benefit/cost analysis and report has been completed for the Wornall Rd corridor from Ward Pkwy 9400 block to Carondelet. The report can be seen on the OGL website.
- OGL staff has completed a review of the TransSuite integration of the Intelight controller.

9. **Quarterly Budget Report**
A Handout was provided at the meeting that shows the old OGL MO and KS STP funds expended. In March the funds were depleted. Expenses into the new 2015-2016 funds also began in March and are shown. The charges also show remaining local funds from the old grant match have a balance of $68,122 and will carry over into the current budget. Additional work will be done with MARC’s accounting staff to develop options related to the KDOT spend down plan request. Due to the possible excess funds, Ray requested the committee provide thoughts related to regional needs for the funds.

10. **Overland Park / KC Scout / OGL System Redundancy via Fiber Backbone**
An agreement had been completed which would allow for OGL to use existing fiber communication between KC Scout and OP. However KC Scout has changed how they want OGL to connect with them. Currently,
OGL is connected using Scout fiber on I-70 for signals on US-40, M-7 and K-7 in Bonner Springs. Scout wants the OP connections to be similar to how these are currently done. OGL staff is meeting on Wednesday with OP IT staff to discuss the proposed changes. There is a possibility the agreement might need to be modified to match the new strategy.

In January Ray and Barry, as well as some others from the region, attended a workshop hosted by Utah DOT showcasing their Automated Signal Performance Measures utilizing high-resolution controller data. Barry gave a brief explanation of their data and performance measures, examples of which and additional information are in the meeting packet. Many of the most valuable performance measures require advance detection lane by lane. Others use proprietary data from Wavetronix detectors and others use INRIX probe data. UDOT is supplying their source code for data collection and reporting to any interested parties and we have been considering pursuing it. It now appears that TransCore is incorporating the code into the TransSuite software which will make it much easier for us to use it here in the Kansas City area.

12. Overland Park Presentation and Update on Adaptive Traffic Signals
Shawn Gottfredson gave a presentation regarding the status of their traffic adaptive project. The City of Overland park is in the process of installing an adaptive system called ACDSS which has been developed by KLD. This system is to be installed on the 135th street corridor from Nall to Switzer. The system has been tested on the corridor but is currently turned off as the city awaits some enhancements to the system.

The city chose this system because of its compatibility with the existing OGL traffic signal system and the city's existing traffic signal controller firmware, Econolite ASC3. ACDSS uses TransSuite to send commands to and receive data from traffic signals in the field. The City's ASC3 controllers have been upgraded with an ACSLite module from Econolite to allow for adjustment of coordinated splits without causing the controller to transition.

As part of the project, the city discovered their existing advanced detection along the corridor could not collect counts and occupancy consistently so they were not able to use some of the functionality of the system.

As a discussion of lessons learned, it was suggested that the adaptive systems would show the most benefit on corridors that have variable traffic. Locations with consistent traffic conditions may perform just as well with traditional traffic timing methods without the added cost of a new system. It was also noted that since the system utilized existing controller technology the adaptive system had not overcome the issues of long transitions or transitions caused by long pedestrian times.

13. Open Discussion
KCMO Smart City Initiative is currently under development. KCMO is one of 7 cities selected and the final proposal is due May 24. MARC is working with the group to assist as best they can

Connected vehicles and connected traffic signals were discussed. KC Scout recently hosted “Connected Vehicles 101”. Also over time, several cities and MARC have been approached by companies to request access to their traffic signal data. There are at least two companies now that are working on this one is called Connected Signals, http://connectedsignals.com/ formally Green Driver.

There were concerns about the safety implications of the application and concerns for the liability of the agency. It was generally agreed that the traffic signal controller data is owned by each agency. Ray indicated it would not be difficult for TransCore to create a data library on an external system to provide a 3rd party the data. There is a city in the region that has experimented now with the connected system product and had some positive experience as well as some concerns. It was not clear what the next step should be for the region.

14. Agency updates, construction projects, closures, etc. affecting traffic signals
OGL is currently working with Wilson and Co. on the two temporary signals on the James Street / 3rd / Armstrong area. The project will close and reconstruct the Lewis and Clark Bridge and is tentatively scheduled
to let January 2017. A couple temporary signals will be installed which will be connected to the OGL network and OGL will assist with their operation.

15. Other Business - None
Next Regularly Scheduled Meeting: Steering Committee, Monday, July 25, 2016
Meeting Adjourned approximately 3:25PM
*Action Items
OGL Strategic Plan Development

Olsson associates will assist the Mid-America Regional Council (MARC) to develop an updated Strategic Plan for the Operation Green Light (OGL) program. The previous plan was completed in 2013 and was identified as a 3-year plan. Many of the elements of that plan have been completed and the program managers are looking ahead to plan goals and activities into the future. The plan development activities will consist of the following:

**Existing Program Status**
A description of the program as it currently exists will be documented, including its organization, funding and budget, and activities over the past 3 years in pursuit of the previous strategic plan.

**Stakeholder Input**
As part of this documentation, a survey of all existing partners and other stakeholders will be conducted to assess the current strengths of the program and to identify direction or program improvements. Once the survey results have been received, the team will compile the results along with information about current industry needs, changes, and trends, and re-distribute these to all stakeholders for review. Olsson Associates will then facilitate a discussion held in conjunction with a scheduled steering committee meeting for the stakeholders to share and discuss ideas, and determine priorities.

**Draft Plan**
Olsson Associates will take all input and develop a draft strategic plan. The plan will include the following major sections:

1) **Situational Analysis** – a brief description of the program, recent activities, and stakeholder input on the program’s strengths and weaknesses.
2) **Strategy** – re-statement of the program’s mission, values, and long term objectives
3) **Strategic Plan** – establishment of goals and objectives to be accomplished during the next strategic plan period. This includes the identification of specific projects and initiatives that help accomplish the stated goals and objectives. This also includes key performance indicators, organizational changes needed (if any), and funding needs.
4) **Performance Management** – document program schedule, reporting and accountability, and future plan maintenance

Once the draft is completed, it will be submitted to all stakeholders for their review. Olsson Associates will present a summary of the plan and facilitate a discussion of any comments received in conjunction with a scheduled steering committee meeting.

**Final Plan**
With all comments addressed, Olsson Associates will complete and submit a final OGL strategic plan.
Integrated Modeling for Road Condition Prediction (IMRCP)

Intelligent transportation system deployments have enabled great advances in operational awareness and response based on the data they gather on the current state of the roadways. Operators have better access to traffic and weather conditions, enabling them to make more informed decisions and respond more quickly to events. Winter maintenance crews have more accurate and complete data on which to base their treatment plans and plow routes. Information about those events is then provided to travelers, who are enabled to adjust their own travel behaviors.

The next step in decision support is to forecast conditions and build awareness of potential degradations before problems occur. Real-time traffic simulations and road weather models can forecast network traffic and road weather conditions as they develop, providing a basis for anticipatory and expedited response. It may be possible, with sufficient model history, to anticipate locations and conditions with the highest likelihoods for incidents. These predictive methods can further assess the potential consequences of implementing response strategies for traffic and demand management. Travelers could make forecast-enabled travel and routing decisions based on fastest or most reliable travel times.

This convergence of opportunities has led the Federal Highway Administration’s (FHWA) Road Weather Management Program (RWMP) to initiate research into an Integrated Model for Road Condition Prediction (IMRCP). IMRCP capabilities could someday provide a practical tool for State and local transportation agencies to support operational decisions, maintenance planning, and traveler information at strategic and tactical levels.

Objectives

The primary objective of IMRCP research is to develop and demonstrate the integration of traffic, weather and operational event forecasts to predict integrated road conditions. Elements of the forecast will include atmospheric and road weather conditions, hydrology, traffic demand and management strategies, work zones, winter maintenance operations, incidents and special events.

The project will also seek to assess potential application benefits for travelers, transportation operators, and maintenance providers. It is envisioned that the integrated forecasts will be useful to transportation operations and travelers in decision support, providing alerts of road conditions, and in routing for travel and maintenance.

Project Tasks

The project is following a typical systems engineering process. A survey of existing weather forecast and traffic prediction models was completed in 2015, followed by a Concept of Operations and System Requirements in early 2016. The system design and development efforts will be ongoing through early 2017, with deployment and evaluation during the first half of 2017. A final report documenting the system and its evaluation will be completed in June 2017.

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IMRCP Concept

The IMRCP concept envisions a core set of forecast modules for road weather and traffic conditions overlaying a data store for the network and operations models, drawing input from a diverse set of real-time weather and traffic data sources, with reports and maps provided by a web interface. Traffic data sources will be needed to provide volumes and speeds, freeway control and traffic signal operations data, incident reports, and plans for work zones and special events. Atmospheric and hydrological forecasts will be drawn from National Weather Service sources.

Stakeholder Engagement

A core group of stakeholders has been convened to monitor and provide input to the project development team. Smaller work groups of stakeholder representatives and subject matter experts are called on as needed to assist in identifying and resolving technical questions. Public webinars are planned for presentation of the system design and evaluation.

Study Area

A portion of the Kansas City metro area along a congested interstate and surrounding arterials corridor has been selected for the project study and evaluation area. The Kansas City area is subject to highly variable weather conditions and local recurring congestion typically of U.S. urban/suburban settings. The I-435 corridor along the southern part of the metro carries heavy commute traffic in both directions and for much of its length runs along a streamway with historically significant flood risk. The corridor is also well-instrumented for traffic, weather and hydrology.

Project Team

The project team is very experienced in traffic and weather simulations and data management. FHWA sponsorship is provided by Paul Pisano and Gabe Guevara of the Road Weather Management Program. Leidos is the prime contractor, under the leadership of Tom Phillips. Synesis Partners is providing Kyle Garrett as the Principal Investigator and Bryan Krueger as the System Architect. Hani Mahmassani of the Northwestern University Transportation Center leads the traffic modeling team, and Deepak Gopalakrishna of ICFI is coordinating stakeholder feedback and evaluation. Contact Gabe Guevara (Gabriel.Guevara@dot.gov), Tom Phillips (Thomas.H Phillips@leidos.com) or Kyle Garrett (Kyle.Garrett@synesis-partners.com) with any questions.
TO: OGL Partner Agencies
FROM: OGL Program Staff
RE: Network security (for those with network connections or access to the OGL regional ATMS network)

Dear OGL Partner,

The United States Department of Homeland Security has recently launched the Critical Infrastructure Cyber Community Voluntary Program. In this endeavor, they encourage and assist other agencies who maintain various infrastructures important to our nation’s livelihood to enhance the cybersecurity of those systems.

From their website:

The United States depends on critical infrastructure every day to provide energy, water, transportation, financial systems, and other capabilities that support our needs and way of life. Over the years, improvements in technology have allowed these capabilities to evolve, with most critical infrastructure now dependent on cyber systems to run more efficiently and effectively. With this increased reliance on cyber-dependent systems, however, come increased threats and vulnerabilities. Protecting the cybersecurity of our critical infrastructure is a top priority for the Nation... (https://www.us-cert.gov/ccubedvp)

Having participated in some earlier efforts of this program, OGL staff have been made more aware of several areas of concern and desire to exercise due diligence in protecting the systems within our influence. The OGL regional ATMS network is a significant asset to the region. It consists of thousands of devices including traffic control and other ITS equipment and in turn, connects to many local agencies’ own networks. Malfunctions of these devices, including those caused by malicious or unauthorized parties could have a significant effect on traffic flow in the region, as well as safety concerns for the motoring public.

In an effort to be proactive in preventing problems due to unauthorized network access and attacks, OGL staff has completed the following ATMS network advancements:

1. Improved network documentation and monitoring
2. Firewall enhancements
3. Network segmentation
4. Strong password enforcement
5. Improved system backup strategies

These efforts and others are ongoing. **We ask the following of you:**

1. **Strongly consider adding pad locks to your field cabinets** where network equipment resides, including all OGL locations. If a person accesses a single isolated cabinet, they have the ability to tamper with that one intersection. However, if that cabinet has network access, they potentially have access to tamper with thousands of intersections and any of the other municipal networks that are connected. We take precautions to prevent this capability through firewalls, but locking the cabinet is the first line of
defense. If OGL-owned equipment resides in the cabinet, work with OGL staff on granting access to the locked cabinets.

2. **Keep your user account and password secret.** Do not share your account information with other people, including co-workers. Do not write your password on a sticky note and stick it on your computer screen. Use common sense and take it seriously.

3. **Keep strong passwords that are difficult to guess.** Passwords to the OGL network are required to be complex. For example, they must be 6 characters long, must contain at least 3 of the 4 of the different types of characters (lower case, upper case, numbers, and special characters), and cannot contain your account name or your first or last name. Use strong passwords for Omnicast as well.

4. **Tell OGL staff immediately when a user leaves employment at your agency.** If we do not know they are gone they will continue to have access to the system and your signals.

5. **Keep your computer and other devices up to date** with operating system updates, anti-virus and anti-malware software, including personal devices you may use to connect to the system/network. If your computer is used to connect to the OGL system, that computer and the network it is on is a point of vulnerability for the region.

6. **Do not attempt to use the OGL servers or field network for anything other than its intended purpose.** If you would like to do something ITS related, talk to OGL staff about it.

7. **Notify OGL staff if you suspect there has been unauthorized access** to your OGL account, your signal controllers, or your field cabinets.

Please consider making some or all of the suggested changes to better secure the regional network. Let us know when you do so or if you have any questions by calling Ray Webb at 816.622.0731 or email at rwebb@marc.org.
Mid-America Regional Council’s Quarterly Report
For
Operation Green Light

2nd Quarter 2016 Report
July 25, 2016

Prepared For:
OGL Steering Committee

Prepared By:
OGL Operations Team
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Introduction

Operation Green Light (OGL) is a bi-state 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 operate a system that coordinates traffic signal timing and communication between intersections across jurisdictional boundaries.

This report details the work performed on the Operation Green Light communications network during the 2nd Quarter (April, May, and June) of 2016 and highlights of signal timing and agency coordination. OGL currently monitors/operates 692 signals and manages over 1200 network devices. These devices include intersection controllers, wireless radios, switches, cameras, routers, serial-to-IP converters and servers. For more information on the program, visit http://www.marc.org/Transportation/Commuting.

Operations Summary

A summary of the operational results and activities of the OGL program staff during the reporting period is presented below.

Repair tickets

- OGL staff actively responded to 59 repair tickets, representing about a 53% decrease compared to last quarter.

Corridor Timing Efforts

- 6/1 – New AM Peak coordination plan installed on MO-Y/163rd St in Belton, MO
- 6/15 – All new coordination plans installed on State Line Rd, Red Bridge to 123rd
- 6/21 – New PM Peak coordination plans on M-58 from MO-Y to Mullen Rd in Belton, MO

Training Sessions/Panels/Events

- 4/25 -27 – Scott Cutshall attended ITS Heartland in Des Moines, IA
- 6/3 – Ray Webb participated in NTCIP 1202 ASC webinar
- 6/9 – Chris Jenkins participated in Designing Strong Cyber Defenses for State and Local Gov'ts live webcast
- 6/14 – OGL staff participated in the Lagging Left-turn Arrow Safety and Operation webinar
- 6/16 – Ray Webb participated in the TSM&O “What does it mean for Planners” webinar

Additional Information

- OGL staff set up and scheduled the Miovision equipment to conduct 30 counts. Most of these were 13-hour turning movement counts and the remaining were 24-hour ADT counts.
- OGL staff completed 3 AM, 3 off-peak, and 3 PM travel time studies.
Notes on Operations Summary

1. Repair ticket levels used by OGL staff are defined in Exhibit I Scope of Services as follows:
   - Minor – investigate and resolve communication problem within 5 business days, weather permitting
   - Major – investigate and resolve communication problem within 2 business days, weather permitting
   - Critical – investigate and resolve communication problem within 24 hours, weather permitting

System Hardware/Software Activities/Issues

The following list represents major software or hardware activities performed during the 2nd Quarter of 2016:

- 4/5 – OGL upgraded Genetec Security Center to version 5.4 and installed web server for viewing cameras remotely
- 4/15 – OGL transferred 20 end-of-life Alvarion radios to KC Scout
- 5/3 – TransSuite was updated to version 16.1.0
- 6/7 – Final OSPF configuration and testing was completed on the OGL backbone network
- 7/7 – OGL transferred 26 end-of-life Alvarion radios to KDOT
**Interagency Coordination**

During April through June, the OGL staff participated in the following interagency activities:

- 4/4, 4/7, 4/11, 4/14, 4/18, 4/21, 4/25, 4/28 – Barry Viss worked at the KCMO TOC
- 4/6 – OGL staff met with City of Blue Springs to discuss future signal integration into TransSuite
- 4/6 & 4/13 – Ray Webb attended Office of Innovation DoT Grant Working Group
- 4/7 – Chris Jenkins met with Platte and Leavenworth County agencies to discuss microwave radio work to be completed at area towers
- 4/12 – Ray Webb attended a meeting with Garmin about connected vehicles
- 4/15, 4/29, 6/10 – OGL and Olsson held bi-weekly conference calls for signal timing work status
- 4/19 – Ray Webb met with KC Scout regarding SMART Cities
- 4/21 – OGL and KC Scout staff met with TCC and Moxa to discuss network and CCTV products
- 4/21, 5/19, 6/17 – OGL staff participated in monthly Regional TransSuite conference call
- 4/22 – Barry Viss attended the Kinetic transportation event
- 4/25, 4/27 – OGL staff attended the OGL Steering Committee meeting
- 4/28 – Ray Webb attended I-35 ICM Stakeholders Meeting
- 5/2, 5/5, 5/9, 5/12, 5/16, 5/19, 5/23 – Barry Viss worked at KCMO TOC
- 5/2 – Chris Jenkins participated in conference call for BPU firewall updates in order to view Security Center video software
- 5/17 – OGL staff met with City of Leawood to discuss traffic signal and camera communications
- 5/18 – Chris Jenkins attended Pre-bid meeting for Raymore Water tower rehabilitation
- 5/18 – OGL staff met with MoDOT traffic staff to discuss current work item status
- 5/18 – OGL staff met with Bonner Springs, KS staff to discuss OGL operations
- 5/19 – OGL staff met with KCMO staff to discuss current work items status
- 5/26 – Ray Webb met with Olsson Staff to discuss Incident Management plans
- 5/26 – Chris Jenkins and Ray Webb attended KCMO City Manager’s Camera Coordination Committee meeting
- 6/2 – OGL and City of Grandview held a conference call to discuss future signal integration
- 6/2, 6/6, 6/9, 6/13, 6/16, 6/20 – Barry Viss worked at the KCMO TOC
- 6/13 – OGL staff met with MODOT to discuss concerns about M-350 & Noland
- 6/15 – OGL staff met with Olsson staff to discuss OGL operations and procedures related to incident management
Quarterly Repair Ticket Statistics by Month

In the 2nd Quarter of 2016, OGL staff created and responded to 59 repair tickets in the Kansas City area. This number represents an increase of about 164% compared to the 2nd Quarter of 2015 and a 53% decrease compared to the 1st quarter of 2016. All repair tickets are shown by month in Figure 1.

Figure 1 – Quarterly Repair Ticket Statistics by Month

Additional Repair Ticket Details:

Figure 2 – Monthly Repair Ticket Statistics / Prior 12 months

Figure 2 shows the number of repair tickets that OGL staff responded to for the last 15 months. It is intended to show long-term trends in incidents that are occurring on the OGL network.
Additional Statistics

OGL Network Pod Diagram

Figure 3 shows the overall design of the OGL Network and Pod Locations. It is noted that the different color of lines between the Pods are representing the different type of network connections. A black line represents a FCC licensed link, an orange line represents a fiber optic connection, and a light blue line represents an unlicensed radio link. The OGL network now has 2 wireless rings as seen in the diagram.
Repair Tickets by Network Pod

OGL staff is continually working on improving the reliability of the OGL network. Therefore, staff monitors and tracks which network pods continually have incidents. Figure 4 shows the number of repair tickets for each Pod and Figure 5 shows the number of repair tickets year–to–date for each Pod.

Figure 4 – Repair Tickets by Network Pod

Figure 5 – Repair Tickets by Network Pod / Year – to – date
Repair Tickets by Equipment Type

Figure 6 – Repair Tickets by Equipment Type

Figure 6 shows the number and percentage of incidents that occur for each equipment type for the quarter.

![Pie Chart for Repair Tickets by Equipment Type]

Figure 7 – Repair Tickets by Equipment Type / Year – to – Date

Figure 7 shows the percentage of repair tickets year – to – date for each equipment type.

![Pie Chart for Repair Tickets by Equipment Type / Year – to – Date]
Repair Ticket Statistics by Severity Level

Figure 8 – Repair Ticket Statistics by Severity Level

Figure 8 shows the number and percentage of incidents by severity level for the quarter.

Figure 9 – Repair Ticket Statistics by Severity Type / Prior 12 months

Figure 9 shows the number of incidents by severity type that OGL staff has managed in the last 15 months.
Summary of Critical Events
The OGL staff responded to 0 critical events during the 2nd Quarter of 2016.

Preventative Maintenance
Each year at the Pod locations for the OGL network, preventative maintenance is performed according to Exhibit I Scope of Services.

There was no preventative maintenance performed in the 2nd quarter of 2016. OGL expects to give notice to perform this task.

CCTV Operations
As part of the MO ARRA project, CCTV cameras were installed at numerous locations throughout the project at select locations. Since final installation, these cameras have proved valuable at many times. During times of timing plan implementation, construction and detours, OGL staff, engineers, and signal electricians have routinely used these cameras to observe traffic and signal operations. Through the use of CCTV combined with TransSuite, malfunctions can be investigated remotely for a variety of issues including detection problems and timing concerns.

Using funds that were awarded from the 2013/14 STP Call for Projects, installation of 65 PTZ cameras and 10 point-to-point wireless radios began. These new cameras were installed in areas to supplement existing camera coverage or where no coverage existed in the past. The cameras have been transferred to each agency and are the agencies maintenance responsibility. OGL staff can assist with troubleshooting should the cameras need repair. The radios were installed in an effort to upgrade some of the existing unlicensed backhaul links and to create new links in an effort to provide more network redundancy. This project is complete.
# Traffic Signal Event Tracking

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<th>Jurisdiction</th>
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| Total | 221 |

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**Operation Green Light**

**Quarterly Operations Report**
Federal revenues are on a reimbursement basis whereas the local match is according to agreements executed for the years 2015-2016 and collected annually. Local funds are combined with federal STP funds to comprise the budget. The current federal to local target funding split is 50/50. Current local match funds being collected for 2015-2016 agreements have all been received for 2015 operations and two agencies payments for 2016 remain to be collected. The 2009-2014 STP funds as of March have now been fully expended.

Items to note from the below budget summary:

- The budget has been combined for 2015 and 2016 to better reflect the total two-year program budget.
- Supplies expense has an overage due to changes how MARC codes expenses since budget was created. Expenses were budgeted in the equipment category.
- Current year total collection of local revenues includes 23 of 25 agencies.
- The Reserve/Emergency fund is unchanged at $300,000.
- The ending balance from the 2009-2014 local funds is $69,187.

### Mid-America Regional Council (MARC)
**MO & KS OGL Operations**
**2-Year Budget Period Beginning April 1, 2016**
**Report as of June 30, 2016**

#### Revenues

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<thead>
<tr>
<th>Two-Year</th>
<th>Cumulative To Date</th>
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<tr>
<td>STP Funding, KDOT*</td>
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<td>STP-Funding, MoDOT</td>
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<td>Local Gov't Revenue</td>
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<td><strong>Total Revenues</strong></td>
<td><strong>$2,208,450.00</strong></td>
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*2016 KDOT agreement for $163k in progress / unobligated

#### Expenses

<table>
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<tr>
<th>Two-Year</th>
<th>% Variance</th>
<th>(3 mo / 24 mo = 12.5% target)</th>
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<tr>
<td>Salaries, Fringe Benefits, Indirect Costs</td>
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<td>$159,101.02</td>
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<td>Consultants/Contracted Services</td>
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<td>Legal Fees</td>
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<td>Meeting/Travel (In/Out of Region &amp; Registration)</td>
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<td>Telephone/Maint.(Internet, mobile, ConferSave, USB modem)</td>
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<td>Insurance</td>
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<td><strong>Total Expenses</strong></td>
<td><strong>$2,208,450.00</strong></td>
<td><strong>$316,923.52</strong></td>
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#### Balances:

- **Beginning Local Funds Balance April 1, 2016** | $69,187.56 (Excess Local Funds from previous Budget Period)
- **Ending Balance June 30, 2016** | **$951,202.86**
- **Reserve/Emergency** | **$300,000.00**