OGL STEERING COMMITTEE AGENDA
Monday, October 23, 1:30 PM
On-Line TEAMS and in-person, at MARC, Rm Lewis and Clark

Welcome & Introductions

1. **VOTE: Approval of July 24 Committee Minutes*** (page 2)
2. **VOTE: SMART Grant Support, Consultant Selection*** (page 4)
3. **VOTE: Advanced Traffic Signal System Software Contract*** (page 5)
4. **Agency Updates** (staff changes, work zones, design and construction)
5. **Hot Topic: Improve I-70 Kansas City, Project Overview and Update, Allan Ludiker, PE, Project Director, MoDOT**
6. **USDOT SMART Grant and DOT STIC Award Updates**
7. **2024 Work Plan for Discussion / Input**
8. **MO and KS CMAQ Construction Projects Update**
9. **OGL Standard Drawings and JSP's**
   Link to materials for Design and Construction
10. **Quarterly Operations Report** (page 14)
11. **Quarterly Budget Report** (page 29)

Next Regularly Scheduled Meetings: Mondays at 1:30, January 22, April 22, July 22, October 28, 2024

Adjournment

***Action Items**

The meeting will be open to the public in person or via teleconference. Members of the public who wish to participate in the teleconference please email transportation@marc.org by Noon on Monday October 16, 2023, for instructions.

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.

OGL STEERING COMMITTEE MEETING MINUTES
Monday, July 24, 2023, 1:30 p.m.
Hybrid In-Person/Virtual Meeting: MODOT – Room 236 and online via Microsoft Teams

Members Present	MARC Staff Present	Non-Members Present
Noel Forrester, Olathe, Chair	Barry Viss	Jonathan Deves, HDR
Ericka Ross, MODOT, Vice-Chair	Ray Webb	Janelle Clayton, Merge Midwest
Adam Hilgedick, Blue Springs	Chris Jenkins	John Albeck, Iteris
Thomas Northup, KDOT	Ron Achelpohl	Jamie Mackey, FHWA
Shawn Gotfredson, Overland Park		Blake Hansen, Olsson
Sol Moinuddin, KCMO		Kurt Rotering, Olsson
Steve Schooley, Lenexa		Lisa Seymour, TCC
Brian Shields, Overland Park		Doug Ripley, TCC
John Findlay, Liberty		Robinson Camp, Raytown
Kristofer Finger, KCK		
Mark Green, Independence		
John Miller, FHWA		
David LaRoche, FHWA		
David Northup, KDOT		
Michael Spickelmier, Lansing		
Kieth Bredehoeft, Prairie Village		
Sherri McIntyre, Liberty		

Welcome
The meeting started at 1:30 p.m. Noel Forrester, Chair, welcomed all and introductions were made.

1. **April 24, 2023, committee minutes** – Steve Schooley made a motion to accept the minutes. The motion was supported and approved unanimously.

2. **MO CMAQ project bid** – This was scheduled to be an action item, a vote to approve a contractor. The bids were due on Friday the 21st. There was only one bid received and it was significantly over our budget, so there is no action for the committee at this time.

3. **Agency updates –** No one had any updates that they wanted to share.

4. **OGL technology plan**. Kurt Rotering and Blake Hansen with Olsson highlighted a few items from the recently updated technology plan. The plan document was distributed to committee members only. Action items include pursuing multifactor authentication for TransSuite access, regularly exercising equipment failure recovery plans, tracking MTBF of equipment to improve replacement schedules, and pursuing increased internet connection bandwidth.

5. **Grants and awards** – Ray updated the committee. (1) OGL has been awarded the SMART grant funding, ($734,653), with no local match required, for crowdsourced performance measures. We are working on getting the agreement in place. (2) STIC project funding in both Missouri ($100,000) and Kansas ($172,500), requiring a local match of 20/25% respectively, is also available for crowdsourced performance measures. (3) CMAQ funding of $960,000, requiring a local match of 25%, is available now for TransSuite enhancements. (4) 2025/2026 CMAQ funding ($421,680), requiring a match of 25%, will also be available

for crowdsource performance measures. (5) The Carbon Reduction program is in the process of scoring applications. OGL put in an application on behalf of Mission, KS for this funding to add Johnson Dr through Mission, KS to OGL. Ray will be working to plan how to have all the crowdsource projects work together in concert to advance the OGL program.

6. **MO and KS CMAQ construction project updates** – Ray updated the committee on the two projects. The Kansas project is underway: fiber is installed on 135th St and Leawood will be installing switches to utilize it soon. The 51 Econolite controllers will be received in late July. The Missouri project has completed a second call for bids with a reduced scope to compensate for higher-than-expected prices in the first attempt. The bids were received on Friday the 21st. There was only one bid received this time and it was significantly over our budget again. The eight agencies involved will need to decide how to respond to this development.

7. **Hot topic: crowdsourcing for arterial operations** - Jamie Mackey, PE, PTOE, FHWA, gave a presentation on various applications for crowdsourced data. Types of data include probe vehicle (speed and travel time), events (crashes, incidents), social media (user sentiment), travel behavior (modes), vehicle behavior (hard braking, wiper status), or mobile infrastructure/internet of things. These types of data can help us monitor and respond to changing conditions with signal timing changes, and they can help measure the effects of the changes.

8. **Quarterly operations report** – Chris Jenkins highlighted a few notes from the report which was included in the meeting packet. Of particular note: OGL assisted with managing traffic around the I-70 weekend closure on June 3rd.

9. **Quarterly budget report –** The quarterly budget report was included in the meeting packet. Ray noted that the budget is in good shape. One agency is in the process of signing their agreement after which they will be invoiced. One agency is in the process of paying. As of the end of the quarter, the balance of local funds is $432,969.

Other business

- We plan to offer another online training for TransSuite in the near future.
- The 2nd edition of the Traffic Signal Maintenance Handbook from ITE was distributed last quarter. Ray again encourages agencies to look at this as it is a useful resource.
- The June 14, open house "Day of Celebration" was a success, commemorating 20 years of KC Scout and 15 years of OGL operations.
- Ray did a pole of the committee to gauge their interest in attending a topic-specific workshop. The results were that all 13 participants were interested. The topics, starting with the most popular, were (1) traffic signal detection, (2) traffic signal controllers, (3) asset management, (4) ped buttons, (5) battery/UPS backups, and (6) Other. Any other input on such a workshop is welcome and will assist our planning.

Next meeting dates: October 23, 2023, January 22, 2024, 1:30 PM. The October meeting will likely be at the MARC offices.

Adjournment – Meeting was adjourned at 2:35 p.m.

BOARD AGENDA ITEM

For: _X_ B&P __ CSC

Board: __ Presentation __ Discussion __ Brief Report _X_ Board Consent

October 2023
Item No. x
Efficient Transportation and Quality Places

ISSUE:
VOTE: Authorization to enter a contract with the consulting firm, Olsson, to assist with a regional Kansas City metro area project to help manage and evaluate crowdsource data vendors for arterial performance measures for MARC's Operation Green Light Program.

BACKGROUND:
Operation Green Light (OGL) is a regional traffic signal coordination and operations program involving local governments and the State Departments of Transportation in Kansas and Missouri. This initiative improves regional traffic flow, air quality and fuel consumption. As a key part of this work, OGL develops and implements traffic signal timing plans in cooperation with participating state and local governments and monitors real-time operations on roadway intersections in the program. This work will support the USDOT SMART Grant by assisting vendor solicitation and evaluations. MARC sent an advertisement on September 8, 2023, to 193 vendors and was posted on the MARC website. The solicitation closed October 2, 2023, with one vendor responding, Olsson.

BUDGET CONSIDERATIONS
Funds for this project are from the USDOT SMART Grant program contracted in August.

REVENUES	
Amount	$267,950
Source	USDOT SMART Grant Program. No local match is required.
PROJECTED EXPENSES	
Contractual	$267,950

COMMITTEE ACTION
The Operation Green Light Steering Committee will meet on October 23, 2023, to vote to recommend the selection of Olsson for a two-year contract not to exceed $267,950 per contract.

RELATED JURISDICTIONS:
Missouri Department of Transportation, the Cities of Belton, Blue Springs, Gladstone, Grandview, Independence, Kansas City, Lee's Summit, Liberty, MoDOT, 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, Roeland Park, Shawnee, Westwood and the Unified Government of Wyandotte County/Kansas City in Kansas.

RECOMMENDATION
Authorize the Executive Director to enter a contract with Olsson for support for the USDOT Smart grant arterial performance measures for MARC's Operation Green Light Program.

STAFF CONTACT
Ron Achelpohl
Ray M. Webb

AGENDA REPORT

MARC Board of Directors

October 2023
Item No. x
Efficient Transportation and Quality Places

ISSUE:
VOTE: Authorize a three-year contract with TransCore ITS Inc. for the Operation Green Light Regional Traffic Signal System Software Development and Support.

BACKGROUND:
Operation Green Light (OGL) is an initiative to coordinate regional traffic signal operations in partnership with area local governments and state departments of transportation. The Mid-America Regional Council (MARC) staff currently assists in the management and operation of traffic signal timing for over 750 intersections in 27 jurisdictions in both Kansas and Missouri. The goal of this program is to improve traffic flow and reduce delays, fuel consumption and tailpipe emissions through coordinated traffic signal timing and operations. As part of this work, OGL develops and implements traffic signal timing plans on all signalized intersections in the system with the traffic signal software system and maintains and operates a communications network.

TransCore provides the TransSuite Advanced Traffic Management System software used to remotely manage and monitor these traffic signals. This work will include software enhancements requested by the OGL partner agencies, ongoing technical support for the software and servers on which it runs, fixes and other additional features and functionality through regular software updates. The region shares the system software as opposed to each agency owning their own system and thus reducing the cost of traffic signal software support. These enhancements will provide support for new features introduced by controller manufacturers, new UI features to streamline operational management of the signal system, additional data visualization dashboards, traffic engineering analysis tools, application and network security enhancements, and other system improvements.

BUDGET CONSIDERATIONS
This contract will be funded through the Federal Congestion Mitigation Air Quality (CMAQ) improvement program administered by the Kansas and Missouri Departments of Transportation. Partner agencies will provide the matching funds.

REVENUES	
Amount	$1,075,965
Source	Federal Congestion Mitigation Air Quality (CMAQ)
PROJECTED EXPENSES	
Contractual	$1,075,965

RECOMMENDATION
Authorize a contract with TransCore ITS Inc. for Advanced Traffic Signal System Software Support Services for the Operation Green Light Program through October 31, 2026, in an amount not to exceed $1,075,965 for this work.

STAFF CONTACT
Ron Achelpohl
Ray M. Webb

2024 OGL WORK PLAN

Operation Green Light Program

Program Objectives

- Manage traffic signal operations on the arterial corridors included in Operation Green Light in cooperation with partner agencies.
- Support regional traffic incident management initiatives by managing traffic signal timing plans on the arterial corridors included in Operation Green Light.
- Maintain the regional shared wireless communication network in good working order.
- Collect traffic signal data in support of the signal timing efforts.
- Support the regional traffic signal system software.

Background/Previous Work

Operation Green Light is a regional effort to improve traffic flow and reduce vehicle emissions. Operation Green Light works with federal, state and 27 local agencies to operate and coordinate traffic signal operations and network communication between traffic signal equipment across jurisdictional boundaries on over 750 traffic signals in real-time operations. Coordinating traffic signal systems can significantly reduce travel delay, reduce ozone precursor emissions, and provide a powerful tool to help manage incident-related congestion.

Program Activities and Products

1. ***ACTIVITY*: *Program management***. Activities included in this work include project management, stakeholder engagement, training, Integrated Corridor Management (ICM) activities, Transportation System Management and Operations (TSMO) and all other work necessary to ensure the active prioritization of objectives to efficiently manage traffic signal infrastructure and control devices (Ongoing)

2. ***ACTIVITY: Signal timing and synchronization.*** Activities include traffic data collection and analysis, field observation, controller programming and deployment, signal timing troubleshooting and reporting, traffic modeling and deployment, updating signal timing based on changes in traffic patterns, citizen concerns, special events, incidents or roadwork. (Ongoing)

3. ***ACTIVITY: Regional network communications.*** Activities include, database management, repair tracking, field investigation, equipment procurement, server and software administration, contractor oversight and continued network upgrades of aging communication equipment driven by the technology plans (ongoing)

5. ***ACTIVITY: Incident management work***. Review incident management diversion plans for updates and if new corridors beyond the current corridors of I-35, I-435 and I-70 are needed.

6. ***ACTIVITY: Missouri and Kansas 2022 CMAQ funds***. Closeout the $783,000 CMAQ Kansas construction project that added fiber option communications in Leawood and 54 traffic signal controllers for Kansas City, Kansas, and Merriam. Continued efforts for the $728,000 Missouri CMAQ project with KCMO, North Kansas City, MoDOT, Belton, Raymore, Independence, Lees Summit. The project includes communication infrastructure, traffic signal controllers and CCTV's.

7. ***ACTIVITY: Develop 2023-2024 regional agency agreements as needed.*** Develop and execute agreements for the partner agencies including the MoDOT and KDOT STP funding agreements.

8. ***ACTIVITY: Develop on-going system requirements.*** Implementation of the 2023 Advanced Transportation Management System (ATMS) software project.

9. ***ACTIVITY: Manage the USDOT SMART Grant program.*** This project of $734,000, is a regional effort to deploy and evaluate crowdsourced arterial performance measures in the greater Kansas City region.

10. ***ACTIVITY: Manage the Missouri ($100,000) and Kansas ($172,500) State Transportation Innovation Council (STIC).*** This project will be alongside the USDOT smart gran for crowdsourced arterial performance measures.

Operations Funding 2024

Federal	$ 490,000	FHWA-STP-MO
Federal	$ 210,000	FHWA-STP-KS
Non-Federal	$ 604,000	Local funds (755 @ $800/signal)
Task Total	**$1,304,000**	

2024 OGL SIGNAL TIMING PLAN

Corridor (2024)	Signals	Jurisdictions
119th, Renner to Greenwood	8	Olathe
Antioch and Johnson Dr?	10	Merriam, OP
87th St, Acuff to US-69?	10	Lenexa, OP
75th St?	5	OP, Prairie Village
K-7	4	Bonner Springs
SW Blvd	5	UG, KCMO
SW Tffwy to SMP, Westport Rd/43rd	28	KCMO, Westwood, Fairway, UG
Plaza/East Plaza	36	KCMO, MODOT
Hickman Mills	4	KCMO, MODOT
39th St	12	Independence, MODOT
US-40, Sterling	28	MODOT, Indep, KCMO
Total	150	

JOB SPECIAL PROVISION

A. REMOVE & RESET EXISTING OPERATION GREEN LIGHT EQUIPMENT

1.0 Description.
The work under this Contract consists of required removal, testing, installation, and/or reinstallation of all Intelligent Transportation System (ITS) equipment and materials necessary for the Mid-America Regional Council (MARC) Operation Green Light (OGL) system to maintain operation as long as possible during the proposed construction period and reestablish communications as quickly as possible after the proposed construction period. This work includes, but is not limited to, the removal, testing, installation, and/or reinstallation of wireless signal communication equipment, incident management cameras, and fiber communication equipment, where applicable.

Coordination of the inspection and testing throughout the construction period is to be completed by calling the Mid-America Region Council at (816) 701-8300 and requesting the Operation Green Light staff.

1.1 Standard Details.
The Contractor shall follow OGL standard details and the owning agency standard details and for equipment installation as applicable. Contact MARC OGL Staff and/or local municipality to obtain applicable standard details.

1.2 Scheduling of Work.
The Contractor shall submit a schedule to MARC OGL staff for approval at least thirty (30) days before commencing work on OGL equipment or any work which would impact communications to the signal network. Once removal and/or installation of this equipment commences, the Contractor shall complete this work following the approved schedule.

1.3 Pre-Qualifications.
The Contractor shall have experience with applicable wireless equipment, radio networks, and/or applicable fiber optic cable and networking equipment. All work to be performed on new and existing OGL equipment shall be completed by an OGL approved Contractor or submit paperwork to be reviewed and approved by MARC staff. A contractor shall be certified to work on Radwin or Ceragon or similar wireless radios are required when working with the associated wireless radios in the field. The Contractor must submit vendor certifications, an experience summary from similar projects completed, and all applicable references and trainings to MARC OGL Staff within 7 days from the notice to proceed. Additionally, the Contractor must provide a manufacturer certification for each manufacturer of wireless equipment included with this project. These submittals must be approved by MARC OGL staff prior to any work being performed.

2.0 Construction.
To assure full and complete utilization and compliance of all equipment, the Contractor shall provide support services and materials at various points in the construction, including:

- Testing as specified in **Section 3** of this Technical Special Provision.

Final acceptance of the Project will be made after satisfactory completion of the testing of applicable installed and/or reinstalled communications system equipment, camera system software and equipment, signal vehicle and pedestrian detection, and on the basis of a comprehensive final field inspection. The Contractor shall be fully responsible for safe return of all equipment removed to OGL Staff until the equipment is ready for reinstallation (if applicable). The Contractor shall coordinate with OGL Staff on proper location for storage of equipment removed.

The equipment and materials for installation shall conform to the Plans and this Technical Special Provision; relevant local agency specifications, latest edition; and the National Electric Code, latest edition. In case of a conflict the documents shall govern in the order established.

The Contractor shall be responsible for contacting MARC OGL staff and obtaining asset tags which are to be applied to each equipment item if necessary. The Contractor is responsible for contacting MARC OGL staff to obtain IP addresses and security key info for equipment if necessary.

The intent of this Job Special Provision is that the work to be completed under this Contract shall be neat, finished, full, and complete in every detail and ready for use and operation for the purpose for which it is intended. The Contractor shall furnish all labor, tools, materials, machinery, test equipment, and equipment necessary to complete the removal, testing, installation and/or reinstallation of the system. The cost of all incidentals, minor and miscellaneous items, work, and materials for which no payment is specifically provided, and any items, work, and materials not specified or shown which are necessary to complete and maintain the work shall be included in the price bid for other items in the Contract, and no other compensation will be allowed. The Contractor shall pay all shipping costs for the equipment furnished and installed under this Contract.

2.1 Removal (and Reinstallation) of Existing Equipment.

If wireless equipment is proposed to be removed with this project it shall be returned to MARC OGL staff unless it is to be reinstalled on the project. The Contractor shall remove the specified equipment at designated locations. Equipment removal shall be conducted in a manner in which to preserve the existing condition of the equipment. The Contractor shall plug any holes in mast arms or poles when wireless equipment is removed. When equipment has a corresponding cable the Contractor shall remove the cabling from the existing conduit and pull box system and disconnect any existing terminations in the cabinet for that device. Cable associated with existing wireless communications equipment should be completely removed from the signal system (conduit, pull boxes, and pole), coiled, and disposed of in an acceptable manner. All equipment, with the exception of cabling, is to be returned to MARC OGL staff.

The Contractor shall perform all cable and cable hardware removal in a manner that ensures that no damage is caused to any conduit, pole, or other facility. In case of damage to cables, equipment or property, the Contractor shall immediately notify the Engineer. The Contractor shall repair all damage caused by performing the required tasks at the Contractors sole expense and to the satisfaction of the Engineer.

If removed equipment is to be reinstalled at any point in the project, the Contractor shall schedule work with OGL Staff per **Section 1.2** and adhere to a strict schedule to minimize downtime of equipment.

(Modify the next paragraph as required)
Upon removal of existing equipment, the Contractor shall complete all work necessary to reinstalled removed equipment, or install new equipment, per plans to keep downtime to a maximum continuous 24-hour time window. Contractor shall install temporary communications or confirm project schedule if downtime is anticipated to be greater than a continuous 24-hours.

New cable shall be supplied and installed by the Contractor for reconnection to reinstalled equipment upon completion of construction. New cable to devices shall meet manufacturer specifications for said device and approved by OGL Staff during the equipment submittal process. All new equipment shall conform to OGL standards and specifications in addition or as a supplement to local or state jurisdictional requirements.

3.0 Acceptance and Testing Procedures.

The Contractor shall notify OGL Staff in advance of the times and places which the tests will take place to enable the Engineer and/or OGL Staff to witness them. The Contractor shall perform the tests and document the test results. The testing of equipment's functionality shall involve evaluating its capability to transmit and receive information reliably and efficiently. This encompasses assessing wireless performance, including transmit power and receive sensitivity, as well as verifying compliance with relevant communication protocols. Functional testing must encompass all intended features and functions. When the tests are completed, whether successful or not, electronic copies of the test results shall be furnished to OGL Staff for evaluation. The documented test results shall be self-explanatory, clearly stating how the results were obtained along with an explanation where the test results deviated from the expected results. OGL Staff will notify the Contractor whether the test was successfully completed.

3.1 Inspection.

All equipment and material furnished, and all work performed in connection with the project shall be subject to inspection by OGL Staff. OGL Staff, or their authorized representative, shall have free access during normal working hours to any local facility or area in which work associated with the project is occurring. The Contractor shall ensure that full and sufficient information concerning the character of materials and workmanship is made available to OGL Staff or the Engineer.

Inspection by OGL Staff or the Engineer shall not relieve the Contractor of his obligation to comply with the requirements of the Plans and this Technical Special Provision. Any equipment or labor, which is found by OGL Staff to be defective or unsuitable prior to Final Acceptance, shall be replaced or corrected at the Contractor's expense.

4.0 Traffic Control. (ADD/DELETE this section as needed)

The Contractor shall be responsible for traffic control for this project. Traffic control shall follow all Manual on Uniform Traffic Control Devices (MUTCD) requirements and local jurisdiction traffic control specifications. During construction the Contractor shall avoid disruption to public streets if at all possible, which includes lane closures. Lane closures

should be used only if absolutely needed and should occur only during non-peak or nighttime hours of traffic, as approved by the governing jurisdiction. In general peak periods where lane/road closures should not occur include weekdays from 7-9am and 4-6pm, refer to local agency requirements for additional restrictions. The contractor shall submit a traffic control plan for approval by MARC OGL Staff and the local jurisdiction. The Contractor shall be responsible for coordinating with the local jurisdiction about lane closures or work interrupting traffic flow a minimum of 24 hours prior to work beginning, refer to local agency requirements for additional notification requirements. The Contractor shall obtain traffic control permits as required by the local jurisdiction.

5.0 Basis of Payment.

The removal and resetting/reinstallation of existing OGL equipment will be paid for under the lump sum bid item for "Remove & Reset Existing OGL Equipment" for all devices installed or relocated on the project. No direct payment will be made for any incidental items necessary to complete the work unless specifically provided as a pay item in the contract. The Lump Sum bid item shall include all necessary equipment described in the plans and all incidental components, including mounting brackets, antennas, surge suppression and cabling.

Item No.	Type	Item Description
XXX	LS	Remove & Reset Existing OGL Equipment

TRAFFIC SIGNAL CONTROLLER

IF SWITCH IS INSTALLED & SIGNAL CONTROLLER IS ETHERNET-CAPABLE, CONNECT CAT5E CABLE FROM SWITCH TO SIGNAL CONTROLLER

IF SWITCH IS INSTALLED & SIGNAL CONTROLLER IS ETHERNET-CAPABLE, CONNECT CAT5E CABLE FROM SWITCH TO SIGNAL CONTROLLER

SUPPLIED BY OTHERS OR EXISTING

COORDINATE WITH OPERATION GREEN LIGHT STAFF FOR ETHERNET SWITCH PORT ASSIGNMENTS

MANAGED ETHERNET SWITCH

IF SWITCH IS INSTALLED, CONNECT SHIELDED STRAIGHT-THRU CAT5E PATCH CABLE FROM IDU ETHERNET PORT TO SWITCH

ETHERNET

RADIO

ETH POWER

RESET

SHIELDED STRAIGHT-THRU CAT5E PATCH CABLE

SHIELDED I-CAT5E STRAIGHT-THRU CABLE WITH SHIELDED RJ-45 CONNECTORS TO RADIO ETHERNET PORT

Surge

Protected

TO CABINET GROUND

LIGHTNING/SURGE PROTECTION EQUIPMENT

TO CABINET AC POWER SOURCE PROVIDED BY OTHERS

6-OUTLET SURGE STRIP

COMPONENTS TO BE INSTALLED IN EXISTING SIGNAL CONTROLLER CABINET

EXISTING SIGNAL CONTROLLER CABINET

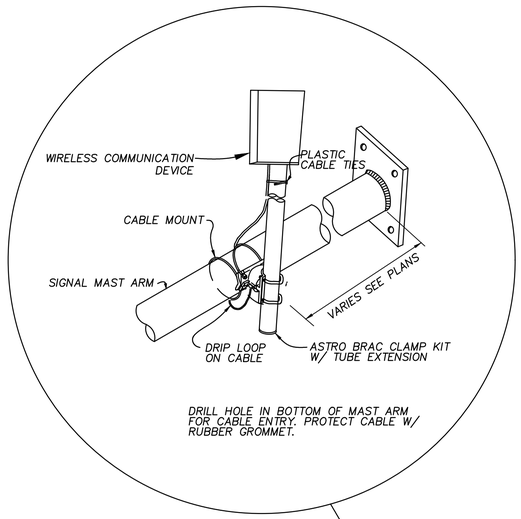
TRAFFIC CONTROL

INSTALL WIRELESS EQUIPMENT IN TRAFFIC SIGNAL CABINET AT REQUIRED LOCATIONS

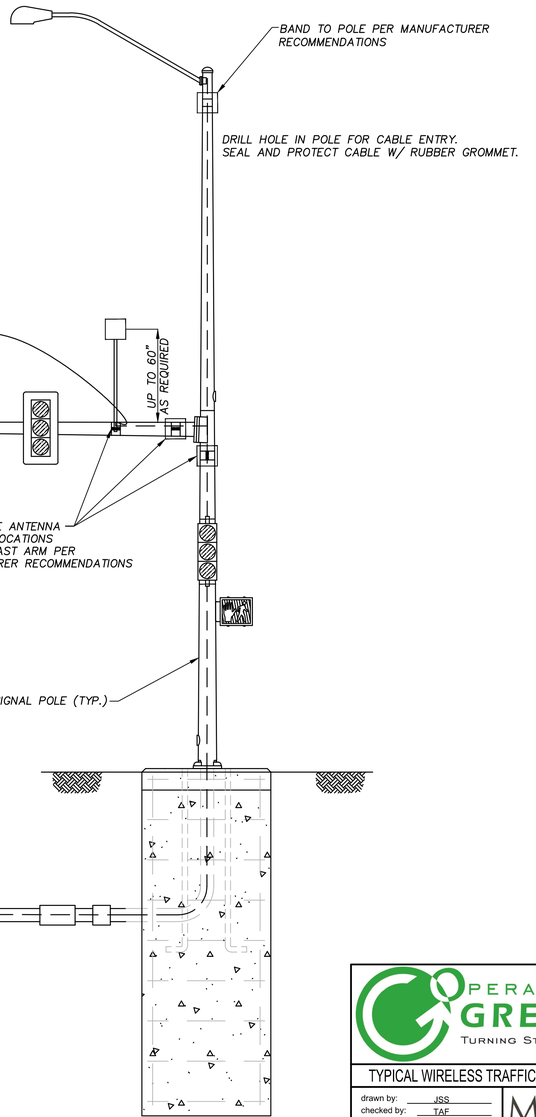
EXISTING SERVICE BOX

EXISTING CONDUIT

INSTALL CABLE IN EXISTING CONDUIT



DRILL HOLE IN BOTTOM OF MAST ARM FOR CABLE ENTRY. PROTECT CABLE W/ RUBBER GROMMET.



GENERAL NOTES:

1. REFER TO INTERSECTION WIRING DETAIL FOR DETAILED WIRING INSTALLATION.

2. REFER TO DESIGN PLAN SHEETS AND/OR JOB SPECIAL PROVISIONS FOR THE ORDER OF PREFERENCE REGARDING THE ANTENNA MOUNTING LOCATION.

3. ACTUAL TRAFFIC SIGNAL CABINETS, POLE AND SERVICE BOXES VARY BY AGENCY.

TYPICAL ANTENNA INSTALLATION DETAIL AT INTERSECTIONS

OPERATION GREENLIGHT
TURNING STOP LIGHTS INTO GO LIGHTS

TYPICAL WIRELESS TRAFFIC SIGNAL INSTALLATION DETAIL

drawn by: JSS
checked by: TAF
approved by: RW
last revised: 05-06-2014

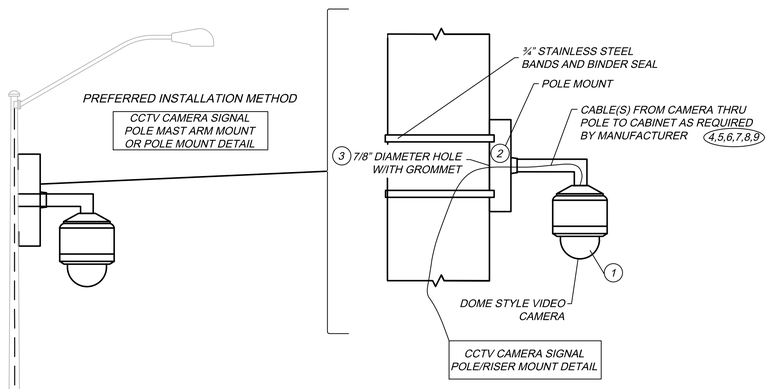
MARC Mid-America Regional Council

SHEET
OF

TYPICAL CCTV INSTALLATION DETAIL

PREFERRED INSTALLATION METHOD

CCTV CAMERA SIGNAL POLE MAST ARM MOUNT OR POLE MOUNT DETAIL



CCTV CAMERA SIGNAL POLE/RISER MOUNT DETAIL

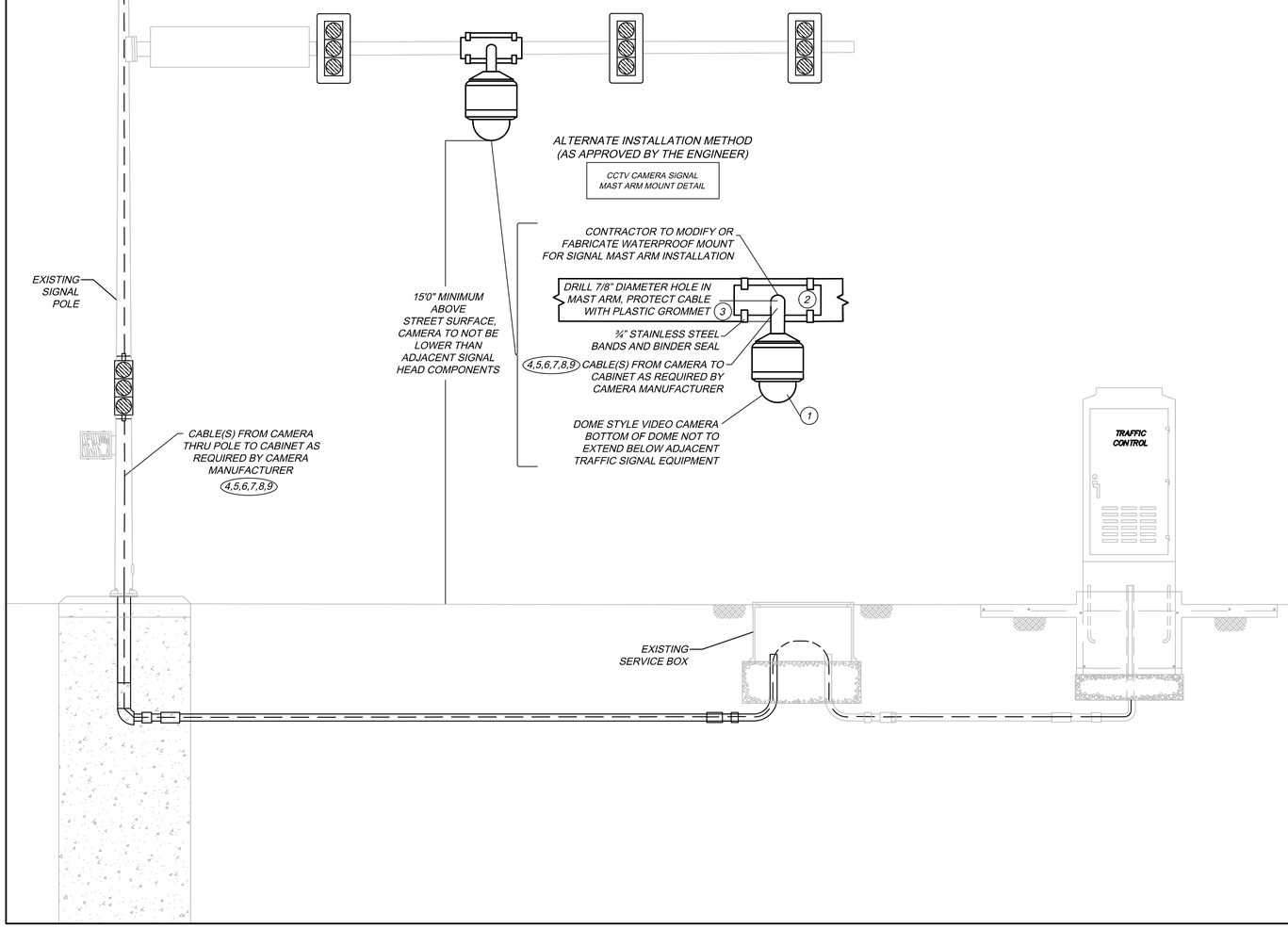
CCTV PARTS LIST

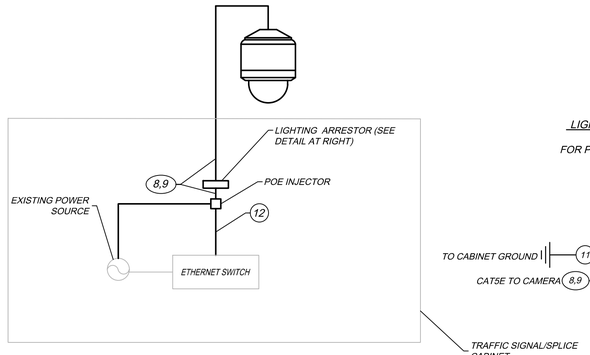
ITEM	QTY	EXAMPLE PART NO.	DESCRIPTION
1	1	----------	CCTV CAMERA (SEE SPECIFICATIONS)
2	1	----------	CAMERA POLE MOUNT KIT (SEE SPECIFICATIONS)
3	1	2558	THOMAS & BETTS CABLE GRIP/BUSHING
4	1	----------	RG-6 COAX CABLE, UP TO 330' (IF REQ'D)
5	4	----------	COAX END CONNECTORS (IF REQ'D)
6	1	----------	SHIELDED 3c#18 CABLE, UP TO 330' (IF REQ'D) (CCTV POWER)
7	1	----------	SHIELDED 4c#20, UP TO 330' (IF REQ'D) (CCTV DATA)
8	1	----------	SHIELDED OUTDOOR-RATED CAT5E CABLE, 330' (IF REQ'D)
9	4	----------	SHIELDED RJ-45 END CONNECTORS (IF REQ'D)
10	1	----------	LIGHTNING ARRESTOR (SEE SPECIFICATIONS)
11	1	----------	GREEN #12 STRANDED GROUND WIRE, 4'
12	1	----------	STANDARD CAT5E CABLE, 3' BLUE (IF REQ'D)

NOTE:
CONTACT OGL STAFF TO CONFIRM SWITCH PORT ASSIGNMENTS

ALTERNATE INSTALLATION METHOD (AS APPROVED BY THE ENGINEER)

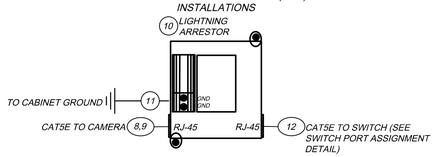
CCTV CAMERA SIGNAL MAST ARM MOUNT DETAIL





LIGHTNING ARRESTOR DETAIL

FOR POWER OVER ETHERNET (POE) INSTALLATIONS



CCTV WIRING DIAGRAM - POWER OVER ETHERNET (ONE CABLE)

GENERAL NOTES:

1. FOR CAMERA INSTALLATION AT WHICH THE CAMERA IS LESS THAN (<) 300 FEET FROM THE CABINET, REFERENCE "ONE CABLE" OR "SEPARATE" CABLE INSTALLATION DETAIL. FIELD INSTALL A CAT5 ETHERNET CABLE WHICH SHALL NOT BE GREATER THAN 300 FEET IN LENGTH.

2. FOR CAMERA INSTALLATIONS AT WHICH THE CAMERA IS GREATER THAN (>) 300 FEET FROM THE CABINET, REFERENCE THE "INSTALLATION OVER 300' DETAIL. PREFERENCE IS FOR INSTALLATIONS TO BE <300'. IF CAMERA INSTALLATION IS REQUIRED AT >300' DISTANCE, THE CONTRACTOR SHALL COORDINATE WITH ENGINEER TO CONFIRM LOCATION PREFERENCE AND PROVIDE ADDITIONAL EQUIPMENT PER MANUFACTURER RECOMMENDATIONS TO ACCOMMODATE ADDITIONAL LENGTH.

3. COMPOSITE CABLE MAY BE INSTALLED IN LIEU OF SEPARATE CABLES AS APPROVED BY THE ENGINEER.

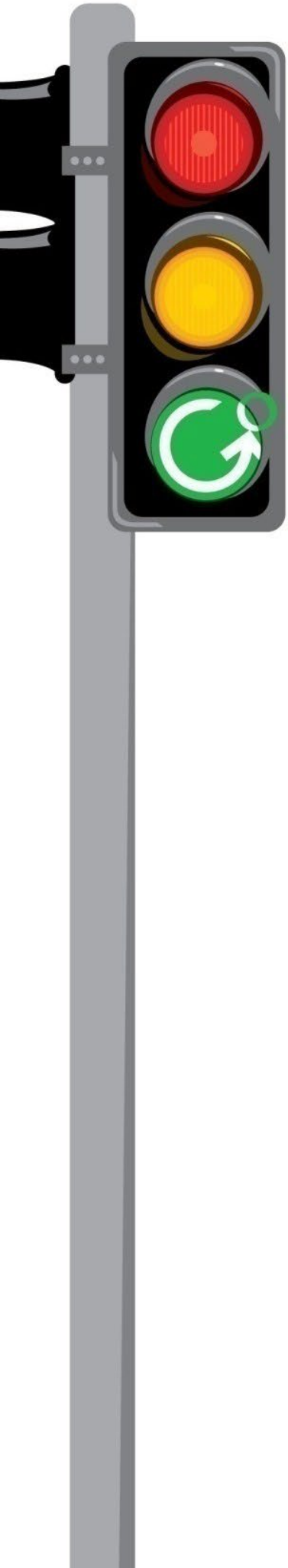
OPERATION GREENLIGHT
TURNING STOP LIGHTS INTO GO LIGHTS

TYPICAL CCTV INSTALLATION DETAIL

drawn by: JSS
checked by: TAF
approved by: RW
last revised: 05-06-2014

MARC Mid-America Regional Council

SHEET
OF



Mid-America Regional Council's Quarterly Report For Operation Green Light

3rd Quarter 2023 Report

October 23rd, 2023

Prepared For:

OGL Steering Committee

Prepared By:

OGL Operations Team

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Introduction

Operation Green Light (OGL) is a bi-state, multi-jurisdictional 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 program 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 3rd Quarter of 2023 and highlights signal timing and agency coordination. OGL currently monitors/operates 755 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 www.marc.org/OGL.

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 **54** repair tickets.

Corridor/Signal Timing Efforts

- 8/8 New coordination plans were installed on Red Bridge Rd
- 9/6 New coordination plans were installed on Shawnee Dr at the I-635 interchange.

Training Sessions/Panels/Events

- 8/11 OGL and TransCore staff hosted a TransSuite training
- 9/19 Barry Viss gave a presentation on OGL to several individuals taking part in an Enterprise Pool Fund Study

Additional Information

- OGL staff set up and scheduled the Miovision equipment to conduct **27** counts. Most of these were 13-hour turning movement counts.

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 3rd Quarter of 2023:

- 8/10 – Genetec was upgraded to 5.11.3.2
- 8/10 – Solarwinds was upgraded to 2023.3

Interagency Coordination

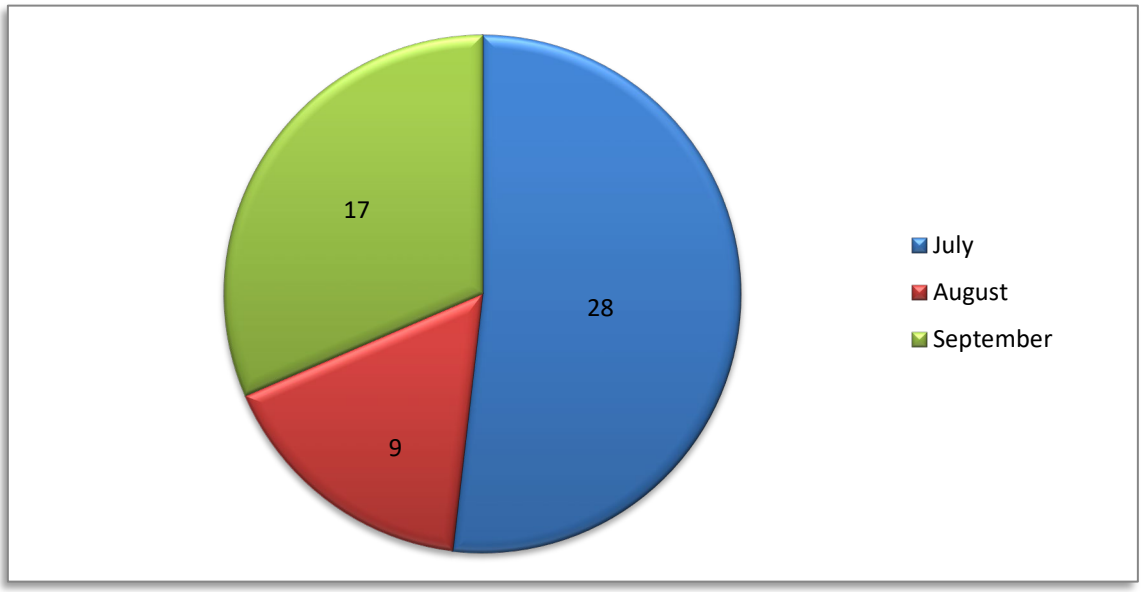
During the 3rd Quarter, OGL staff participated in the following interagency activities:

- 7/5, 7/19 – OGL and Olsson held bi-weekly conference calls for contract work
- 7/5 – OGL, Leawood, and Affinis met to discuss KS CMAQ project
- 7/6 – OGL and agency staff met with TransCore on software enhancement work
- 7/18 – Chris Jenkins attended the KC Scout Infrastructure meeting
- 7/19 – Chris Jenkins and KCMO staff met to troubleshoot some wireless radios
- 7/20 – OGL and several agencies met informally to discuss various technical topics
- 7/20 – OGL staff participated in the OGL Regional TransSuite Monthly Status meeting
- 7/21 – OGL staff met with MODOT staff to discuss various operations items
- 7/24 – OGL team held the July OGL Steering Committee meeting
- 7/25 – Barry Viss met with OP, Olathe, and TransCore staff to discuss adaptive solutions
- 7/26 – OGL staff met with Iteris regarding contract work
- 7/31 – OGL and consultant staff met to discuss network design of a Raymore traffic signal.
- 8/1-2 – Ray attended/presented the KDOT Innovative Technology Summit in Salina.
- 8/2 – Chris Jenkins attended K7 ITS review meeting.
- 8/3, 8/16, 8/30 – OGL and Olsson held bi-weekly conference calls for contract work
- 8/3 – OGL and agency staff met with TransCore on software enhancement work
- 8/7 – OGL and agency staff met with the design-build team for I-70 project in KCMO.
- 8/9 – OGL staff met with Iteris regarding contract work
- 8/14 – OGL staff met with KC Scout staff for regular coordination
- 8/15 – Chris Jenkins attended the KC Scout Infrastructure meeting
- 8/17 – OGL and several agencies met informally to discuss various technical topics.
- 8/17 – OGL staff participated in the OGL Regional TransSuite Monthly Status meeting
- 8/23 – Barry Viss met with KCMO and TransCore staff regarding enhancement work
- 8/22 – OGL staff met with AirSage and Flow labs regarding their signal performance measures product.
- 8/24 – OGL attended precon meeting for US24
- 8/30 – OGL staff met with Rhythm staff regarding some of their products
- 8/31 – OGL staff met with MODOT design staff to learn about OGL operation and discuss design coordination.
- 8/31 – OGL staff met with several agencies regarding the SMART grant project.
- 9/6, 9/20 – OGL staff met with Iteris regarding contract work
- 9/7 – OGL and agency staff met with the design team regarding a project on I-70 near downtown KCMO.
- 9/11 – OGL staff met with KC Scout staff for regular coordination
- 9/12 – Barry Viss met with Gades staff to discuss SEPAC firmware
- 9/13, 9/27 – OGL and Olsson held bi-weekly conference calls for contract work
- 9/13 – Chris Jenkins met with MoDOT traffic and Scout to discuss Genetec operations
- 9/13 – OGL and KDOT staff met to discuss use of Scout poles in KS
- 9/21 – OGL and several agencies met informally to discuss various technical topics
- 9/21 – OGL staff participated in the OGL Regional TransSuite Monthly Status meeting.
- 9/21-22 – Ray attended the SMART Grant Summit, in DC
- 9/25-27 – Ray attended the MO Highway Safety and Traffic Conference
- 9/26 – Chris Jenkins attended the KC Scout Infrastructure meeting.
- 9/29 – OGL staff met with a team from Lawrence, KS, to discuss signal operations

Quarterly Repair Ticket Statistics by Month

In the 3rd Quarter of 2023, OGL staff created and responded to **54** repair tickets in the Kansas City area.

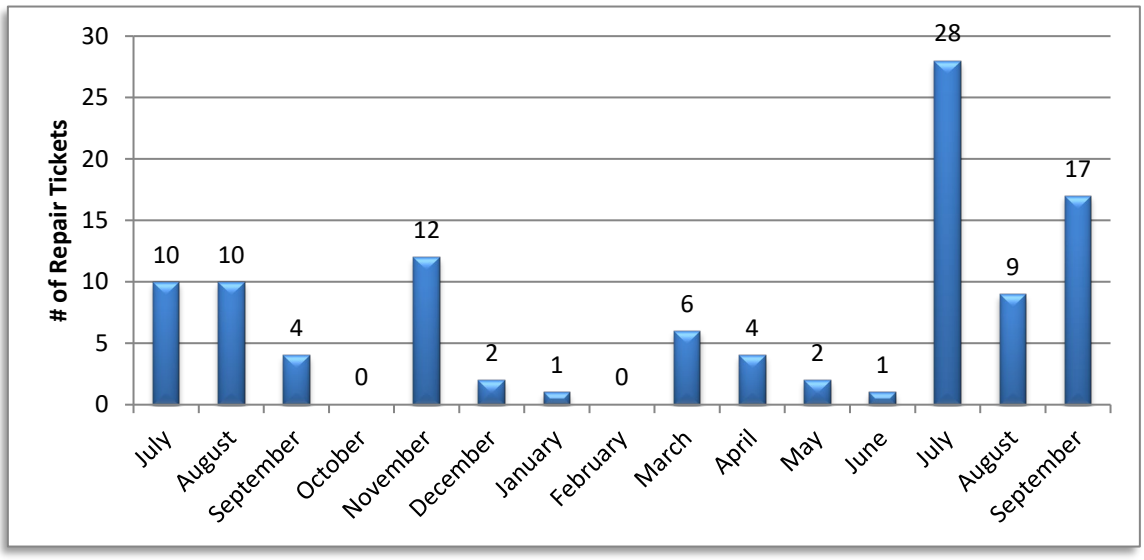
Figure 1 – Quarterly Repair Ticket Statistics by Month



Additional Repair Ticket Details:

Figure 2 – Monthly Repair Ticket Statistics / Prior 15 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.

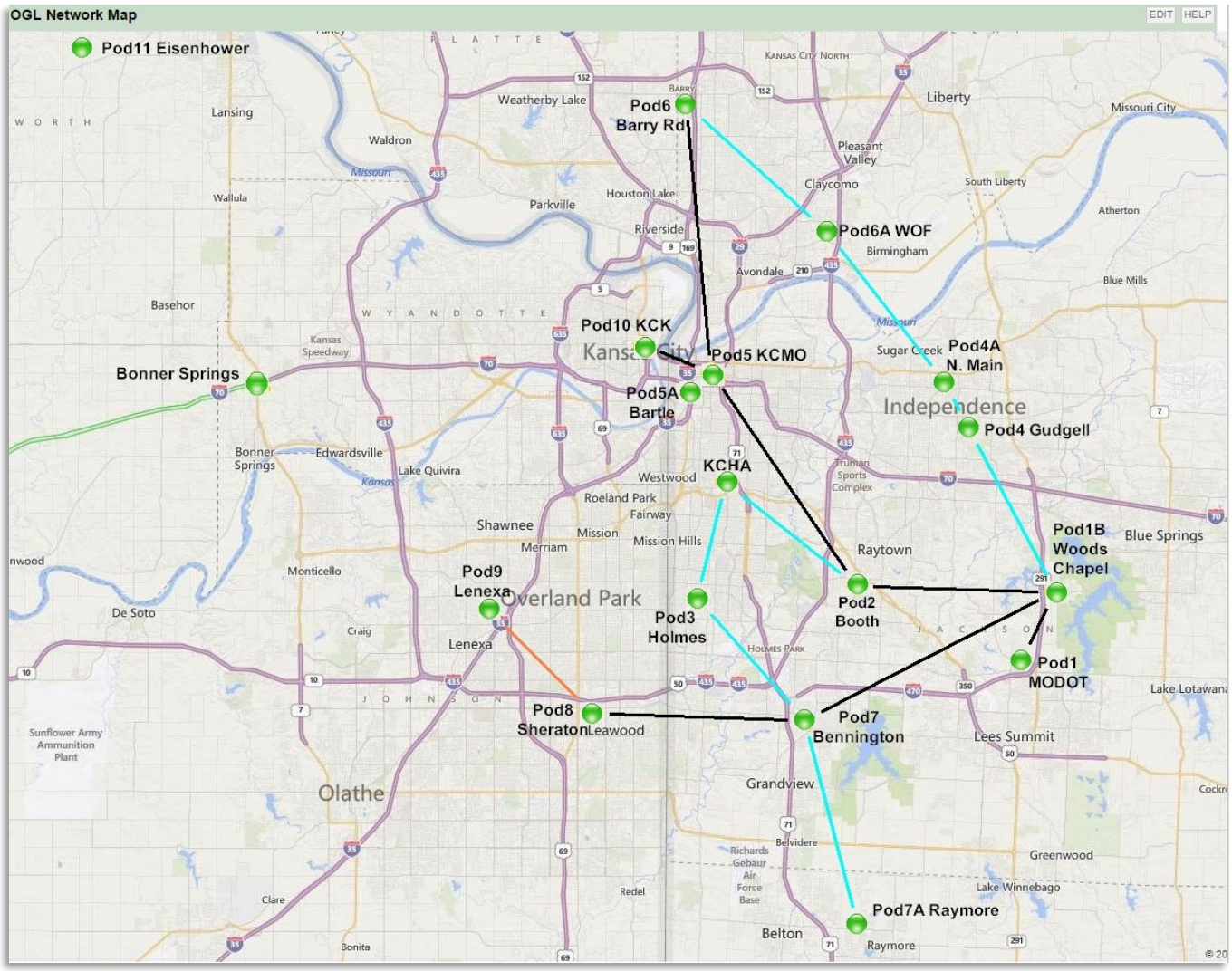


Additional Communications Statistics

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 represent the different types of network connections. A black line represents an 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.

Figure 3 – OGL Network Pod 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

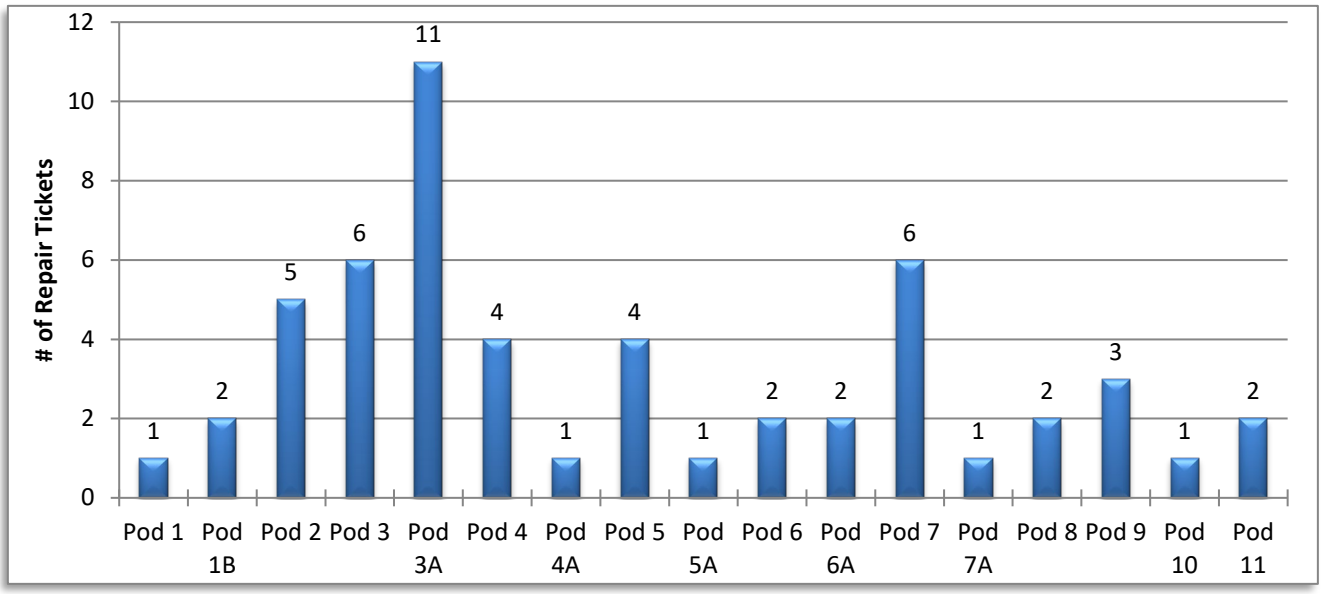
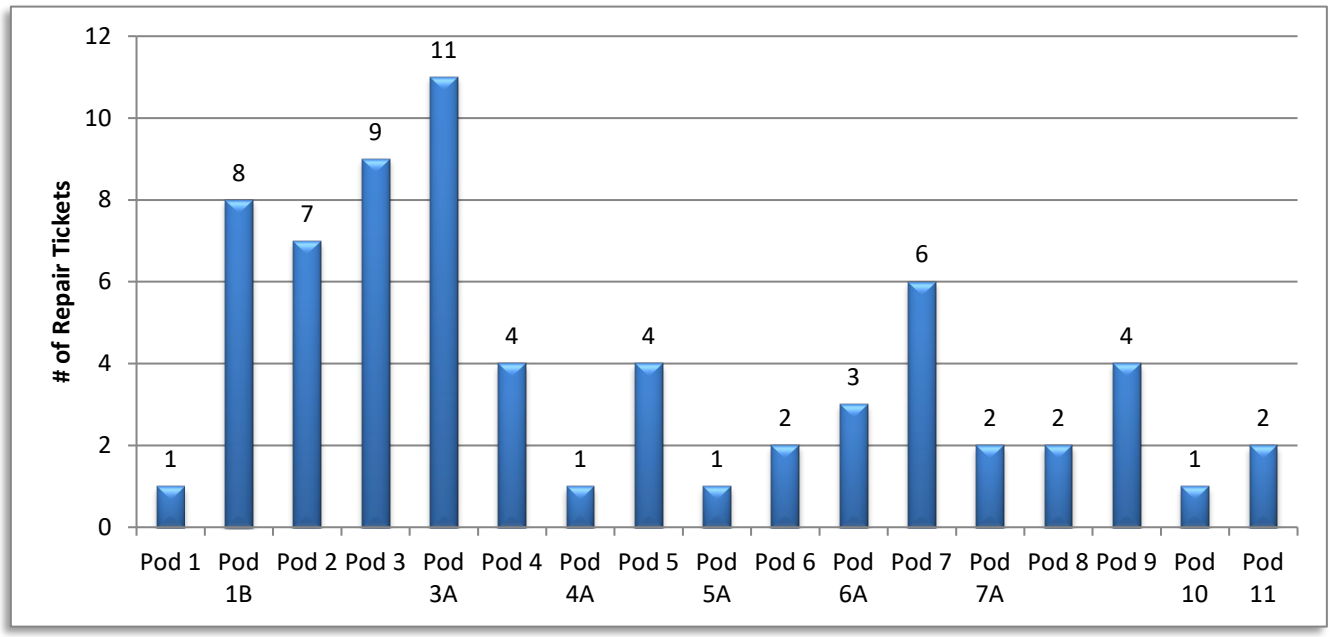


Figure 5 – Repair Tickets by Network Pod / Year – to – date



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.

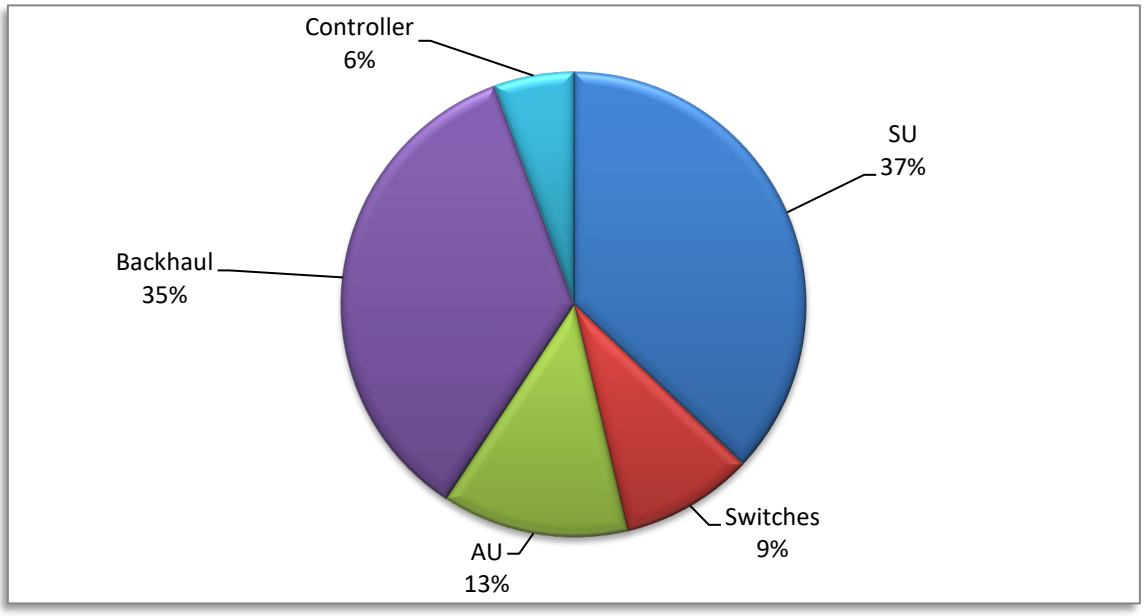
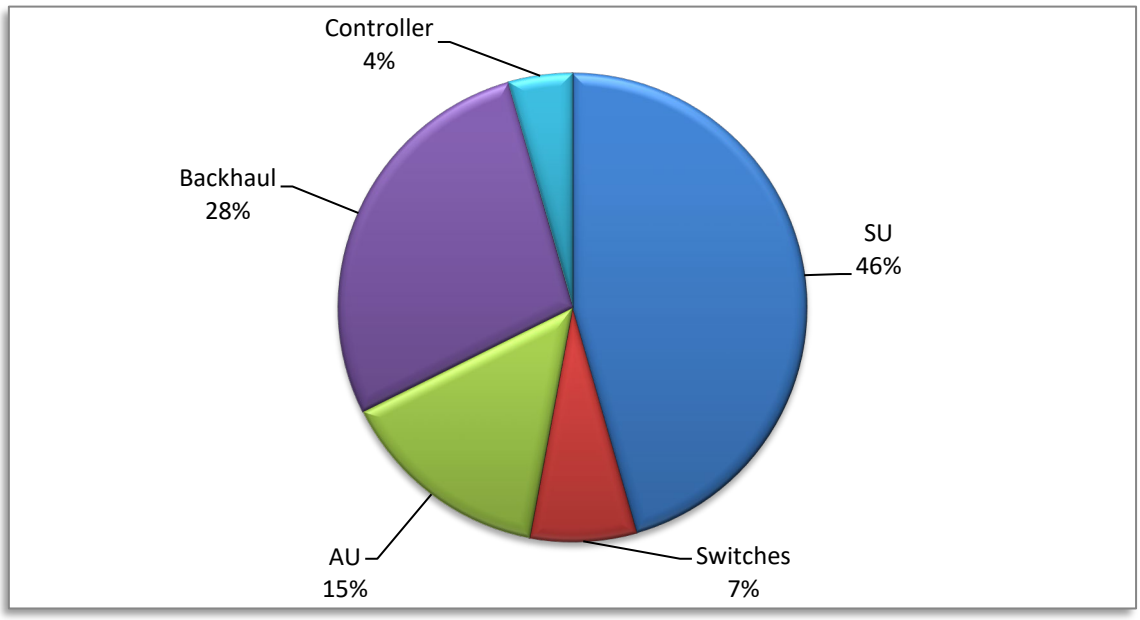


Figure 7 – Repair Tickets by Equipment Type / Year – to – Date

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



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.

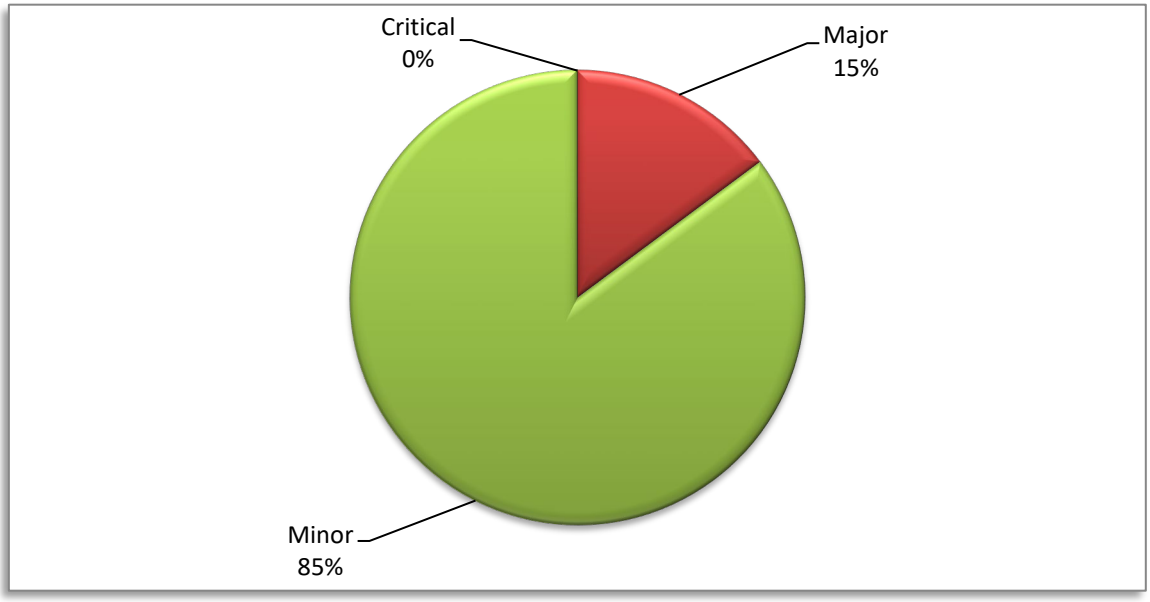
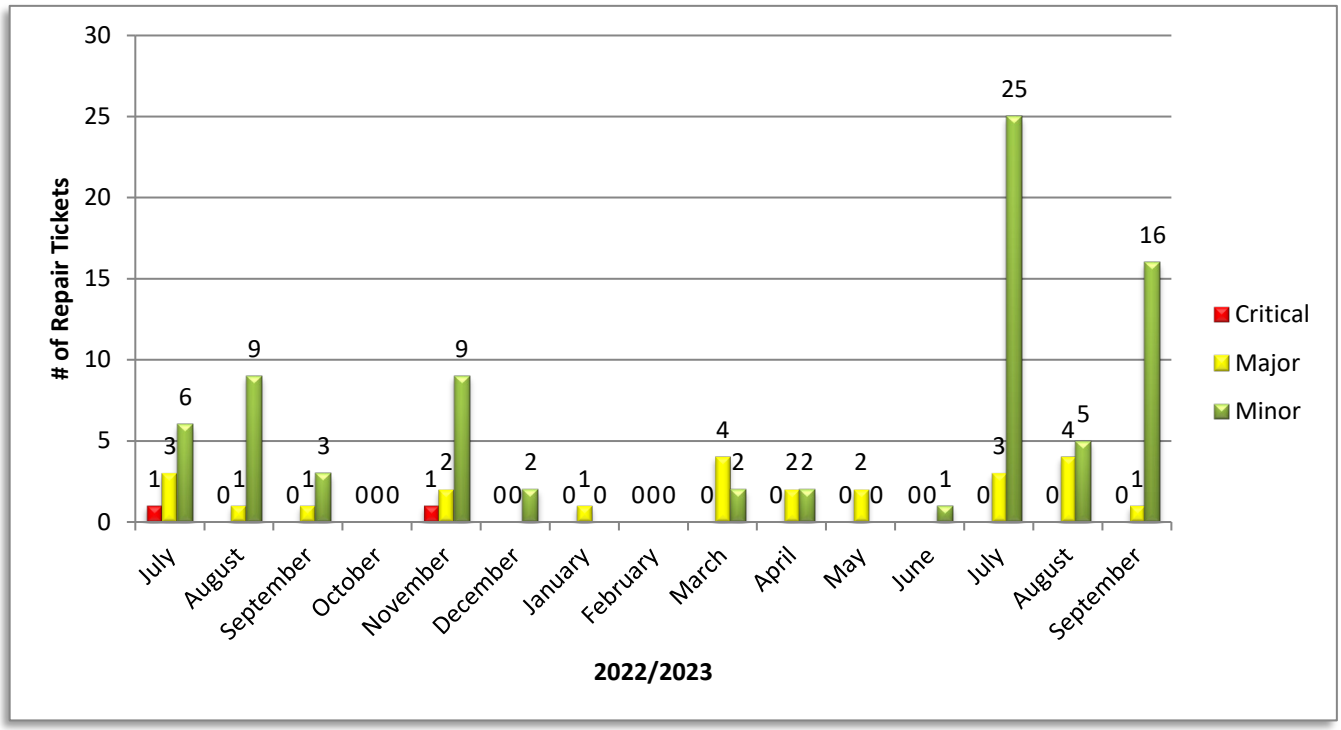


Figure 9 – Repair Ticket Statistics by Severity Type / Prior 15 months

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 3rd Quarter of 2023.

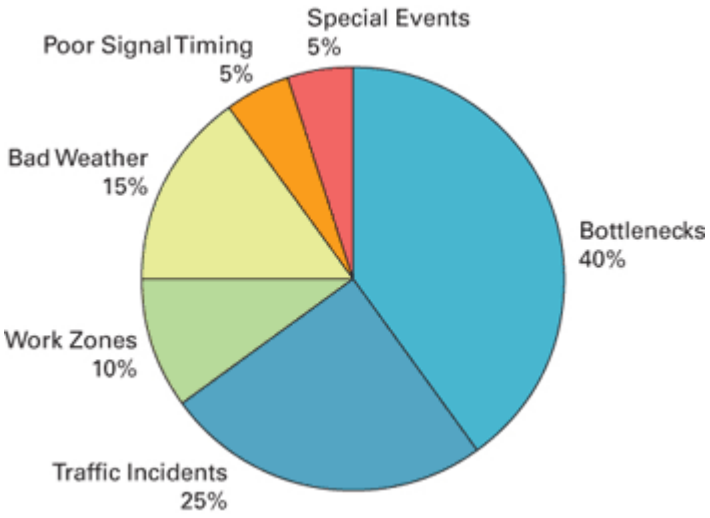
Preventative Maintenance

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

Preventative Maintenance was completed at most of the tower locations. The rest of the towers will be completed in early 4th quarter. There were only minor issues found with the biggest issue a cracked antenna at the MoDOT building. It was replaced the same day.

Incident Management

FHWA's Congestion Report estimates the following causes of congestion on US roadways:



Noticing that Traffic Incidents, Work Zones, Bad Weather, and Special Events account for approximately 55% of congestion, OGL responds to these types of events. When traffic patterns are abnormal, signal timing can often be adjusted to reduce the impact.

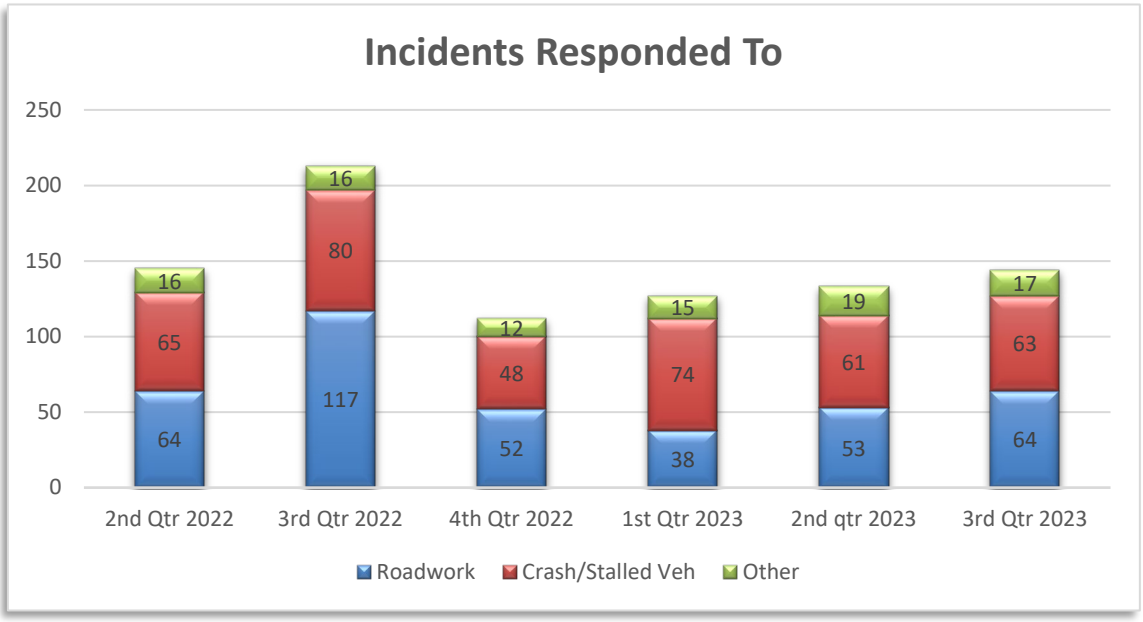
OGL staff interacted with these types of events on **144** occasions in the 3rd quarter of 2023. These consisted of weather events, crashes, roadwork events or other abnormal events that impacted traffic flow. Of these events, OGL staff made operational changes to traffic signals for **111** of them. The remainder resulted in communication with KC Scout, or the agency involved or monitoring of the situation only.

Some examples include:

- Several concerts and sporting events were held at Arrowhead Stadium. The ingress plan was scheduled on Blue Ridge Cutoff as appropriate.
- Major utility work continued at SMP & Antioch. Signal timing was adjusted as appropriate.
- Major utility work continued on M-9 in North Kansas City. Signal timing was adjusted as appropriate.
- 9/18 Major utility work project began at Rainbow & 36th. Signal timing was adjusted as appropriate.
- 8/3 Lane closures began on M-7 in Blue Springs for median work. Signal timing was adjusted as appropriate.

Figure 10 – Number of Incidents Responded to

Figure 10 shows the trends in the number of incidents OGL responded to during the last 6 quarters.

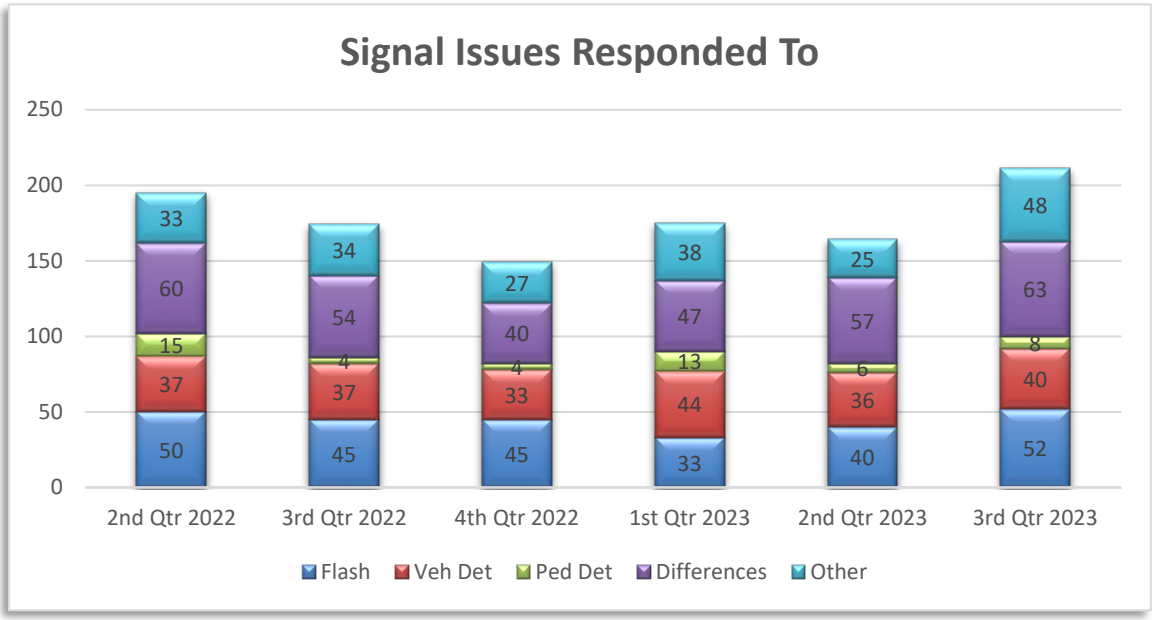


Traffic Signal Event Tracking

Issue	Jurisdiction	Count
All Directions Flashing	MODOT	28
	Bonner Springs	1
	Gladstone	**2**
	Independence	1
	Merriam	8
	Lee's Summit	1
	Leawood	1
	Roeland Park	1
	NKC	1
	UGOVT	8
Detection Not Working Correctly	Mission	1
	MODOT	23
	Lee's Summit	2
	Merriam	1
	Lenexa	7
	Shawnee	5
	NKC	1
Green Time to short	MODOT	1
	UGOVT	1
	Lee's Summit	2
Indication burned out	Overland Park	1
Intersection not running Correct plan	Lee's Summit	1
Other	MODOT	1
	Roeland Park	1
Ped Recalling	Leawood	1
	UGOVT	3
	MODOT	3
	Shawnee	1
Phase Backing Up	MODOT	2
	Leawood	1
Poor Progression	KCMO	1
Preempt Not Working Properly	Independence	2
	Lenexa	2
Program Replacement Controller	Merriam	1
	UGOVT	26
	Lenexa	1
	Leawood	2
	MODOT	2
TransSuite Database Comparison Diff	Belton	1
	Lee's Summit	4
	Independence	5
	Lenexa	17
	MODOT	16
	Shawnee	7
	UGOVT	13
Total		211

Figure 11 – Number of Traffic Signal Events

Figure 11 shows the trends in the number of traffic signal events OGL responded to during the last 6 quarters.



Steering Committee Budget Report
August 31, 2023, Ending

MARC's OGL program operates from Surface Transportation Block Grant (STBG) Federal revenues on a reimbursement basis from MoDOT Local Public Agency (LPA) group and KDOT Intelligent Transportation Systems (ITS group who administer the STBG funds. The local match for 2023-2024 is collected annually via a multi-year agreement which coincides generally with the period of the two-year MoDOT and KDOT STBG Federal funding agreements. However, for this funding cycle, most agencies have executed a four-year agreement with one doing a one-year and one doing a two-year agreement.

STBG funds are allocated prior to the regional STBG/CMAQ call for projects process that occurs every two years. It is the responsibility of the OGL Steering Committee to approve the budget for the program. The budget is authorized by MARC's Total Transportation Policy Committee (TTPC) and MARC Board.

Local funds from twenty-seven agencies are combined with federal STBG funds to comprise the total operations budget. The annual revenue of 755 signals at $800/signal is $604,000 and the total federal STBG funds are $700,000. This results in a 54% federal to 46% local funding split.

Budget Summary:

- Reserve / Emergency (local funds) balance remains at $300,000.
- Missouri STBG funds were obligated November 10, 2022. OGL began using STBG funds for labor and then fully in December for all expenses.
- August invoice to MoDOT and KDOT exceeded the FY2023 allowable amount and FY2024 funds are not yet obligated. Thus, OGL will use local funds for September and October until FY2024 funds are obligated.
- Local OGL #65377 (deferred balance) of $27,261 is a separate local fund for expenses not covered by STBG funds.
- Total Expenses average 33.7% compared to month 9 of 24-month budget percentage of 38%. Balances are in the ranges to be expected.
- Local funds remain to be collected of $4,800 from Gladstone.
- Review your agreement and be certain you have an agreement for 2024. Many made four-year agreements but not all. KCMO agreement for 2024 is being assembled.
- The ending balance of local funds is $374,857.29.

Mid-America Regional Council (MARC)
MO & KS OGL Operations #65240
2-Year Budget Period Beginning December 1, 2022

	Report Ending	**08/31/2023**		
				% Variance
	Two-Year	**Cumulative**	**Balance**	**Cumulative/Budget**
Expenses	**Program Budget**	**To Date**	(yet to be spent)	9 / 24 months = 38%
Salaries, Fringe Benefits, Indirect Costs	$1,534,492.00	$570,658.06	$963,833.94	37.2%
Consultants/Contracted Services	787,270.00	280,326.73	506,943.27	35.6%
Legal Fees	10,000.00	2,584.40	7,415.60	25.8%
Meeting/Travel (In/Out of Region & Registration)	12,400.00	1,495.50	10,904.50	12.1%
Rent	19,738.00	5,853.56	13,884.44	29.7%
Telephone/Maint.(Internet, mobile, ConferSave, USB mode	13,200.00	3,955.79	9,244.21	30.0%
Miscellaneous (classified ads, postage)	500.00	3.96	496.04	0.8%
Insurance	8,000.00	2,424.00	5,576.00	30.3%
Equipment/Computer/Supplies	196,000.00	4,714.56	191,285.44	2.4%
Service Agreements	1,400.00	-	1,400.00	0.0%
Automobile Gas/Maintenance	10,800.00	2,479.04	8,320.96	23.0%
Professional Memberships	1,000.00	-	1,000.00	0.0%
Training	2,000.00	-	2,000.00	0.0%
Utilities	11,200.00	5,422.44	5,777.56	48.4%
Total Expenses	**$2,608,000.00**	**$879,918.04**	**$1,728,081.96**	33.7%

	Two-Year			**% Variance**
Revenues (Reimbursement from DOT's at 80/20	**Program Budget**	**Cumulative To Date**	**Balance**	**Cumulative/Budget**
STP Funding, KDOT	$420,000.00	$210,000.00	$210,000.00	50.0%
STP-Funding, MoDOT	980,000.00	490,000.00	490,000.00	50.0%
Local Gov't Funding-Required 20% match	350,000.00	175,000.00	175,000.00	50.0%
Total Revenues for Federal Grant	**$1,750,000.00**	**$875,000.00**	**$875,000.00**	
Local Gov't Revenue above 20% match	858,000.00	$4,918.04	853,081.96	
Combined Revenues	**$2,608,000.00**	**$879,918.04**	**$1,728,081.96**	

Local Government Revenues	
Funds available	518,778.96
Funds billed but not yet received.	4,800.00
Local Operation Green Light Program #65377 (deferred balance)	27,261.94
Total available	550,840.90
Less: Amount applied to OGL grant 65240 - Cumulative to Date	(175,983.61)
Less: Amount above required match	(4,918.04)
Less: Amount transferred to other grants	0.00
Ending Balanc 08/31/2023	**$369,939.25**
Reserve/Emergency (local funds)	**$300,000.00**