OGL STEERING COMMITTEE AGENDA
Monday, January 23, 1:30 PM
MARC - Board Room

Welcome & Introductions

1. Approval of October 24 Committee Minutes* (page 2)


3. MoDOT Transportation Systems Management and Operations (TSM&O) Presentation – Alex Wassman, Traffic Management and Operations Engineer, MoDOT; Randy Johnson, KC Scout Manager (page 5)

4. Integrated Modeling for Road Condition Prediction – Kyle Garret, Synesis Partners (page 8)

5. OGL Draft Strategic Plan 2017-2020* – Review and Accept (page 10)

6. OGL STP 2017-2018 & CMAQ Program Agreements Status

7. Quarterly Operations Update (page 37)

8. Quarterly Budget Report (page 50)

9. Agency updates

10. Other Business

Next Regularly Scheduled Meetings: Monday, April 24, July 24, October 23, 2017

Adjournment

*Action Items

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Welcome & Introductions
Andy Noll welcomed all and conducted introductions

1. VOTE: Approval of April 25th Committee Minutes* (page 3)
The chair asked for approval of the minutes, the committee voted unanimously. The motion carried.

2. VOTE: Acknowledge Vice-Chair move to New Chair; Vice-Chair Election*
Andy acknowledged the vice-chair move to new chair, and requested nominations for the vice-chair election. Griffin Smith nominated Derek Olson with MoDOT, the committee conducted a roll call vote, and it passed unanimously. The motion carried.

3. VOTE: Request for purchase of wireless equipment*
Chris J. gave background on the work, equipment purchase, and explained the technology plan to drive this work. It was approved by the MARC Board in June, and the purchase order can soon be processed for the Ceragon equipment. The steering committee provided their input on the purchase. Chris S. asked if it is within the OGL budget and Ray answered that it is and explained the process. Donna inquired if it included in the current budget report, and Ray responded that it is thru the end of September and the equipment has yet to be ordered. The cost would likely be expenses in December. The chair asked for approval of the purchase, the committee voted unanimously. The motion carried.

4. Proposed 2017 Meetings
Ray presented the upcoming meetings for 2017, and asked if anyone had concerns. He did note that there will be need for focus/technical working group meetings but are not listed as will be as needed. The location can vary, as long as MARC receives notification in time to help arrange a new location. No one had any concerns; although, Andy N. questioned what would be the best way to request a different location. Ray remarked that if they are given a month’s notice, they can accommodate a different location should anyone wish to host the meeting.

5. OGL Strategic Planning, Survey and Update (Workshop and Planning)
OGL and Olsson Associates staffs have been working on an update to the OGL Strategic Plan. Todd Fredericksen, Blake Hansen and Shannon Jeffries gave a presentation and led a break-out session to obtain stakeholder input. The presentation included an update on the status of the strategic plan document, review of the stakeholder survey results and an overview of potential future initiatives for the transportation/traffic...
industry. Meeting attendees then broke into two groups and discussed several questions pertaining to the future of OGL. Questions included important issues facing OGL, OGL in 5-10 years, OGL’s role in multi-modal and OGL’s role in future initiatives (incident management, ICM, automated vehicles, etc.). Input gathered from break-out session discussions will be documented and used in preparing a draft of the strategic plan that is anticipated to be completed and sent to agencies for review by January 2017.

6. OGL STP & CMAQ 2017-2018 Program Agreement Status
Ray gave an update on MARC/Local share agreements, and MARC/DOT’s Federal funding agreements for 2017-2018. We have received some of the agreements back and have been approved by their respective offices. However, in KS, there have been issues concerning the AG office again. Overland Park’s attorney has been in discussion with KS AG office. The issue is the AG believes the KS agreements should be an inter-local which is also considered to one agreement that all parties sign and under KSA 12-2901. This would ideally include KS and MO agencies. The arguments are related to Kansas statute section 12-2901 or 12-2904 or 2908. They would like to see all the agencies combined into one agreement which is the spirit of the agreement. However time does not allow getting MO agencies on board and one has completed the agreement and payment is being process. The focus is changes to the agreement to focus on KS agencies only. There is still work between the attorneys to work out before we can conclude the next steps.

The Missouri CMAQ agreement is complete, and we are beginning work on scoping and the next step is to work on RFP’s for consultant work on different aspects of the agreements.

Regarding the 2017-18 funds, KDOT requires a progress report/spend down plan in order to start agreements, etc. for the 2017 agreement. The MoDOT agreement is not yet in place.

7. 2017 OGL Work Plan
Barry presented the OGL work plan and discussed what is involved in each plan for signals, holidays and weekend. He also covered the incident management plans and what needs to be done with those. Ray covered the I-35 ICM work that is being done.

8. Quarterly Operations Report
Chris J. gave the report and noted that there were not a lot of repairs for the last quarter, but there were quite a few replacements of Alvarion to Radwin radios, and recognized some of the areas those radios were replaced. There were about 60 tickets for ETI this quarter. The work on the Bennington tower should complete within the next week or two. Barry gave an update on the Lansing / Leavenworth and Bonner Springs studies that are now posted on MARC’s website which were briefly noted last meeting but not released at that time. Barry also noted that efforts to improve the program’s network security and disaster recovery processes are ongoing.

9. Quarterly Budget Report
Ray remarked that we are still working off ’15-’16 funds, which was combined in the report at the last meeting. The budget line that now combines equipment, computer, and supplies as one line item has been changed. This is due to how the radios are now tracked in inventory. The radios that cost less than $1000 used to be coded to equipment but now coded to supplies due to no need to be covered by insurance.

MARC has collected revenues from 24 of 25 agencies, and reserve funds have not changed. The MoDOT balance for the current grant is $307,500, and KDOT is $130,893, as of the end of September. The Ceragon items will be purchased soon, which will be around $88,000. Ray is working with KDOT on the spend-down plan.
10. Connected Signals and IMRCP (Integrated Modeling for Road Condition Prediction)
Barry provided details on the IMRCP and what type of work it entails. The consultants involved will be collecting various data, live and archived, and attempting to predict traffic conditions. They are still trying to figure a use for some of the signal status data. Ray added that Connected Signals, Audi, Garmin, and others are also requesting similar data access for use in their in-car features that are being developed. OGL has not granted these private firms access yet based on Steering Committee guidance. Ray would like to have a focus group to look more into this.

11. Agency updates, construction projects, closures, etc. affecting traffic signals
Donna mentioned that Menards will have a soft opening in November, and a grand opening in December. The Little Blue and Jackson signal will probably go from permissive-protected to protected only, so she suggested we wait a while on doing signal retiming for that area.
Ray added that they completed working with Merriam (KDOT and GBA), regarding the Shawnee Mission Parkway/I-35 bridge project to get cameras put into that project. The project bids October 19th.

12. Open Discussion / Requests / Other Business
Andrew M. commented that IMSA Central Section is looking to offering training/certification regarding a Transportation Center System Specialist I and II. They will try to bring this training certification to the KS session March 6th-10th.

Next Regularly Scheduled Meeting and Schedule for 2016:
Steering Committee, Monday, January 24, 2017

Adjournment
*Action Items
The Missouri Department of Transportation (MoDOT) Transportation Systems Management and Operations (TSM&O) Program and Action Plan establishes the strategic direction for the advancement of TSM&O in Missouri. TSM&O consists of operational strategies and systems that cost-effectively help optimize the safety, reliability, and capacity of the transportation system. MoDOT is continuously working to improve safety and alleviate congestion on its roadways; the effective application of TSM&O strategies outlined in this plan will help to further improve MoDOT’s roadways by directly addressing many of the root causes of recurring and non-recurring congestion. The mission of the MoDOT TSM&O program, as documented in this plan, is shown below.

“MoDOT’s TSM&O program applies integrated strategies to optimize the performance of existing infrastructure through the implementation of systems, services, real-time information, and programs designed to preserve capacity and improve safety and reliability of transportation systems. MoDOT’s TSM&O program helps get people safely where they want to go.”

The TSM&O Program and Action Plan both aligns directly with MoDOT’s foundational mission and supports existing initiatives, such as Missouri’s Blueprint ~ A Partnership Toward Zero Deaths. It also builds upon previous MoDOT efforts to advance TSM&O in the state. Most notably, in 2013, MoDOT participated in a TSM&O-focused Federal Highway Administration (FHWA) Capability Maturity Model (CMM) workshop which helped MoDOT understand its strengths and areas needing development in institutional and process-based areas. Completing the self-assessment provided MoDOT with a base from which to further advance operations, and a high-level implementation plan was adopted in 2014. This implementation plan outlined seven priority actions, including a task to identify a core team of champions from across the organization to lead the advancement and integration of TSM&O into MoDOT’s structure and culture. The TSM&O Program and Action Plan formalizes these previous efforts and provides a roadmap to move forward with the advancement of TSM&O in Missouri. The content and high-level takeaways of the plan are summarized below.

Section 1.0, Introduction presents the transportation challenges specific to Missouri that the TSM&O program will cost-effectively address; effectively making the business case for TSM&O in the state.

Section 2.0, Moving MoDOT Forward: Where We Have Been documents previous efforts, existing plans, and the organization of the TSM&O Core Team, Senior Management Team, and supporting teams that resulted from the 2014 implementation plan.

Section 3.0, Moving MoDOT Forward: Where We Are Going gives an overview of MoDOT’s three initial priority focus areas for the TSM&O program—Traffic Incident Management (TIM), Work Zone Management (WZM), and Advancing Technology and Roadway Operations—and provides a set of detailed actions for advancing in each area. These actions comprise the work program for each focus area and are outlined in tables that document the actions; the larger objectives that they support; the steps needed to accomplish each action; the prioritization of the actions (high, medium, or low), the anticipated timeline to complete; potential measure of success; and the responsible MoDOT staff. Importantly, each action includes measures of success to highlight the importance of revisiting and updating the work programs in the tables—encouraging plan maintenance to ensure the program plan remains both dynamic and current. The work plans for each of the three priority focus areas are summarized below.

Traffic Incident Management (TIM) – TIM is a planned and coordinated program process to detect, respond to, and remove traffic incidents (such as a crash or an impaired vehicle), and restore traffic capacity as safely and as quickly as possible. MoDOT coordinates with many partners such as law enforcement, fire and rescue,
EMS, public safety, and towing and recovery to maintain an effective TIM program. For this focus area, the plan outlines 11 action items centered around refinement and expansion. The action items are organized by the following four categories of objectives:

- Get Organized: Form TIM Improvement Subcommittee under the Missouri Coalition for Safer Roadway Safety Executive Committee.
- Get Trained: Provide TIM training to all MSHP and MoDOT team members who will be responding to traffic incidents.
- Improve on I-70 and I-44 First: Develop I-70 and I-44 corridor traffic incident response plans.
- Improve MoDOT TIM Policies: Jointly review and revise any MoDOT TIM policies that could improve traffic incident clearance times.

Work Zone Management (WZM) – WZM is a planned and coordinated process to manage traffic during construction to minimize traffic delays, ensure motorist and worker safety, and complete roadwork in a timely manner. MoDOT maintains processes and procedures during plan development to apply work zone design principles on roadway design and construction projects. For this focus area, the plan outlines 14 action items, organized by the six dimensions addressed in the CMM workshop:

- Collaboration: Provide guidance on building greater relationships with partners.
- Business Processes: Improve planning and programming processes for transportation management plans (TMP).
- Systems/Technology: Encourage the exploration, expansion, and application of technology in work zones.
- Performance Measurement: Enhance performance measurement reporting and data acquisition on work zones.
- Organization/Workforce: Assess staff capabilities and needs for a stronger work zone program.
- Agency Culture: Improve technical understanding and support to work zone strategies as part of the TSM&O program.

Advancing Technology and Roadway Operations – MoDOT has deployed a number of technology solutions to enhance the reliability of the transportation network through active management of the system in the urban areas and statewide. Statewide programs include TIM programs and road weather applications. MoDOT has focused programs to proactively manage traffic in major urban areas at TMCs in St. Louis (Gateway Guide), Kansas City (KC Scout), and Springfield (TMC of the Ozarks). Some of the current MoDOT technologies in use include: CCTV, ramp meters, DMS, traffic detectors, and the supporting communications systems. Data collected from these systems support many of the TSM&O strategies. Finally, autonomous and connected vehicles are quickly changing the way DOTs think about technology applications on the transportation network. This new generation of cars and trucks together with technologies on the transportation network will further capitalize on the investments MoDOT has made to advance operations. For this focus area, the plan outlines 25 action items, organized by the six dimensions addressed in the CMM workshop.

- Collaboration: Increase awareness and provide outreach opportunities and encourage the advancement of TSM&O within MoDOT and partner agencies.
- Business Processes: Improve planning and programming processes for increased focus on TSM&O.
- Systems/Technology: Encourage the application, integration, and expansion of TSM&O solutions.
- Performance Measurement: Enhance performance measurement reporting and data acquisition. Identify purpose and applications for each performance measure.
- Organization/Workforce: Assess staff capabilities and needs for TSM&O-specific staffing needs and assignments.
- Agency Culture: Improve agency technical understanding and support of the overall TSM&O program.
Section 4.0, Strategic Planning goes beyond these three focus area and provides a broader strategic approach to advancing operations in Missouri. These themes, shown below, are not necessarily tied to specific actions and often involve greater integration with DOT activities. To help facilitate the advancement of TSM&O within MoDOT, this section provides a table of actions that fall within each of the strategic planning themes.

Planning for Operations – Planning for operations places focus on how TSM&O strategies and solutions are incorporated into, broadly speaking, the planning processes that support the improvement of transportation system reliability and efficiency.

Workforce Development – The workforce and staffing to support TSM&O requires both the traditionally trained DOT staff of traffic engineers and designers, planners, and managers, as well as those staff more technology focused such as computer engineers, database specialists, communications engineers and technicians, and programmers. Staffing and training programs must develop and sustain the knowledge and talent needed for an effective application of TSM&O. Job descriptions must accurately portray the skillset needed for the positions. Staff turnover must be accounted for and training programs in place to quickly replace staff with equivalent skill sets.

Performance Measurements – The performance management (PM) dimension of the CMM self-assessment scored very well, indicating a mature PM program meeting the criteria established for integrated PM programs. Areas to explore to further advance PM were to expand rural and arterial applications of PM through increased data collection to supplement existing data.

Section 5.0, Looking Ahead highlights how the plan is designed as a living document. Tables detailing specific actions and who is responsible to carry them out are included with the expectation that the document will be updated regularly as the program continues to evolve and additional focus areas are added. It is anticipated that as the TSM&O program evolves, additional focus areas will be brought forward. Some of these may include more direct application to multi-modal operations, freight, traveler information, travel demand management, weather operations, or emergency management. It is recommended that this plan be revisited twice a year to close out actions that have been completed, introduce new actions for continuous improvement, and consider the addition of new focus areas as the program grows.
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 road 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.
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 national 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.
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Executive Summary

In 2013, following a recommendation by the Federal Highway Administration that Operation Green Light (OGL) develop a new strategic plan, the OGL Steering Committee set out to develop a strategic plan to sustain and grow the program. The strategic plan encompassed the years 2013 through 2016. In 2016 OGL staff began the process of reviewing the current strategic plan and updating for the years 2017 to 2020.

OGL staff and Steering Committee members began the process of providing input and discussing an update to the strategic plan the summer of 2016. Current plan goals and tasks were reviewed to determine the progress made toward each goal, and whether current goals remain relevant. Steering Committee members participated in a survey and workshop to determine current level of service and brainstorm ideas for the future of the organization.

Based on stakeholder input, member agencies indicated that they are satisfied with services provided by the OGL program and few recommendations for improvements to the program were received. Member agencies also responded with support for the current mission and vision of the OGL program, as well as positive support for the goals of the current strategic plan. The update of the plan will focus on the development of tasks that continue to further OGL as a model program.

The goals and objectives for the strategic plan are:

- **Goal 1: Technology**
  Continue to develop the Operation Green Light system through the use of innovative and emerging technologies.

- **Goal 2: Funding and Budget**
  Maintain a financial plan that adequately funds the program and monitors the budget.

- **Goal 3: Planning**
  Engage in a planning process to ensure the organization remains relevant and serves the needs of member agencies.

- **Goal 4: Communications and Public Education**
  Conduct outreach activities, both internally and externally, to make known the benefits and activities of the program.

- **Goal 5: Training**
  Provide opportunities for staff and member agencies to improve upon skills and learn about emerging technologies through training.

- **Goal 6: Performance Management**
  Develop performance measures to assess performance of the Operation Green Light program.
1 Introduction

This strategic plan provides program direction and a framework for development and implementation of new initiatives. The 2013-2016 strategic plan focused on five areas: technology, funding, planning, marketing and public education, and training.

Since development of the 2013-2016 strategic plan, OGL has continued to be a model program across the country for Metropolitan Planning Organizations and multi-jurisdictional teams as an example for management of regional traffic systems providing benefit to all agencies and travelers in the area. To continue providing these benefits effectively, the program must continue to refine practices and adapt to new technologies and processes.

With the involvement of OGL member agencies, the existing strategic plan was reviewed and input was gathered for development of a strategic plan for the years 2017 – 2020. Staff and member agency input resulted in re-development of goals and objectives to guide the program for the next four years.

This strategic plan not only focuses on the future of the organization, but also provides a history of the Operation Green Light program and an evaluation of progress towards goals from the current strategic plan. An evaluation of progress made on the current strategic plan will assist in developing achievable tasks that continue to drive the organization towards excellence.
2 Program Operations

The Operation Green Light program provides oversight for a 24-member agency regional traffic program. These services improve traffic flow across the Kansas City metropolitan area.

2.1 Program Overview

OGL is a cooperative effort across the Kansas City region to improve traffic signal coordination. Agencies within both Kansas and Missouri are involved with the project. OGL staff provide oversight and technical expertise in implementing and maintaining communications equipment, signal equipment and signal timings for 700 signals.

2.1.1 Origin of OGL

In 1998 the City of Kansas City, Missouri, began a study of alternatives to address traffic signal needs. Through this effort the need for coordination of traffic signal operations across jurisdictional boundaries was recognized. By 1999, the program expanded across the region and was renamed Operation Green Light (OGL). Since its inception, OGL has served its clients well and has become a model program for other regions across the country. Figure 1 illustrates a historical timeline of the progress of OGL.
Figure 1: OGL Historical Timeline

- Consultant team was selected to develop a feasibility study.
- MARC led Steering Committee was formed to determine administrative and intergovernmental aspects of regional signal operations.
- Technical Advisory Committee was formed.
- Anticipated total cost of project = $30 million, with first phase costing $10 million.
- First signal re-timing project selected.
- Consultant selected for software system integration.
- OGL official ribbon cutting.
- OGL receives MoVITE's 2009 Transportation Achievement Award for Operations.
- KDOT Set-aside and STP program funds awarded.
- 2015/2016 STP program funds awarded.
- MOVITE Transportation Achievement Award for Operations.
- Expansion of OGL onto K-7 corridor.
- Consultant selected to design STP CCTV camera and network redundancy project.
- Consultant selected to design field communications.
- Contractor selected as project implementer.
- OGL receives KCITE's 2008 Excellence in Transportation award.
- Consultants selected to design communications expansion and addition of CCTV under ARRA funding.
- Project was named "Operation Green Light."
- Feasibility Study released.
- Phase 1 starts with the award of $1.5 million in federal funds.
- KCMO issued a solicitation for proposals to develop a strategy defining and analyzing alternative approaches to traffic signal needs.
2.1.2 Program Description

OGL consists of 24 partner agencies as well the oversight agencies of the Kansas Department of Transportation (KDOT), Missouri Department of Transportation (MoDOT) and the Missouri and Kansas Federal Highway Administration (FHWA) field offices. OGL operates 700 signals through a central software system. The system is expected to expand by approximately a dozen signals in 2017. Through the Mid-America Regional Council (MARC), OGL owns the communication system which includes a licensed 18 GHz microwave backbone and unlicensed 5.3/5.4 and 5.8 GHz wireless radio network at intersections. Fiber-optic communications are also used in several locations.

The OGL project was initiated in 1998 when Kansas City, MO began analyzing alternative approaches to traffic signal needs. In 1999 the Mid-America Regional Council (MARC) continued to develop the project from a more regional perspective and in 2000 the Operation Green Light program was named. The core OGL system, including the initial installation of central software and hardware, has been in place since 2006. OGL utilizes a centralized traffic control software, currently TransSuite, as the regional traffic control software. A communications network connects local jurisdictions to this system. A team of professionals maintain the system, provide signal timing optimizations, and monitor many important regional corridors.

The OGL Traffic Operations office is located in the Missouri Department of Transportation Kansas City District facilities located in Lee’s Summit, Missouri. OGL is in the same building as the Kansas City Scout Freeway Management Center.

2.1.2.1 Organization

A Steering Committee, consisting of member agency representatives, governs OGL. Generally, the OGL Steering Committee makes recommendations to MARC’s Board of Directors regarding the OGL budget, procurement, staffing and other technical and policy decisions that impact development, deployment and operation of the program.

In previous years, a technical sub-committee has at times reported to the Steering Committee. Currently, the Steering Committee is the primary governing body and can appoint a sub-committee to address specific issues as they arise.

2.1.2.2 Program Funding

The OGL Steering Committee approved a two-year budget for a period beginning April 1, 2016. For the two-year period the OGL budget is approximately $2.2 million. Approximately $1.0 million in revenue is from KDOT and MoDOT Surface Transportation Program (STP) funding. Federal funding for 2017 has been authorized. The remaining revenue is local agency participation.

The current budget addresses program operations and general maintenance of the network. Funding for the next four years has been identified. Congestion Mitigation Air Quality (CMAQ) funding has been identified to support expansion of the OGL network to
Blue Springs, MO and Grandview, MO as well as the installation of small CCTV and fiber expansion projects.

In 2016, OGL staff worked with the Steering Committee to identify sustainable sources of funding. The program currently receives Surface Transportation Program (STP) funding from KDOT and MoDOT. In the past, OGL has had to petition for funds each funding cycle. Due to OGL’s operation as a regional organization serving the needs of agencies on both sides of the state line, the organization petitioned for dedicated STP funding to be set aside prior to the consideration of other agency specific projects. OGL has secured STP funding for 2019-2020.

2.1.2.3 Agency Partners

Over the course of the program, OGL has grown to include 24 partner agencies. The Cities of Blue Springs, Missouri and Grandview, Missouri are in the process of becoming agency partners with OGL. That process is expected to be complete 2017. The following page includes a list of current program partners.
Kansas
Department of Transportation

1. Bonner Springs, KS
2. Fairway, KS
3. Kansas City, KS/Unified Government of Wyandotte County
4. Lansing, KS
5. Leavenworth, KS
6. Leawood, KS
7. Lenexa, KS
8. Merriam, KS
9. Mission, KS
10. Mission Woods, KS
11. Olathe, KS
12. Overland Park, KS
13. Prairie Village, KS
14. Shawnee, KS
15. Westwood, KS

Missouri
Department of Transportation

1. Belton, MO
2. Blue Springs, MO (member in 2017)
3. Gladstone, MO
4. Grandview, MO (member in 2017)
5. Independence, MO
6. Kansas City, MO
7. Lee’s Summit, MO
8. Liberty, MO
9. North Kansas City, MO
10. Raymore, MO
3  Review of 2013-2016 Strategic Plan

The 2013 strategic plan has been used to guide operations and growth of the OGL organization over the past four years. As this plan is updated and revised to reflect new tasks, it is beneficial to review the 2013 plan and the status of the goals and tasks.

3.1  Goal Status

Five goals were developed for the 2013-2016 strategic plan. Under each goal tasks were identified to direct actions of the organization toward the goals. A goal is not necessarily an identified end-point; however, by completing a task the ideas and concepts of that goal are advanced.

3.1.1  Goal 1 Progress - Technology

The main focus of this goal was to use current and emerging technology to support and enhance the OGL system.

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<th>Task</th>
<th>Status</th>
<th>Progress Summary</th>
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<tr>
<td>Task 1: Develop and implement a comprehensive technology plan that identifies necessary updates to maintain the system, including new technology enhancements and other updates to be considered as they become available. Identify costs and benefits of each.</td>
<td>Complete</td>
<td>OGL completed a Technology Study fall of 2014.</td>
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3.1.2  Goal 2 Progress – Funding

The main focus of this goal was to establish a financial plan that adequately funds Operation Green Light.

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<tbody>
<tr>
<td>Task 1: Consider a new funding strategy, which could include providing a menu of services and establishing fees.</td>
<td>Complete</td>
<td>Internal review conducted, no deliverable submitted.</td>
</tr>
<tr>
<td>Task 2: Pursue additional federal funding from USDOT, DOE and other agencies</td>
<td>Complete</td>
<td>Secured STP funding for 2019-2020.</td>
</tr>
<tr>
<td>Task 3: Develop contingency plans for addressing OGL membership changes as needed.</td>
<td>Complete</td>
<td>Analysis conducted and summarized in an October 2014 report.</td>
</tr>
<tr>
<td>Task 4: Consider revising the period-of-service agreements with member agencies.</td>
<td>Complete</td>
<td>Agreements are on a two-year cycle meeting federal requirements.</td>
</tr>
</tbody>
</table>
### 3.1.3 Goal 3 Progress - Planning

The main focus of this goal was to engage in ongoing planning efforts to assess the operation of OGL, its structure and its implementation.

<table>
<thead>
<tr>
<th>Task</th>
<th>Status</th>
<th>Progress Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1: Create appropriate documentation, as outlined in the FHWA Regional Traffic Signal Management Assessment.</td>
<td>In progress</td>
<td>Several program documents have been developed. Program documentation continues.</td>
</tr>
<tr>
<td>Task 2: Evaluate governance structure to determine if changes are warranted to ensure efficiencies and greater member participation.</td>
<td>Complete</td>
<td>Meeting and chairperson structure modified.</td>
</tr>
<tr>
<td>Task 3: Assess the possibility of system-critical failures and devise an appropriate response plan.</td>
<td>Complete</td>
<td>System back-up and redundancy of network in place.</td>
</tr>
<tr>
<td>Task 4: Develop protocols for expansion of current system services, considering signals on lower-volume streets, use of OGL during non-peak periods and incident management.</td>
<td>In progress</td>
<td>OGL staff reviews opportunities to improve signal timings during off-peak periods. OGL staff are also in the process of developing an incident management program.</td>
</tr>
<tr>
<td>Task 5: Continue to expand the use of CCTV cameras throughout the OGL system to improve efficient system management.</td>
<td>Complete</td>
<td>A CCTV expansion project was completed in 2015.</td>
</tr>
</tbody>
</table>

### 3.1.4 Goal 4 Progress – Marketing and Public Education

The main focus of this goal was to market Operation Green Light to all audiences so that they are aware of its services and benefits.

<table>
<thead>
<tr>
<th>Task</th>
<th>Status</th>
<th>Progress Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1: Develop a comprehensive marketing plan for all constituencies – identifying audiences, key messages, tools and techniques.</td>
<td>In progress</td>
<td>Marketing tools developed included pamphlets describing program operations and a travel time video.</td>
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<tr>
<td>Task 2: Build on and strengthen existing relationships with member communities – including elected officials, management and technical staff.</td>
<td>In progress</td>
<td>OGL staff provide materials or presentations as requested by agencies.</td>
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</tbody>
</table>
3.1.5 Goal 5 Progress – Training
The main focus of this goal was to maximize member understanding and operation of OGL through appropriate training.

<table>
<thead>
<tr>
<th>Task</th>
<th>Status</th>
<th>Progress Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task 1: Provide training and enhance technical support for member agencies.</strong></td>
<td>Complete</td>
<td>OGL staff developed training videos for use by agencies. Provided agency requested training on OGL system.</td>
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</tbody>
</table>
OGL member agencies developed a vision and mission statement in 2013. The strategic plan survey asked member agencies if the current statements are still relevant. The overall response was that both the vision and mission statements continue to be appropriate for OGL.

**Vision**
State and local governments work together through Operation Green Light using best practices in traffic management to provide safe and efficient movement for people and goods across a seamless regional transportation system.

**Mission**
Operation Green Light monitors and manages the existing transportation system through safe and efficient traffic signal operations to reduce travel time, fuel consumption and air pollution.

### 4.1 Regional Significance

Across the metropolitan area, OGL is providing services to improve travel time and reduce vehicle emissions benefiting both agencies and travelers. OGL staff provide a core organization to facilitate cooperation and consistency between multiple agencies to improve traffic operations across the metropolitan area.

Through the work of OGL, the framework for a regional communications system dedicated to traffic operations has been developed. A central software and hardware system is in place, accessible to all member agencies. Agencies, working together in partnership, are able to address transportation issues across jurisdictional boundaries.

Operation Green Light improves the flow of traffic along the most used arterial routes in the region and improves regional air quality. Through the implementation of traffic signal timing plans along selected routes, OGL has reduced delays on coordinated routes.

The traffic and transportation industry is constantly evolving. As a program based on communications, data, and real-time traffic monitoring, OGL staff is continually looking ahead for future technologies, strategies, and trends that will lead to improved operations and level of service. Opportunities to not only provide improved services but also to expand upon the base of services offered should be considered. To maintain relevance in the industry the OGL program should continue to investigate new opportunities and implement new technologies or strategies as appropriate.
5 Strategic Planning Process

Recognizing that the current strategic plan was approaching its end-year, OGL staff began the process of updating the strategic plan through the year 2020. All OGL member agencies were invited to participate in the process of reviewing the current strategic plan and developing future goals. Member input was provided via a survey as well as a workshop.

5.1 Survey

An online survey tool was used to collect member agency input. Respondents were asked to review current services provided by OGL, mission/vision, funding, outreach and programming. Focus areas of the survey are organized as follows:

- Review of current services
  - Communications system
  - TransSuite
  - Signal timing
  - Traffic counts
- Meeting organization
- Program outreach and education
- Strategic plan
- Program funding
- Program mission and vision

Members were provided two weeks to respond to the survey. Overall, survey results were positive. Responses reflected a favorable review of the services provided by OGL staff.

5.1.1 Survey Results Summary

Review of Current Services

All responses received regarding current services ranged from neutral to positive, with the majority of the responses indicating OGL is meeting the needs of member agencies and providing an adequate level of service.

*Communications:* Respondents that use the communications network indicated overall approval with the system and support provided by OGL.

*TransSuite:* The majority of respondents (70%) indicate that they occasionally to regularly use TransSuite. Overall, users indicated satisfaction with the system and support provided by OGL. Of those respondents that do not use TransSuite, there is an indication that training could be valuable in increasing agency use of the program.
**Signal Timing:** Respondents that utilize OGL for signal timing assistance indicate overall satisfaction of the work product and support provided by OGL. Of those not utilizing OGL for signal timing assistance, respondents indicate that they have agency staff conducting that work.

**Data Collection:** Only 25% of the respondents indicate that they utilize OGL for data collection services. Of the agencies utilizing data collection services, there was overall approval with the work product provided. Of those agencies not using the service, most conduct their own data collection or are not aware of the data collection assistance OGL can provide.

**Program Organization**
Survey respondents indicated overall support of the organizational structure of the program. There is support for the use of one or more specialized technical committees (in addition to the steering committee) on an as-needed basis. Respondents overall indicated support for meeting content, length, frequency and location.

**Outreach/Public Education**
There was a mixed response regarding OGL providing assistance to local agencies to educate elected officials, management staff and the public on the benefits and purpose of OGL. However, there was stronger agreement from respondents for OGL publicizing the activity and accomplishments of the program.

Based on responses, OGL assistance in developing and promoting a common message may be beneficial. Focusing outreach/public education using methods currently utilized by local agencies – social media, website and local newspaper/city newsletter should be considered.

**Mission/Vision/Strategic Plan Goals**
Based on survey results, members indicated that the mission and vision remains appropriate for the organization and does not need re-consideration. Respondents supported the current strategic plan goals.

**Funding**
The majority of respondents agree that OGL is adequately funded for the current program. There is also overall support for OGL continuing to petition for dedicated STP program funding. Respondents support the current local agency funding model, but also indicate interest in having a menu of services available.

**5.1.2 Workshop**
Member agencies were invited to attend a workshop focusing on the strategic plan. The brainstorming workshop was held in conjunction with the quarterly OGL meeting in an effort to increase participation.

Seven agency members were present for the meeting, in addition to a representative for
an agency that is in the process of joining OGL. Consulting team staff provided a presentation update on the status of the strategic plan process. The presentation also included a look at several potential future initiatives for the transportation/traffic industry. Meeting attendees then divided into two groups to discuss further the future of the OGL program.

Questions presented for discussion during the break-out groups included:
- What is the most important issue facing OGL?
- Where do you see OGL going in the next 5-10 years?
- What is OGL’s role in the multi-modal world? Are there other partners/agencies that need to be working with OGL (e.g. KCATA)?
- What has to happen for OGL to be successful in achieving these goals? (Referring to potential goals presented during discussion on previous questions.)
- What should OGL’s role be on initiatives for: incident management, regional performance measures, adaptive traffic signal control, ICM (integrated corridor management), connected vehicles, automated vehicles and regional traveler information?

The majority of the conversation for both groups centered on marketing/public education and funding. There was a general consensus among both groups that the work OGL conducts is important and that a good product is delivered. Concerns discussed regarding marketing included:
- Staff turnover – When staff turnover within an agency occurs, there is sometimes a lack of knowledge regarding the OGL program transferred to the new staff contact. How can OGL market to member agencies.
- Elected officials – When new officials are elected, how do agency staff educate them on the OGL program. How often should this outreach be conducted.
- Public – How is the program marketed to the public and what information should be marketed.

Funding was also discussed for a significant portion of the break-out sessions. Discussion included:
- How stable is 'off the top' STP funding.
- What are other alternate 'stable' funding mechanisms.
- Is there a plan in place if an agency leaves OGL.
- Within the existing OGL budget is there room to explore new initiatives. When does planning need to occur to secure funding for new opportunities.

Both break-out groups expressed an interest in investigating opportunities to develop regional performance measures.

While agencies expressed an interest in OGL staff presenting new technology opportunities and initiatives, there was not strong direction provided for OGL’s role in future transportation initiatives.
6 Strategic Plan

Stakeholder input and the current plan provided the foundation for revising and updating the strategic plan. Based on stakeholder input there was overall support for the goals in the existing strategic plan. The goals continue to be relevant and represent major areas of interest for the program. However, based on input provided in the survey, and more specifically from discussions at the workshop, it was determined that an additional goal addressing performance management would be appropriate.

Within each goal, existing tasks were reviewed. Tasks were modified or removed from the strategic plan if no longer relevant to the program. New tasks were also developed based on stakeholder and staff input as well as potential future initiatives for the program.

6.1 Plan Goals

6.1.1 Goal 1: Technology

*Continue to develop the Operation Green Light system through the use of innovative and emerging technologies.*

The Operation Green Light program relies heavily on an extensive system to efficiently and effectively achieve program goals. While communication network technology continues to evolve, OGL staff must maintain current equipment while investigating emerging technologies to determine opportunities to enhance the system. When considering technology, current program initiatives should be considered while also envisioning how current and emerging technologies can be used to improve operations.

**Task A – Technology Plan**

- Review and update the comprehensive technology plan to identify necessary updates to the system and new technology enhancements. **The recommended review year for the plan is 2017.** The document should be updated to provide a plan to retire outdated technology and identify opportunities to enhance the system. The document should also be expanded to include consideration of other technologies related to the OGL program, including but not limited to CCTV, adaptive systems and signal equipment.
  - A sub-task of the technology plan is the development of a system-critical failure plan. Assess the possibility of system-critical failures and document an appropriate disaster recover (DR) plan. This plan will provide staff with direction on preparation for and recovery from system failures.
    - OGL staff have been proactive in reviewing the OGL network and providing for system redundancy and robustness over the past four years. A network stability review should be conducted and
opportunities to improve system redundancy and robustness should be identified. When new agencies or corridors are added to the network OGL staff should revisit network stability and identify opportunities for redundancy, as appropriate.

- **Work Product:** A technology plan encompassing network equipment, CCTV, software and critical failure/disaster recovery.

**Task B – Central System Software Evaluation**

- Conduct a review of the central system software. Review alternative software systems and provide recommendations for procurement.

- **Work Product:** A technical memorandum evaluating various software and providing a recommended evaluation and procurement method.

**Task C – Data Sharing Strategy**

- As the use of technology continues to grow within the transportation industry, data that was previously difficult to obtain can now be collected more efficiently. Other entities, public or private, may request this data. A plan should be established that determines how data should be shared with both public and private groups. Data that may be requested includes traffic counts, travel time data, signal operations, mapping and signal timing optimization model files.

- **Work Product:** A technical memorandum documenting OGL’s approach to data sharing.

**Task D – New Technology Evaluation**

- When considering new technology, an evaluation of the use of that technology in both current operations and emerging initiatives should be conducted. As opportunities to implement new technologies arise, how that technology may be used to advance the existing system should be considered as well as if that technology has the potential to be used in other future initiatives such as connected/automated vehicles, incident management, adaptive systems, etc. New technology evaluation will be a task that occurs on a continual basis when considering the implementation schedule. As new technologies are developed and identified OGL staff or Steering Committee members can recommend review of the technology to the OGL board. The Steering Committee can then direct a sub-committee or OGL staff to investigate the potential use of the technology.
• **Work Product:** A technical memorandum summarizing the evaluation of new technology being considered for adoption. One memo should be developed as each new technology is evaluated.

### 6.1.2 Goal 2: Funding and Budget

*Maintain a financial plan that adequately funds the program and monitors the budget.*

The current OGL budget primarily supports the operations of the program; funding for program expansion is not typically available without pursuing additional funding options. While funding has been secured from both MoDOT and KDOT through the Surface Transportation Program (STP) for 2019-2020, member agencies have expressed that identifying and obtaining sustainable funding for the program is important. Additional program expansion will require identification of additional funding to support investigation and procurement of new equipment. As additional funding becomes available, the OGL budget should be reviewed and updated to account for funding changes.

**Task A - Review of Funding**

- OGL should review the current funding model once every strategic plan period to ensure that the program has adequate funding to maintain operations/maintenance as well as fund new initiatives. The review should consider alternative funding strategies. **The next review period is recommended to occur in 2018.** As opportunities to provide additional services arise, investigate the cost/benefit of providing these services and determine the effect of providing the service to the funding model.

- **Work Product:** A funding evaluation memorandum considering sources of income as well as income and expenditure forecasts.

**Task B – Pursue Additional Funding**

- Partner agencies have expressed an interest in identifying and petitioning for funding that would support operations and maintenance of the program in a more sustainable manner. As OGL staff identifies funding opportunities for operations, maintenance or capital improvement projects, potential for the funding to be secured long-term should be considered and applied for when warranted.

- **Work Product:** Discussion of additional funding opportunities should be conducted with the Steering Committee as appropriate. Steering committee
meeting minutes will provide documentation as to committee discussion and direction as funding opportunities are presented to the committee.

Task C – *Budget Review*

- As program funding or expenses change, the budget should be reviewed and updated accordingly.

- **Work Product:** A budget review memorandum reviewing current expenditures and evaluating for appropriateness. A memorandum should be produced to correspond with each budget review.

6.1.3 Goal 3: Planning

*Engage in a planning process to ensure the organization remains relevant and serves the needs of member agencies.*

The OGL program has been successful in providing a central organization for member agencies throughout the metropolitan area to organize and focus on providing improved traffic operations across jurisdictional boundaries. For the organization to remain relevant and continue to provide a high level of service to member agencies, OGL must focus on planning the next steps to move the organization forward.

Task A – *Program Operations Documentation*

- Since program inception, OGL staff has developed documents regarding system structure, procedures and work products. These documents serve as a tool for providing historical program knowledge, smoother staff transitions and illustrate its successes.
  - Operations documentation should be developed which details the daily tasks of the program and how these tasks are conducted.
  - Documentation pertaining to program operations should be reviewed on a yearly basis to determine if updates need to be made.
  - The document should include continuous monitoring of regional activities and initiatives, which should be brought before the Steering Committee to determine if and how the OGL program should be involved.

- **Work Product:** A document which describes the scope, services and overall OGL program. This document will be a replacement for the current Concept of Operations.
Task B – *Expand System Services*

- Continue to expand the current system services, which includes, but is not limited to:
  - Review opportunities to include signals along lower-volume streets in the OGL network as requested by member agencies.
  - Investigate opportunities to provide signal timing services during non-peak periods to provide for optimal use of equipment in place. Non-peak periods may include off-peak, holiday or event timings.
  - Continue to develop the incident management program.
  - Other program initiatives or services as agreed upon by Steering Committee.

- **Work Product:** A technical memorandum summarizing the recommended service should be developed for each service considered.

Task C – *Upcoming Transportation Initiatives*

- Champion OGL’s role in regional transportation initiatives. As the transportation industry continues to become more data based and connected, OGL may play a role in new initiatives, some of which are described in the table below. It is not feasible to identify all potential future opportunities within this strategic plan; OGL involvement in new initiatives should be considered as opportunities arise.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Integrated Corridor Management (ICM)</em></td>
<td>Continue involvement with I-35 ICM project</td>
</tr>
<tr>
<td><em>Incident Management</em></td>
<td>Continue developing program</td>
</tr>
<tr>
<td><em>Adaptive Systems</em></td>
<td>Recommend Committee Discussion</td>
</tr>
<tr>
<td><em>Transportation Systems Management and Operations (TSMO)</em></td>
<td>Recommend Committee Discussion</td>
</tr>
<tr>
<td><em>Connected/Automated Vehicles</em></td>
<td>Recommend Committee Discussion</td>
</tr>
</tbody>
</table>

- OGL staff or partner agencies may identify opportunities for OGL involvement in regional transportation initiatives. As opportunities arise for OGL involvement in regional initiatives, OGL staff should investigate and determine, with the assistance of the Steering Committee, if the initiative fits with the goals and purpose of the OGL program and how OGL can be involved. The Steering Committee should provide a prioritization of known
initiatives to provide the OGL program direction on opportunities to pursue. Dependent upon depth of discussion and recommendation, a memorandum summarizing the committee decision may be produced. The input of partner agencies on the level of involvement of the OGL program in future initiatives will be important.

- OGL is currently involved with the I-35 Integrated Corridor Management (ICM) project. Components of the OGL program may be beneficial to the I-35 ICM project for arterial diversion routing. As a member of MARC, OGL is represented as the adjacent arterial network is a potential tool for corridor management strategies.
- OGL is currently involved with developing a regional incident management program. OGL is partnering with KC Scout to identify opportunities to provide arterial roadway support when highway incidents occur.

- **Work Product:** As appropriate, provide a memorandum summarizing the regional initiative(s) discussed and the Steering Committee recommended direction.

### 6.1.4 Goal 4: Communications and Public Education

*Conduct outreach activities, both internally and externally, to make known the benefits and activities of the program.*

**Task A – Comprehensive Communications Plan**

- Develop a comprehensive communications plan for all constituencies – identifying audiences, key messages, tools and techniques. A common response from partner agencies through both the survey and workshop is the need for better outreach and education about the OGL program. Such outreach is needed both internally to member agencies (elected officials, management and technical staff) as well as externally to the public. The document should identify and provide a plan for OGL staff to provide the program communications both internally and externally.

- **Work Product:** A communications plan defining the program approach to internal and external communications.

**Task B – Develop Communications and Outreach Resources**

- Develop a set of tools to build on and strengthen existing relationships with member communities – including elected officials, management and technical staff. Member agencies indicated that education internally within their public agency is difficult due to staff and elected official turnover. Documentation that can
be provided includes general information about the OGL program, a detailing of services provided by OGL staff, and the financial benefit of OGL services for member agencies.

- **Work Product:** Outreach materials.

### 6.1.5 Goal 5: Training

*Provide opportunities for staff and member agencies to improve upon skills and learn about emerging technologies through training.*

#### Task A – External Training

- Provide training and enhance technical support for member agencies. The OGL program provides a central organization for the sharing of information and skills related to traffic system management. As opportunities arise or at the request of member agencies, OGL staff should facilitate training for member agencies.

- **Work Product:** Training materials developed for external use.

#### Task B – Internal Training

- Staff of the OGL program are responsible for management of an extensive communications and signal operations network. Management of this system requires not only technical knowledge of communications and signal equipment, but also signal operations, traffic system management and fiber/wireless communications networks. OGL staff should be provided opportunities to improve their knowledge base to enhance operations of the program.

- **Work Product:** OGL staff member attendance at training opportunities should be reflected in committee meeting minutes or financial documentation.
6.1.6 Goal 6: Performance Management

*Develop and use performance measures to assess and improve the performance of the Operation Green Light program.*

**Task A – Performance Management Plan**

- A study addressing performance measures was submitted in 2013. Review the current study and update as appropriate. The study should identify performance measures and methods for acquiring them. If a revision is appropriate, it should consider the balance between local agency and regional program performance measures.
- The plan should also address the use of performance measurement data to provide feedback and decision support for improved system operations. Consider the data collected, how that data is produced, and improvements that can be made to obtain better results.
- The plan should also address the required steps and propose a timeline for implementation of the performance management process.

**Work Product:** A performance management plan addressing the previous performance management plan, defining performance measures recommended for use, providing a plan to acquire performance measures, and identifying uses for performance measures as well as review and reporting intervals.

**Task B – Performance Management Process Implementation**

- OGL should implement the performance management process as outlined in the performance management plan.

**Work Product:** Progress towards implementation of the performance management plan should be outlined in Steering Committee meeting minutes as updates are provided to the committee.
6.2 Implementation Schedule

The six goals established for this strategic plan represent initiatives that will continue to move the program forward through the next four years and beyond. While some tasks may be able to be accomplished within the four-year strategic plan period, many tasks will require on-going attention and periodic review to ensure OGL remains a relevant program and continues to meet the needs of the community.

The following timeline, Figure 2, has been developed to illustrate a plan for OGL staff to address tasks and make progress towards completing tasks associated with strategic plan goals.
## Figure 2: Recommended Strategic Plan Implementation Schedule

<table>
<thead>
<tr>
<th>Goal 1: Technology</th>
<th>2017</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2018</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2019</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2020</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A: Technology Plan</td>
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<td>1B: Central System Software Evaluation</td>
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<td>1C: Data Sharing Strategy</td>
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<td>1D: New Technology Evaluation</td>
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<table>
<thead>
<tr>
<th>Goal 2: Funding and Budget</th>
<th>2017</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2018</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2019</th>
<th>Q1</th>
<th>Q2</th>
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<th>2020</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
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<tbody>
<tr>
<td>2A: Review of Funding</td>
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<td>2B: Pursue Additional Funding</td>
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<td>2C: Budget Review</td>
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<table>
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<tr>
<th>Goal 3: Planning</th>
<th>2017</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2018</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2019</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2020</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
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<tbody>
<tr>
<td>3A: Program Documentation</td>
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7 Summary

The success of a strategic plan in guiding an organization is dependent upon how the strategic plan is used. Through this strategic plan, OGL staff and agency partners can work together to achieve goals that will further advance the organization. OGL staff will be accountable for reporting to partner agencies progress regarding implementation of this strategic plan. By focusing on the plan goals of technology, funding and budget, planning, marketing and public education, training, and performance management, OGL can continue to be a model program across the country.

Goal 1: Technology

Task A – Technology Plan
Task B – Central System Software Evaluation
Task C – Data Sharing Strategy
Task D – New Technology Evaluation

Goal 2: Funding and Budget

Task A - Review of Funding
Task B – Pursue Additional Funding
Task C – Budget Review

Goal 3: Planning

Task A – Program Operations Documentation
Task B – Expand System Services
Task C – Upcoming Transportation Initiatives

Goal 4: Communications and Public Education

Task A – Comprehensive Communications Plan
Task B – Develop Communications and Outreach Resources

Goal 5: Training

Task A – External Training
Task B – Internal Training

Goal 6: Performance Management

Task A – Performance Management Plan
Task B – Performance Management Process Implementation
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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 4th Quarter (October, November, and December) of 2016 and highlights of signal timing and agency coordination. OGL currently monitors/operates 699 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 28 repair tickets, representing about a 54% decrease compared to last quarter.

**Corridor Timing Efforts**
- 10/25 – SW Trfwy and Shawnee Mission Pkwy off peak and overnight plans were implemented
- 11/30 – Timing changes were made on K7 for I70 WB off ramp closure and associated signal geometry changes

**Training Sessions/Panels/Events**
- 10/6 – Barry Viss attended the Kinetic Transportation Technologies event
- 10/6 – Barry Viss attended the Kauffman Foundation Data Visualization workshop
- 10/18 – 10/20 – Ray Webb attended the 2016 Missouri Traffic Safety and Blueprint Conference
- 10/19 – Barry Viss completed the Effective Business Writing course offered by GTI
- 11/1 – Chris Jenkins and Scott Cutshall attended the TCC Fall Expo in Kansas City, MO
- 11/2 – Ray Webb attended Compute Midwest at the Kauffman Center
- 11/5 – 11/7 – Ray Webb attended MOVITE conference in Oklahoma City, OK
- 11/10 – Ray Webb attended the KCITE meeting held at Burns & McDonnell
- 11/29 – OGL staff participated in a MaxView/MaxTime webinar hosted by Intelight
- 12/1 – Chris Jenkins participated in The Importance of Fiber Characterization webinar

**Additional Information**
- OGL staff set up and scheduled the Miovision equipment to conduct 8 counts. Most of these were 13-hour turning movement counts and the remaining were 24-hour ADT counts.
- OGL staff completed 0 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 3rd Quarter of 2016:

- 10/26 – OGL staff completed a fiber connection to Pod 8 Sheraton utilizing KC Scout and OP fiber for use as a backup
- 10/28 – OGL staff upgraded the core network switch
- 11/3 – OGL transferred 9 end-of-life Alvarion radios to Kansas City, KS
- 12/1 – OGL completed Genetec federation with Kansas City, MO
- 12/7 – OGL transferred 15 end-of-life Alvarion radios to MoDOT
- 12/15 – Google fiber was installed at Pod 2 Booth in Raytown for a secondary internet connection to the OGL network
- Pod 7 in South Kansas City was upgraded with new Radwin radios replacing the older Alvarion units.
- Numerous security enhancements were implemented on the OGL network
- OGL staff implemented a new backup strategy to better protect servers and workstations in the event of failure or security breach such as ransomware
Interagency Coordination

During the 4th Quarter, OGL staff participated in the following interagency activities:

- 7/1 – 9/23 – Ray Webb participated in numerous meetings regarding the I-35 ICM Project
- 10/3, 10/10, 10/13, 10/17, 10/20, 10/24, 10/27, 10/31 – Barry Viss worked from the KCMO operations center
- 10/4 – Ray Webb met with Roeland Park, KS staff to discuss OGL operations
- 10/11, 10/28, 11/18 12/9 – OGL and Olsson held bi-weekly conference calls for signal timing work status
- 10/20, 11/17, 12/15 – OGL staff participated in the OGL Regional TransSuite Monthly Status meeting
- 10/24 – OGL staff attended the OGL Steering Committee Meeting
- 10/25 – Barry Viss and Olsson staff met with City of Westwood & Fairway staff to discuss timing changes on SW Trfwy and SMP Blvd
- 10/27 – Barry Viss and KCMO staff met with The Barstow School staff to discuss signal operations on State Line Rd
- 10/27 – Barry Viss and KCMO staff met with a concerned citizen
- 11/3, 11/7, 11/14, 11/21, 11/28 - Barry Viss worked from the KCMO operations center
- 11/7 – OGL and KCMO staff met to discuss upcoming CMAQ project scope
- 11/9 – OGL and Belton, MO staff met to discuss OGL operations
- 11/9 – Barry Viss, OP, Lenexa, MoDOT, and Olathe staff met to discuss TransSuite software improvements
- 11/11 – Chris Jenkins met with City of Shawnee to discuss integrating non-OGL signals into TransSuite
- 11/12 – Chris Jenkins met with City of Lee’s Summit to discuss integrating non-OGL signals into TransSuite
- 11/16 – OGL and KC Scout staff met to discuss Incident Mgmt coordination
- 11/30 – OGL and KC Scout staff met with the IMRCP team for a status update meeting
- 12/1, 12/5, 12/8, 12/12, 12/15, 12/29 - Barry Viss worked from the KCMO operations center
- 12/8 – OGL, Olsson, OP, Lenexa, and Shawnee staff met to discuss proposed timing changes on 87th St and Quivira Rd
Quarterly Repair Ticket Statistics by Month

In the 4th Quarter of 2016, OGL staff created and responded to 28 repair tickets in the Kansas City area. This number represents an decrease of about 40% compared to the 4th Quarter of 2015 and a 54% increase compared to the 3rd 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 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 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.

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 4 - Repair Tickets by Network Pod]

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

![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.

![Pie Chart for Repair Ticket Statistics by Severity Level]

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.

![Bar Chart for Repair Ticket Statistics by Severity Type / Prior 12 months]

2015/2016
Summary of Critical Events
The OGL staff responded to 0 critical events during the 4th 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 4th quarter of 2016. Preventative maintenance is expected to resume in spring 2017.

CCTV Operations
As part of the MO American Recovery and Reinvestment Act and the 2015 OGL enhancement project, 118 CCTV cameras were constructed at critical locations throughout the region. Since final installation, these cameras have routinely proven valuable to manage traffic and signal timing. During times of timing plan implementation, construction and detours, OGL staff, operations staff 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 saving time investigating the issue in the field.
## Traffic Signal Event Tracking

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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 one agencies payment for 2016 remain to be collected but is in process.

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 is now combined with Equipment/Computer.
- All local revenues have been collected.
- 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 ending December 31, 2016**

#### Revenues

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<tbody>
<tr>
<td></td>
<td>Program Budget</td>
<td></td>
</tr>
<tr>
<td>STP Funding, KDOT</td>
<td>$326,000</td>
<td>$277,498.55 (Reimbursed actual expenses at 80% until expended)</td>
</tr>
<tr>
<td>STP-Funding, MoDOT</td>
<td>$765,850</td>
<td>$651,907.33 (Reimbursed actual expenses at 80% until expended)</td>
</tr>
<tr>
<td>Local Gov't Revenue</td>
<td>$1,116,600</td>
<td>$1,116,600 (Local funds targeting 50% of budget)</td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td>$2,208,450.00</td>
<td>$1,874,805.88</td>
</tr>
</tbody>
</table>

#### Expenses

<table>
<thead>
<tr>
<th></th>
<th>Two-Year</th>
<th>Cumulative To Date</th>
<th>% Variance (Cumulative / Budget)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Program Budget</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries, Fringe Benefits, Indirect Costs</td>
<td>$1,097,130</td>
<td>$419,154.19</td>
<td>38.2%</td>
</tr>
<tr>
<td>Consultants/Contracted Services</td>
<td>$810,988</td>
<td>$532,860.33</td>
<td>65.7%</td>
</tr>
<tr>
<td>Legal Fees</td>
<td>$3,000</td>
<td>$2,994.80</td>
<td>99.8%</td>
</tr>
<tr>
<td>Meeting/Travel (In/Out of Region &amp; Registration)</td>
<td>$18,300</td>
<td>$5,027.60</td>
<td>27.5%</td>
</tr>
<tr>
<td>Rent</td>
<td>$16,541</td>
<td>$4,569.52</td>
<td>27.6%</td>
</tr>
<tr>
<td>Telephone/Maint.(Internet, mobile, ConferSave, USB modem)</td>
<td>$8,000</td>
<td>$4,252.86</td>
<td>53.2%</td>
</tr>
<tr>
<td>Insurance</td>
<td>$8,000</td>
<td>$3,010.00</td>
<td>37.6%</td>
</tr>
<tr>
<td>Postage</td>
<td>$200</td>
<td>$ -</td>
<td>0.0%</td>
</tr>
<tr>
<td>Equipment/Computer/Supplies</td>
<td>$214,291</td>
<td>$169,254.03</td>
<td>79.0%</td>
</tr>
<tr>
<td>Service Agreements</td>
<td>$2,000</td>
<td>$11,471.16</td>
<td>573.6%</td>
</tr>
<tr>
<td>Automobile Gas/Maintenance</td>
<td>$16,000</td>
<td>$3,779.10</td>
<td>23.6%</td>
</tr>
<tr>
<td>Professional Memberships</td>
<td>$1,000</td>
<td>$ -</td>
<td>0.0%</td>
</tr>
<tr>
<td>Training</td>
<td>$3,000</td>
<td>$1,500.00</td>
<td>50.0%</td>
</tr>
<tr>
<td>Utilities</td>
<td>$10,000</td>
<td>$3,883.69</td>
<td>38.8%</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td>$2,208,450.00</td>
<td>$1,161,757.28</td>
<td>52.6%</td>
</tr>
</tbody>
</table>

#### Balances:

- **Beginning Local Funds Balance April 1, 2016**: $69,187.56 (Excess Local Funds from previous Budget Period)
- **Ending Balance December 31, 2016**: $782,236.16
- **Reserve/Emergency (local funds)**: $300,000.00