Operation Green Light Traffic Signal Coordination Summary Report
K-7 – 130th St to Kansas Ave

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

Corridor Activities
Through Operation Green Light, the four traffic signals on K-7 from 130th St to Kansas Ave were analyzed and updated. The intersections are owned by the City of Bonner Springs, KS. The new plans were installed in April of 2015 and were observed and evaluated for their effectiveness before and after the changes. See Figure 1 (on back) for a map of the study area. This corridor has an average daily traffic of approximately 24,000 vehicles.

Results
The results for individual drivers will vary by origin and destination, time of day and direction, as well as other factors outside the scope of traffic signal timing. Table 1 below is a summary of the results.

Table 1. Summary of results for K-7 Project

<table>
<thead>
<tr>
<th>Improvement during morning, noon, and evening peak periods: (for drivers traveling the entire length of the corridor)</th>
<th>Approximate daily savings: (net change for all drivers impacted by the plans)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning Noon Evening</td>
<td>Daily</td>
</tr>
<tr>
<td>35.8% 37.8% 37.3% less travel delay from signals</td>
<td>67 hours saved in travel time</td>
</tr>
<tr>
<td>40.1% 36.6% 41.0% fewer stops</td>
<td>5300 fewer stops</td>
</tr>
<tr>
<td>0.5% 1.3% -2.0% less fuel consumed</td>
<td>-6 gallons of fuel saved</td>
</tr>
<tr>
<td>7.8% 6.7% 4.6% fewer hydrocarbons emitted</td>
<td>5.9 kg less hydrocarbons emitted</td>
</tr>
<tr>
<td>0.2% -0.8% -13.1% less carbon monoxide emitted</td>
<td>-52.4 kg less carbon monoxide emitted</td>
</tr>
<tr>
<td>8.6% 5.7% 4.3% less nitrous oxide emitted</td>
<td>4.8 kg less nitrous oxide emitted</td>
</tr>
</tbody>
</table>

Approximate economic savings from reduced travel time and fuel consumption:

<table>
<thead>
<tr>
<th>Per Day</th>
<th>Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,170</td>
<td>$293,000</td>
</tr>
</tbody>
</table>

Benefit-to-Cost Ratio
The continued operations of the OGL system will cost approximately $1,600 per signal per year. Thus the cost of keeping the K-7 corridor a part of OGL is $6,400 per year for the four signals updated. Therefore the benefit to cost ratio for this re-timing project is 46 to 1.
Figure 1. Map of the K-7 Bonner Springs study area.

For more information and a more detailed report of this coordination project, please see:
http://www.marc.org/Transportation/Commuting/Operation-Green-Light/About-OGL.aspx