Cranberry Twp and Marshall Twp US 19 (SINC-UP) Project Summary

The Southwestern Pennsylvania Commission’s (SPC) Regional Traffic Signal Program was established to assist local municipalities with improving traffic signal operations by optimizing signal timings and upgrading existing signal equipment. The Cranberry Township and Marshall Township Signals In Coordination with Equipment Upgrades (SINC-UP) Project is a signal equipment upgrade and retiming project with a goal of optimizing signal operations at intersections along US 19. [See map below for project area].

Traffic Signal Coordination:

- Improves safety because vehicles stop less often, which reduces the probability for rear-end crashes
- Benefits the environment by reducing vehicle emissions
- Reduces travel costs by reducing the amount of time stopped at red lights
- Saves money at the gas station by reducing fuel consumption

As part of this project, Broadband Ethernet Radio systems were installed along the two Thorn Hill Road intersections to allow the intersection of Thorn Hill Road and Commonwealth Drive to communicate to the US 19 signals. Cranberry Township also implemented a fully protected northbound left phase at Ehrman Road. The three northern Cranberry Township signals were added to the township’s coordination system.

PROJECT LOCATION
Allegheny & Butler Counties

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PROJECT PARTNERS
Federal Highway Administration
Pennsylvania Department of Transportation, District 10-0 & 11-0
Allegheny County
Butler County
Cranberry Township
Marshall Township
Whitman, Requardt & Associates, LLP
Travel Improvements:
The results showed that the peak travel times were on average reduced by nearly 7% and a 19% reduction in delay for all users.

This iteration of optimization focused on reducing the cycle lengths across the peaks and utilizing different phasing sequences by time of day for a handful of intersections. The shorter cycles allowed for users on the side street and left turn to have less delay. The implementation of varying sequence phases by time of day allowed for peak specific two-way progression.

Summary of First Year Benefits**
**Weekday Midday/PM Peaks and Saturday Peak

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Reduced Vehicle Hours of Travel</td>
<td>233,487</td>
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<tr>
<td>Reduced Total Pollutant Emissions</td>
<td>17,782 kg</td>
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<tr>
<td>Reduced Number of Stops</td>
<td>178,313 gallons</td>
</tr>
<tr>
<td>Total Benefit***</td>
<td>$4,680,606</td>
</tr>
</tbody>
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**Benefit Cost Ratio**
41:1

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