Lewisburg, Tennessee

Traffic Signal Optimization

Lewisburg, Tennessee, a city of 11,300, is located in South Central TN and is about halfway between Nashville, TN and Huntsville, AL. With its history as an early trading and shipping hub, Lewisburg has several state highways crossing through and around its boundaries, and is only 3 miles off of Interstate 65.

After being awarded a Community Transportation Planning Grant in 2015, Lewisburg partnered with consultants and TDOT to study traffic light and vehicle travel patterns throughout the city. The purpose of the study was to provide recommendations towards optimizing traffic signals along two major corridors. The hope was that by optimizing signals, the city could reduce overall drive time, driver start and stop times, traffic emissions, and reduction in driving related costs to city drivers.

To this end, the study looked at:
- Pedestrian traffic and physical conditions of intersections
- Turning Movement Counts
- Average Daily Traffic
- Existing signal timing and operation settings
- Field inventories including intersection geometry

Software was utilized in order to simulate and test optimization strategies, without having to test in actual intersections and potentially disrupting traffic. From these studies it was recommended that 19 full traffic signals be optimized and synced, with an additional 9 flashing lights. Upon testing the new optimization, the team discovered a nearly 40% reduction in total travel delays across all corridors.

The full list of findings, including the full synopsis of the software tests can be read here in the final report.

Optimization Cost Savings

EMISSIONS REDUCTIONS
- Hyrdocarbons: -17.6%
- Nitro Oxides: -22.6%
- Carbon Oxide: -13.9%

GAS SAVINGS
$55,200
Collective annual driver’s savings during peak periods

TOTAL COST BENEFIT OF OPTIMIZATION
4:1 After One Year
10:1 After Three Years
(Cost savings vs consulting and annual maintenance fees)