



# Traffic Signal Coordination

INTELLIGENT TRANSPORTATION SYSTEMS IN THE PORTLAND METROPOLITAN REGION

**Linking signals along a corridor reduces stop-and-go driving, benefiting air quality and public safety.**

## BENEFITS

**Mobility:** Synchronized traffic signals reduce delay by limiting stop-and-go traffic.

**Air quality:** Less stop-and-go traffic results in lower vehicle emissions.

**Cost effectiveness:** To improve the flow of traffic, coordinating signals costs much less than adding lanes.

According to the Federal Highway Administration, 5% of congestion is due to poorly timed traffic signals. Stop-and-go traffic increases air pollution and gas consumption, produces greater wear and tear on vehicles, and costs people and businesses money in the delay it imposes. In addition, poorly timed signals limit the capacity of the roadway, creating unnecessary congestion.

Improving signal timing involves only moderate capital costs but it does take considerable staff time to analyze traffic patterns and develop an optimal timing scheme. In 2005, the City of Portland used \$533,000 from the non profit organization Climate Trust to retime 150 intersections. By helping traffic move smoothly, the new timing plan saves an estimated \$3 million in gas and eliminates 169,000 tons of carbon dioxide emissions each year. Signal timing also improves the performance of the roadway by reducing congestion and delay, an outcome that is obvious to any driver who has seen one light after another turn green in a steady progression.

The City of Gresham has gone one step further and implemented a signal timing system that adapts in real time to changing traffic conditions. In contrast to traditional signal coordination plans, which vary only by time of day, Gresham's system is able to adjust



*Well-timed signals let drivers reach many green lights in a row, reducing delay and frustration.*



*The City of Portland's \$533,000 partnership with the Climate Trust paid for a signal retiming program, which is expected to abate 169,000 tons of carbon dioxide emissions.*

to above- or below-average traffic volumes. The benefit-cost ratio of the project was calculated as 30:1 – slightly higher than the benefits of a traditional signal coordination initiative.

For more information, visit [www.metro-region.org](http://www.metro-region.org)

