

CITY OF FEDERAL WAY CASE STUDY

Federal Way's Adaptive Traffic Control System

Regional Growth Center deployment overview



Implement adaptive control in the Regional Growth Center

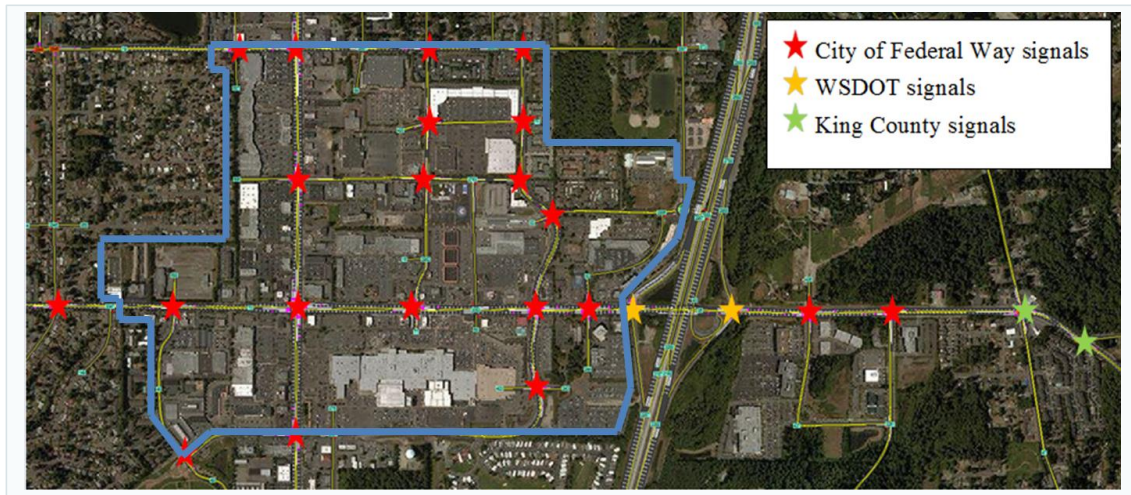
Initial deployment focused on a high-demand, multi-agency corridor environment.

Initial objective

Adaptive signal control for the Regional Growth Center

The project centered on real-time signal timing in a corridor with City, WSDOT, and King County signals.

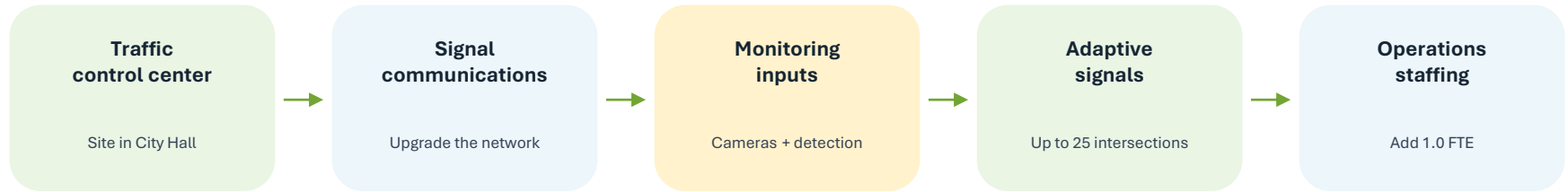
Regional Growth Center



The original map shows the concentration of City of Federal Way, WSDOT, and King County signals in and around the growth center.

The system was more than software

Successful adaptive control required a traffic control center, network, field inputs, intersections, and staffing.



Operating capacity depends on reliable communications, trusted detection, and staff who can manage the system after launch.

Why adaptive control was worth pursuing

The strategy was to maximize existing roadway capacity while reducing delay for all users.



**Real-time timing
+ shorter cycles**

+8–41%

increase in travel speeds

14–44%

reduction in delays

16 routes

travel time and reliability benefits,
including one BRT route

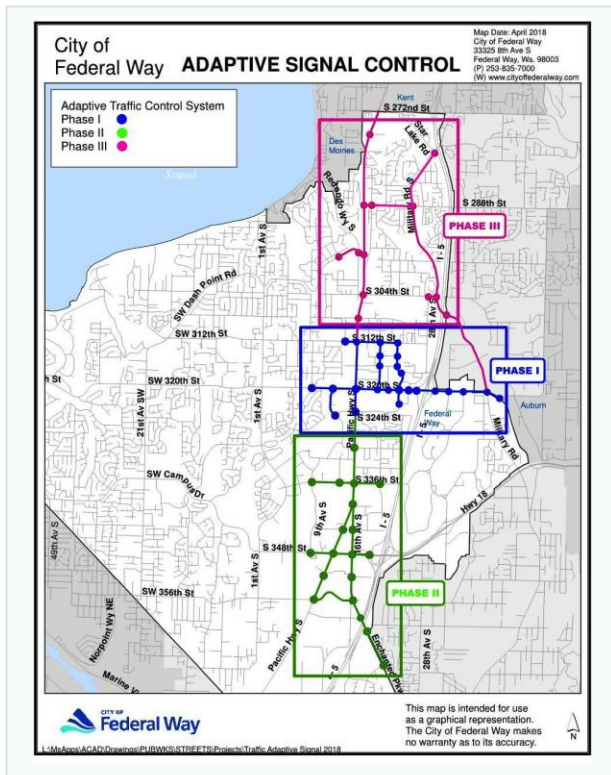
shorter waits

shorter cycle lengths reduce pedestrian
wait times

*The benefit case combined operations, transit reliability, and pedestrian experience—
not just vehicle throughput.*

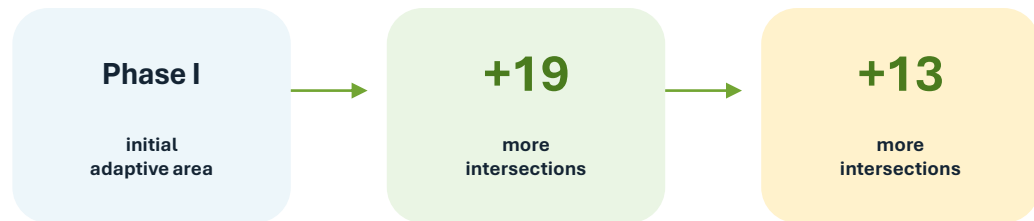
Then a couple more grants expanded the network

Additional funding pushed adaptive control beyond the initial deployment area.



Phased expansion

The subsequent grant awards converted the project from a focused corridor deployment into a broader adaptive signal control program.



Funding strategy mattered: the adaptive platform could scale as new corridors became feasible.

Implementation risk was not only technical

The major schedule and delivery issues came from agreements, IT dependencies, and scope changes.

Interagency agreements

- WSDOT: 3½ years
- King County: 4 years

IT + communications

- Delayed TMC startup
- Fiber connection still missing to 1 intersection

Scope + delivery changes

- Removed one intersection over WSDOT camera access
- Detection assumptions changed
- Controllers changed
- Construction project management changed

Lesson: manage approvals, network readiness, and field assumptions as critical path items.

Performance improved despite higher traffic volumes

The before/after results show reductions across delay, queues, travel time, collisions, costs, and emissions.

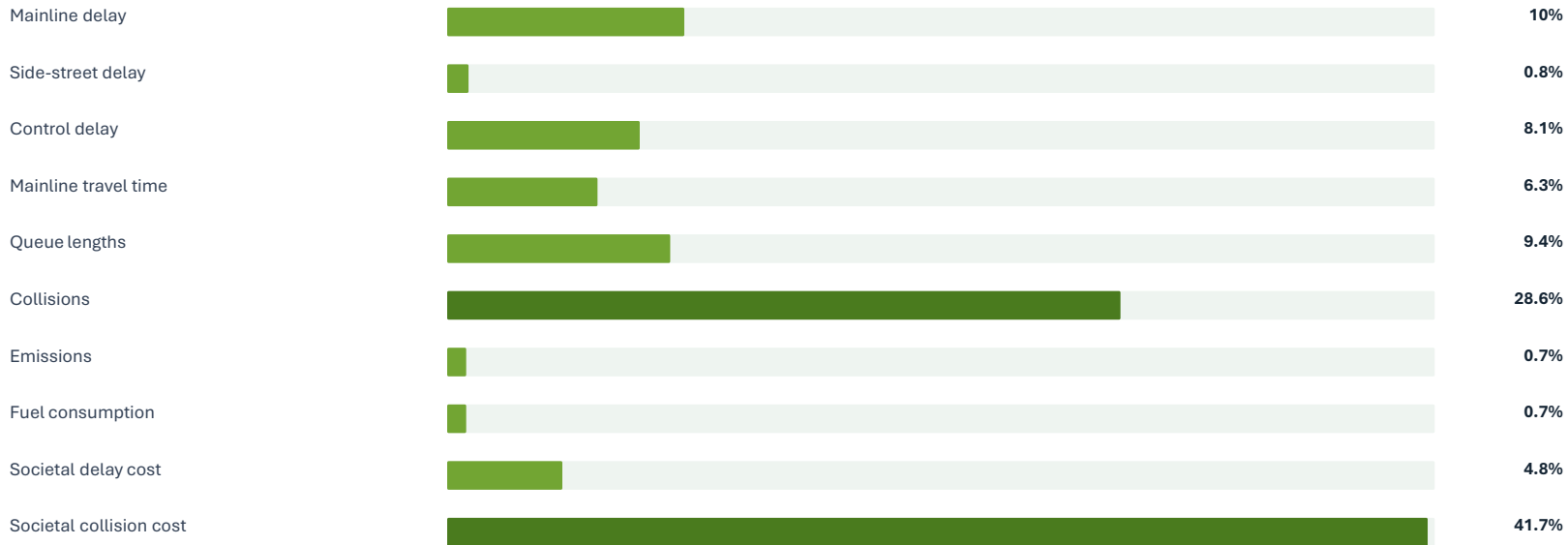
+2.3%

traffic
volume
increase

Reduction from baseline

0%

42%



Adaptive control delivered corridor-level operational gains while volumes rose.

A practical playbook for agencies starting adaptive control

Federal Way's lessons point to the people, field systems, and project controls that keep adaptive operations working.

1

Staff the system

Plan for an engineer, a signal technician, and named backup positions.

2

Keep detection healthy

Detection is critical; expect ongoing costs to keep it operational.

3

Start agreements early

Allow a long approval window for interagency agreements.

4

Finish communications first

Get network upgrades done as early as possible.

5

Define the base plan

Identify the coordination plan before vendor coding starts.

Start with operational readiness—not just the technology procurement.

Questions?

Federal Way's Adaptive Traffic Control System

Information Credit to Rick Perez, P.E. | City Traffic Engineer

