Local

Smart Signal Districts

Traffic lights talk to each other to facilitate movement in congested parts of the city

Project Score

- ○ Access 1
- ◑ Access 2
- ● Safety 1
- ○ Safety 2
- ● Reliability
- ● Affordability
- ○ Sustainability/Resiliency 1
- ○ Sustainability/Resiliency 2
- ◑ Governance

#8 in public voting

Project Description

Building upon *smart signal corridor approaches*, in the South Boston Waterfront, Sullivan Square, the Bulfinch Triangle (just south of North Station), and Dudley Square, traffic signals would communicate with one another as vehicle traffic backs up onto short blocks when drivers wait to turn or as crossing walkers surge from trains or buses unloading nearby. Signals would then adjust their timing to alleviate temporary delays and avoid intermittent conflicts. District-wide, automated responses to traffic, bike, and walk flows would have traffic signals work together as a single network, and adjustments in one section would be sensitive to impacts in another.

Benefits and Issues Addressed

Complicated historic street patterns, accelerated housing development and job growth, and high numbers of buses and shuttles traveling through these districts has led to heightened local congestion. Unlike corridors where the primary direction of travel is clear, these districts have more complicated circulation issues to address. By leveraging new technology that responds to demand, BTD signals will impactfully improve flows and reduce congestion. For example, Silver Line buses would be given additional green time on Washington Street if cross streets were detected to have lighter than usual traffic; vehicles could be diverted to an alternative route if access to an on-ramp in South Boston was jammed; or people walking would be given more crossing time on Canal Street and Causeway Streets when there is a concert at the Boston Garden. Today, BTD is working to change driver behavior with variable message boards and in-car apps, telling drivers that seemingly longer routes are actually faster. In the future, the signals will pass this information along to autonomous vehicles automatically.
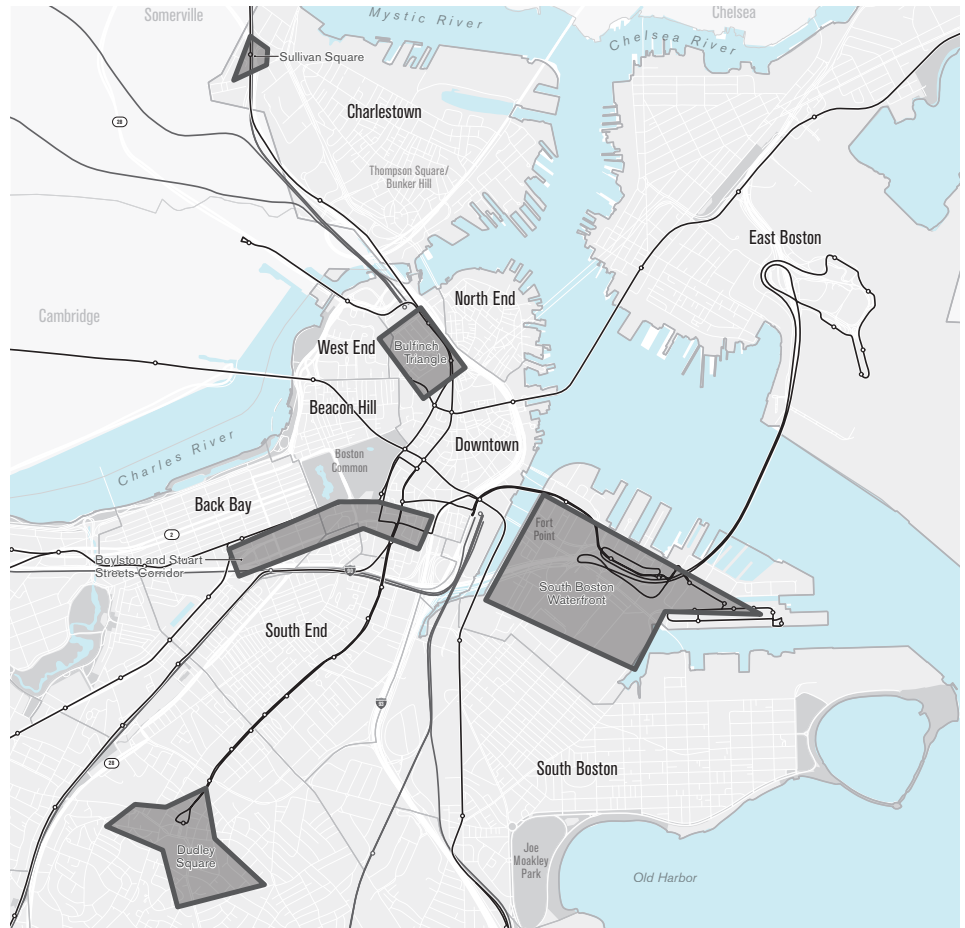
Best Practices

In Pittsburgh, PA, a startup found that smart traffic signals could reduce vehicle travel times by 25%. Importantly, this study also tracked a 40% reduction in idling, which is directly tied to an emissions decrease.
spectrum.ieee.org/cars-that-think/robotics/ artificial-intelligence/pittsburgh-smart-traffic- signals-will-make-driving-less-boring

Transport for London has shown progress in cutting delays by using a program that makes traffic signals more efficient and adaptive to traffic flows.
www.traffictechnologytoday.com/ news.php?NewsID=37610

Implementation

Approximate Cost: $25 million over five years for smart corridors and districts as well as other signal upgrades
Potential Funding Sources: City capital plan and developer funding
Who's Responsible: BTD
Time Frame: Ongoing

Public Input

"Traffic light retiming: Hire a transportation planning agency to do a full city-wide review of all our traffic lights to see how retiming them can give better traffic flow."   —02135

"Adaptive signal technology that automatically adjusts for real time conditions within 5 years."   —02136