Using Big Data and IOT (Internet of Transit) to Improve Transit Performance

TSP Corridor Selection Methodology

Cole Greene
Manager of Data Analytics
Office of Performance Management
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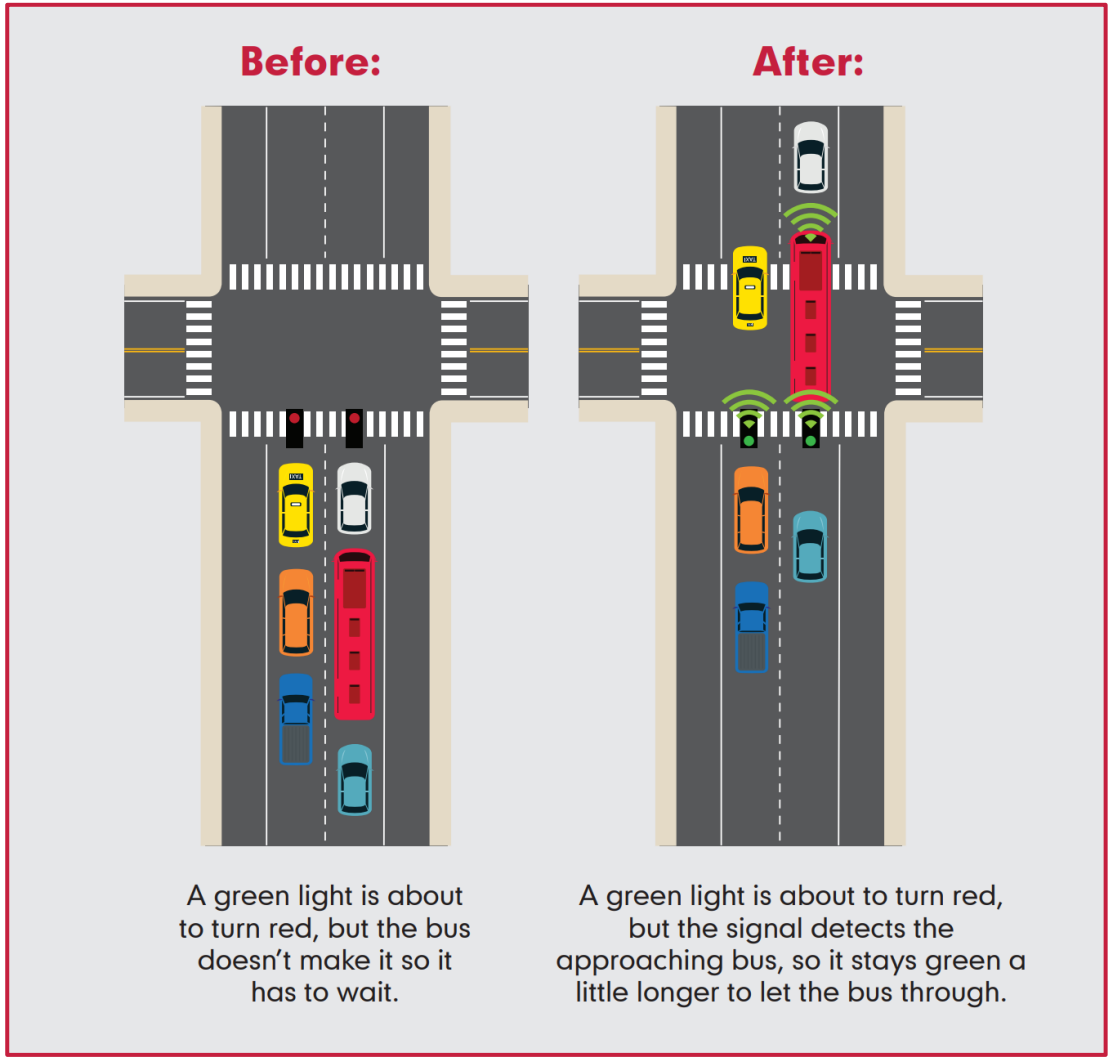
MARYLAND DEPARTMENT OF TRANSPORTATION

MARYLAND TRANSIT ADMINISTRATION

Overview

- What is Transit Signal Priority?
- Phase 1 – BaltimoreLink
- Phase 2 Corridor Selection
- Transit Data
- Transit Rider Benefit Calculation Methodology
- Transit Rider Benefit Results
- Other Selection Considerations

What is Transit Signal Priority (TSP)?



What is Transit Signal Priority?

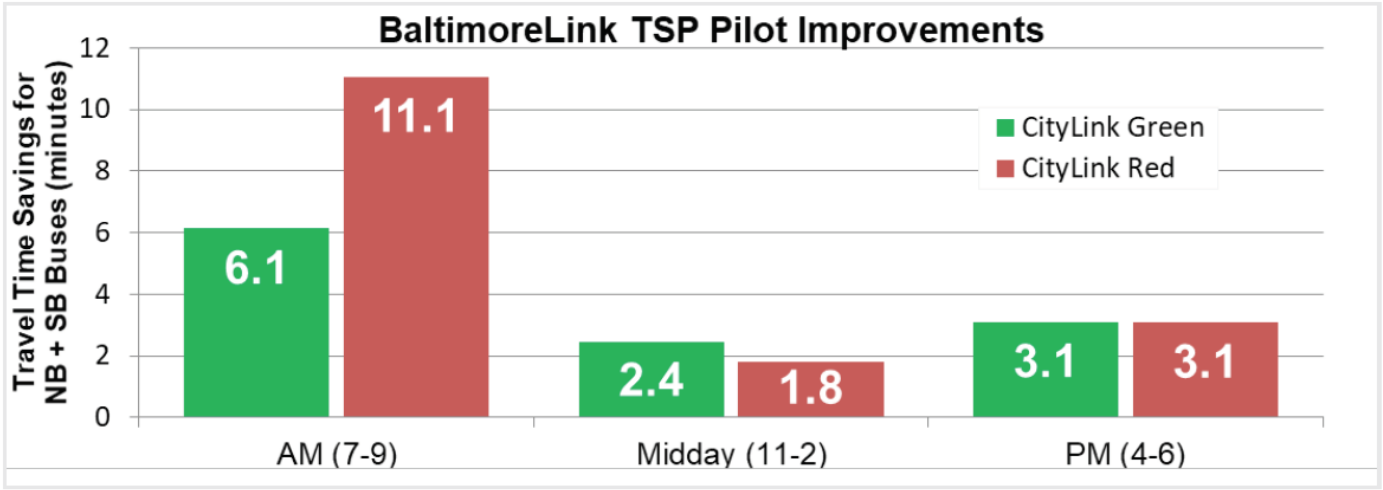
Transit signal priority (TSP) is when buses and other transit vehicles communicate with traffic signals and get preference to move through traffic lights more quickly.

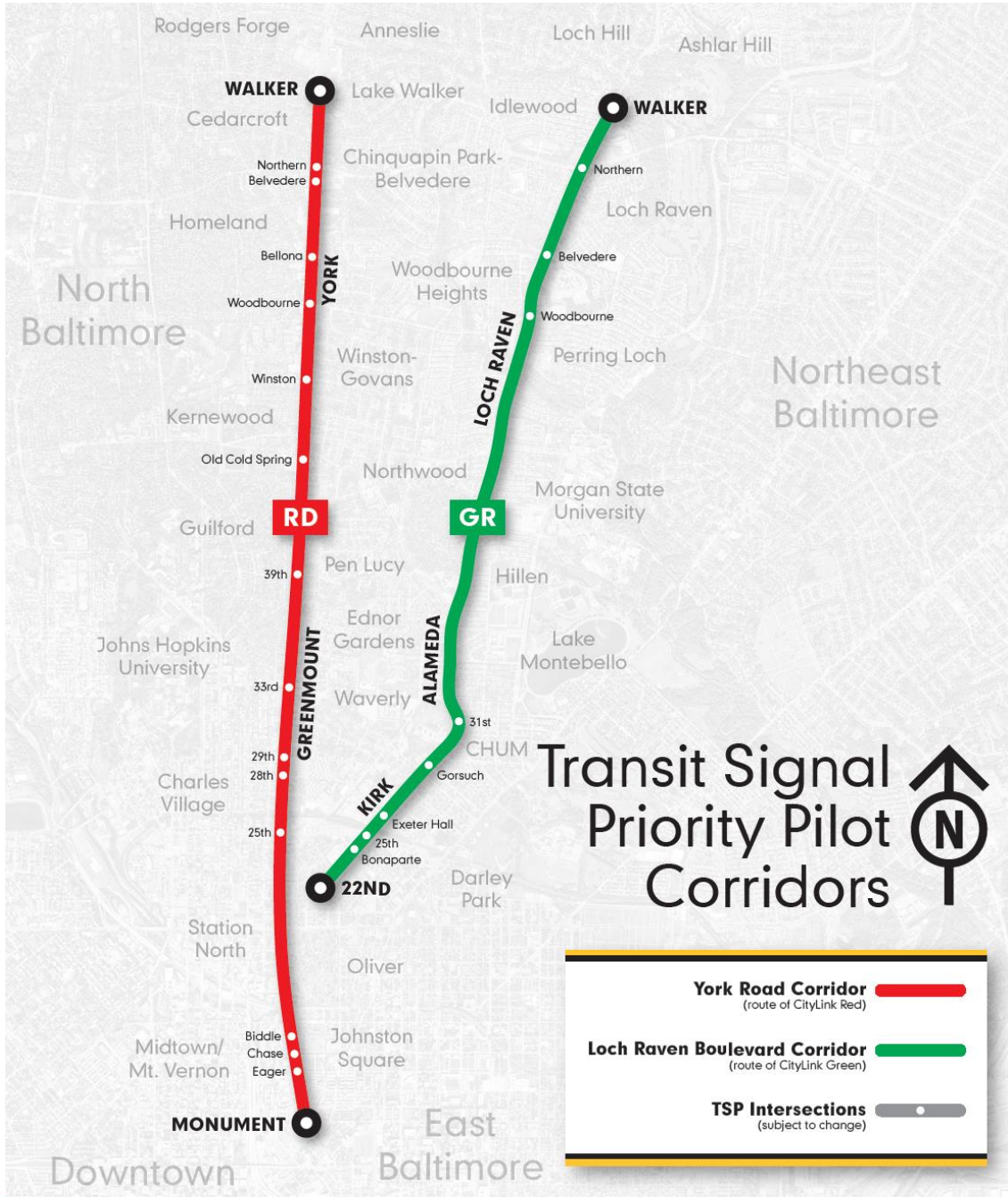
How Does it Work?

TSP works in two ways:

- A green light can be extended a couple seconds so a bus makes it through.
- A red light can be shortened a few seconds so a bus doesn't have to wait as long.

TSP In Baltimore – BaltimoreLink





TSP in Baltimore

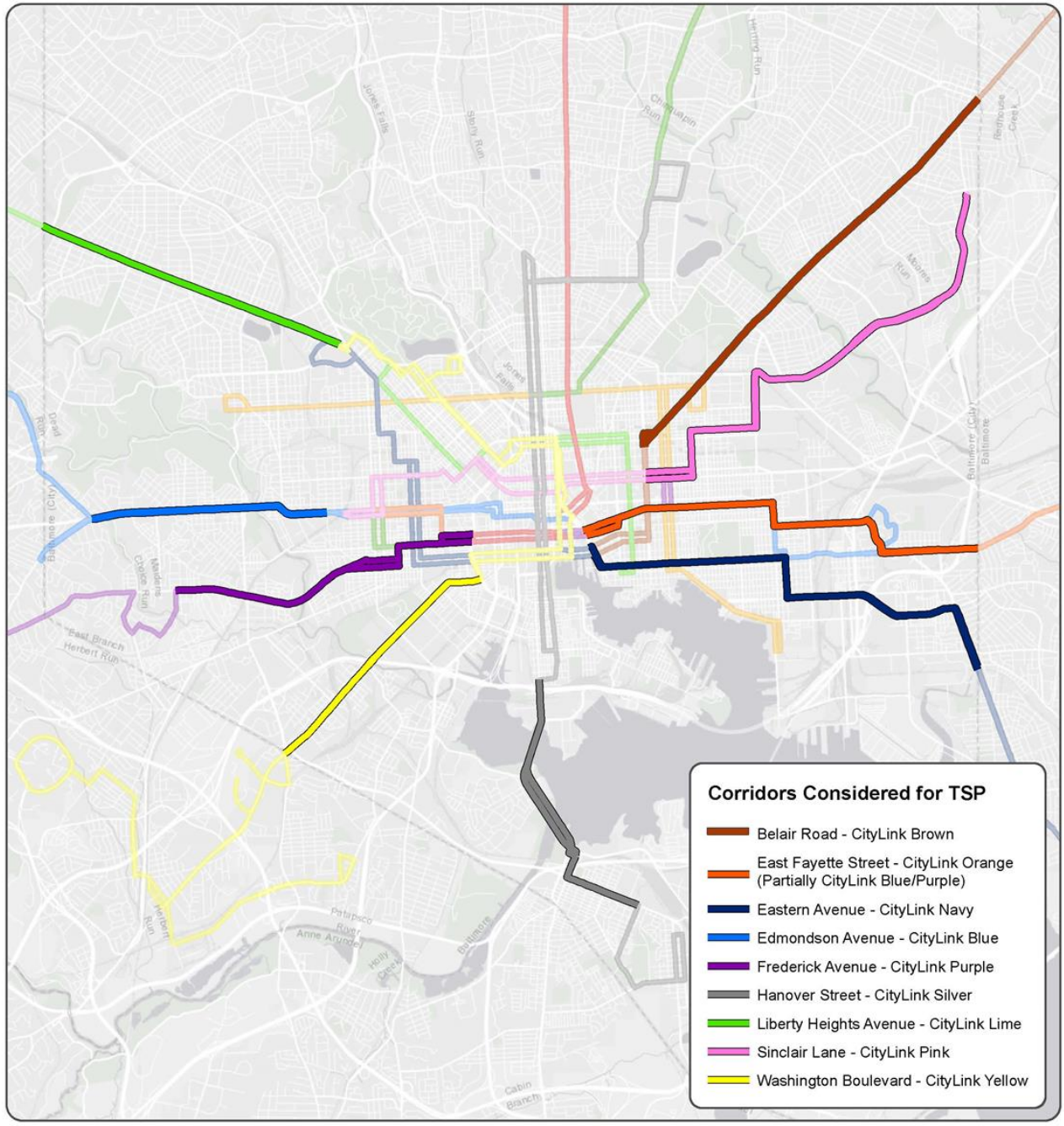
Pre-Existing TSP

- Howard Street (Light Rail)
- Loch Raven
- York/Greenmount

North Avenue Rising

Phase 2 Corridor Selection Criteria

1. Within Baltimore City Limits
2. Frequent CityLink service.
3. Does not pass through Baltimore's Central Business District.
4. Corridor has at least 10 intersections with traffic signals that are candidates for TSP.



Big Data and IOT(ransit) Data

Swiftly

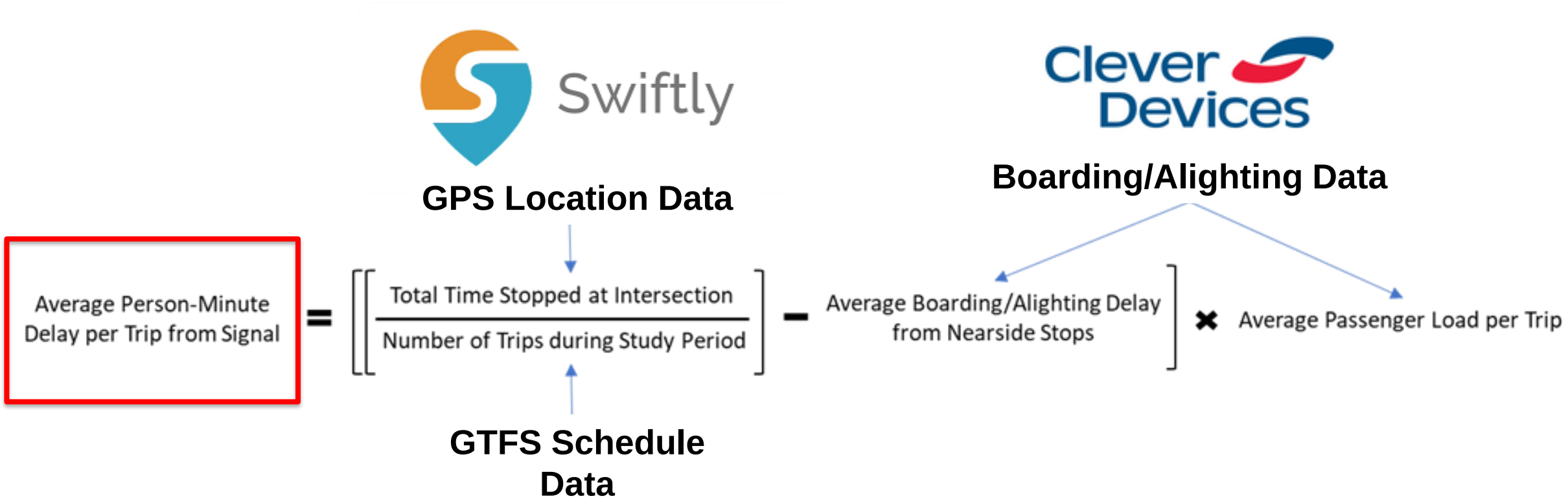
One GPS data point every 10 seconds

Clever Devices

1. Ridership by stop
2. Open door time by stop

Turning GPS Location Data Into Dwell Time

Calculating Transit Rider Benefit



TSP Rider Benefit Rankings

Corridor	Estimated Total Daily Transit Rider Minutes Saved	Minutes Saved Per Intersection	# Intersections
Orange	936	29	32
Brown	702	28	25
Lime	372	22	17
Blue	292	18	16
Navy	688	18	39
Pink	153	15	16
Purple	364	14	26
Yellow	214	13	17
Silver	165	9	18

Other Traffic Engineering Considerations

- Crossing Bus Service
- Nearside Bus Stops
- Vehicle/Pedestrian Detection on Side Streets
- Poor Level of Service on Side Streets
- Adequate “Slack” Time
- Baltimore City DOT Projects

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