

Big Gains for a Small Price: Improving Broadway Bus Service

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APTA Sustainability & Multimodal Planning Workshop

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Existing Conditions

- 2.5 mile Corridor
 - Colfax Avenue to I-25 & Broadway Station
- One-way Couplet
 - Lincoln Street northbound
 - Broadway southbound
- Approximately 30,000 vehicles per direction per day
- Peak-hour, peak-direction bus lane



Transit Service

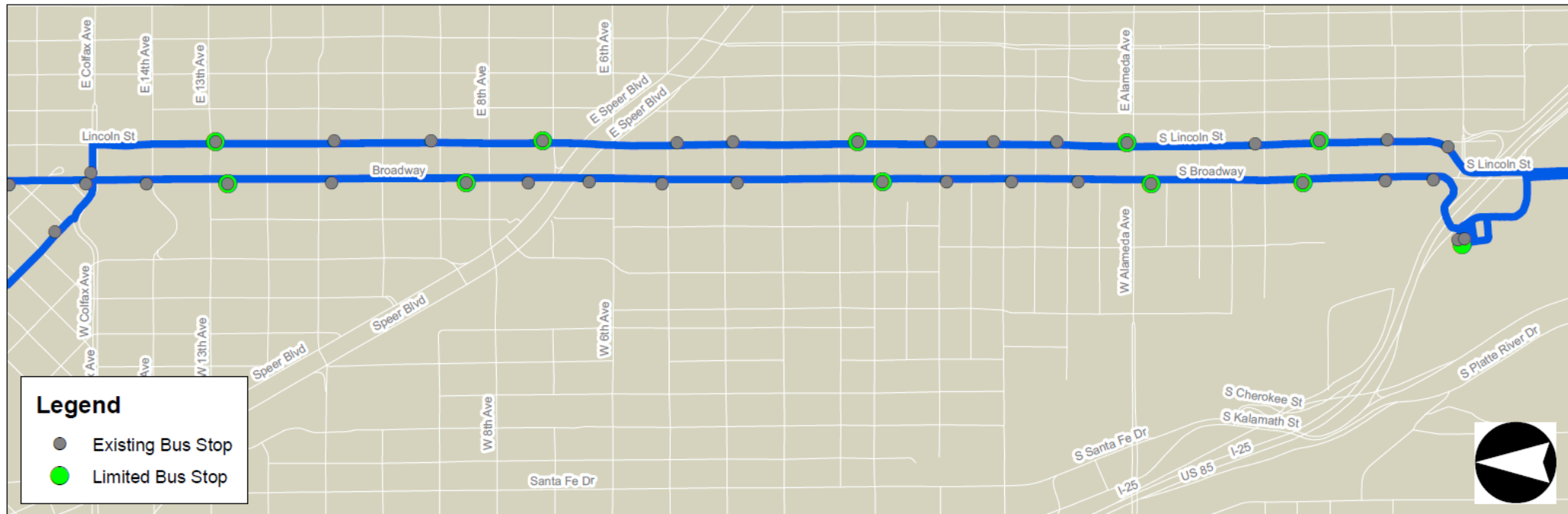
- Serves by Routes 0 and 0L for the entire corridor
- 5,200 weekday boardings
- 10 minute weekday frequency
- 10 additional routes run on parts of the corridor
- 7,200 total weekday boardings



Transit Service

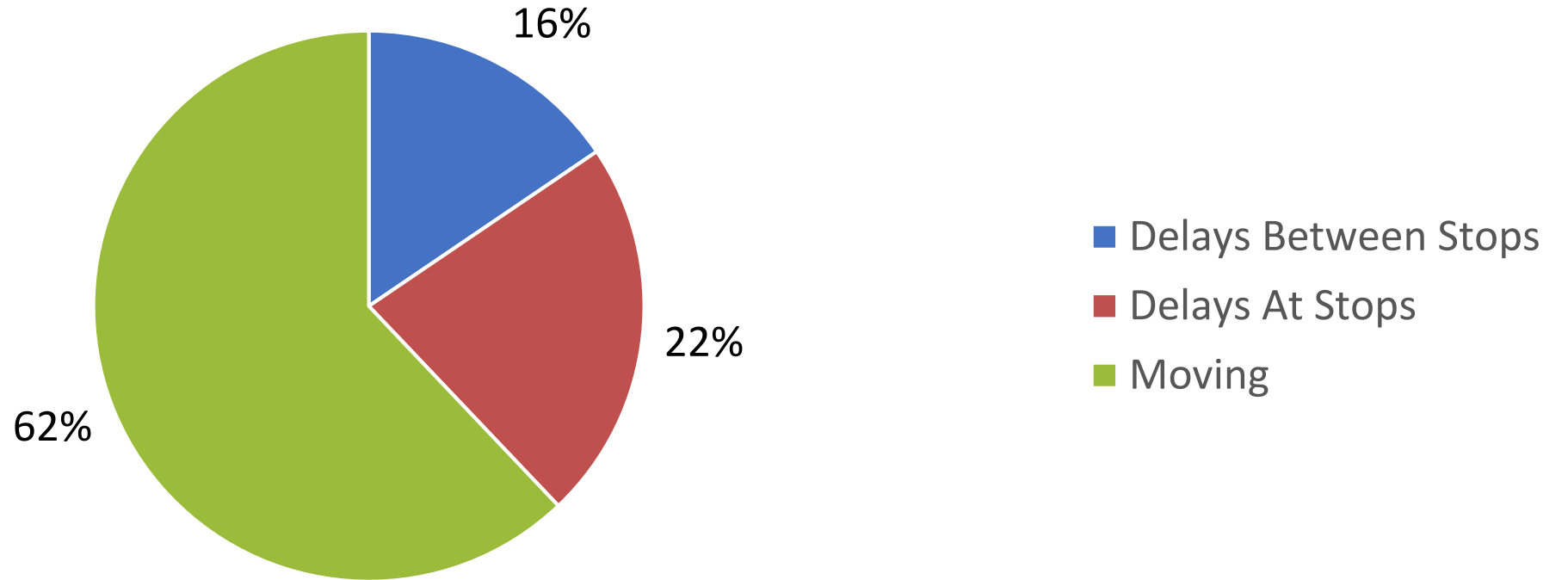
- 17 northbound bus stops
 - Average 1019'
 - Median 898'

- 18 southbound bus stops
 - Average 864'
 - Median 739'



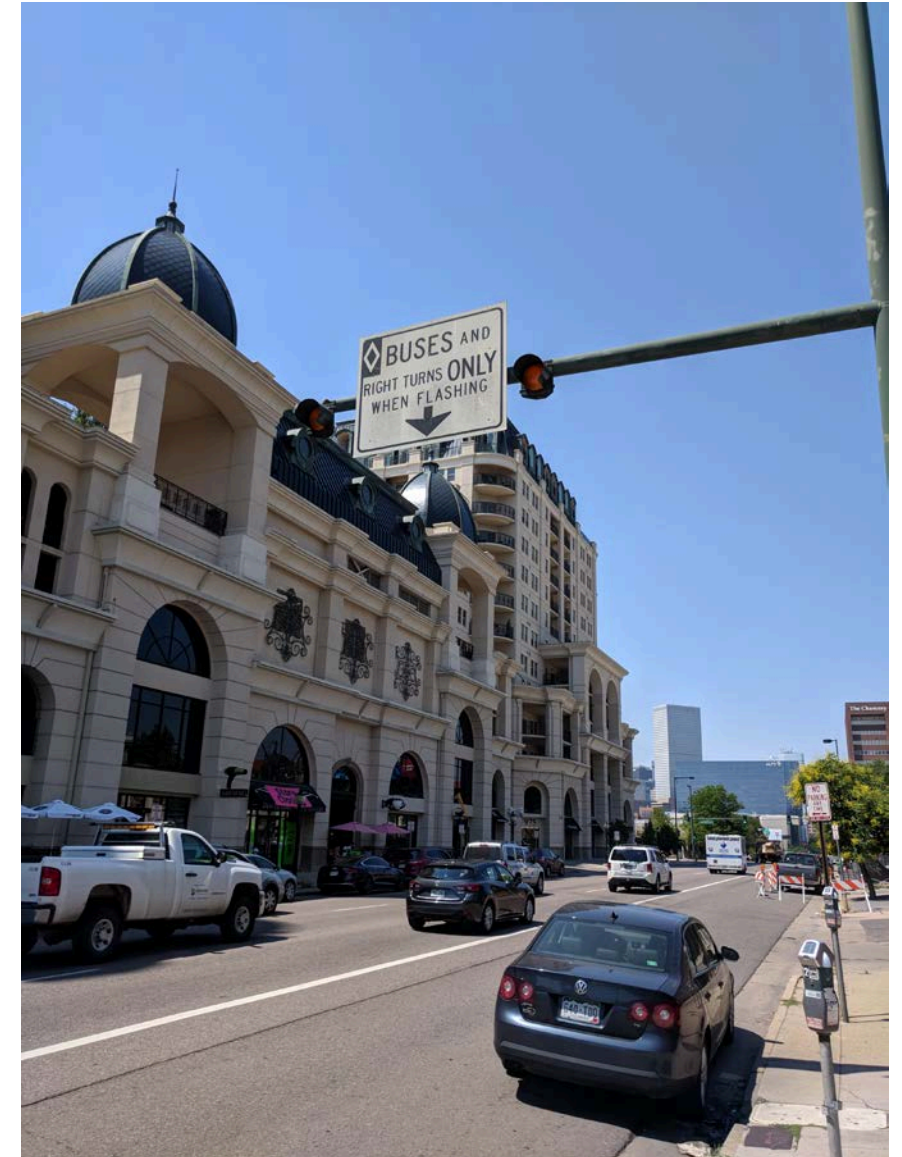
Transit Service

2016 - Route 0 Travel Operations
between Colfax and I-25 & Broadway Station



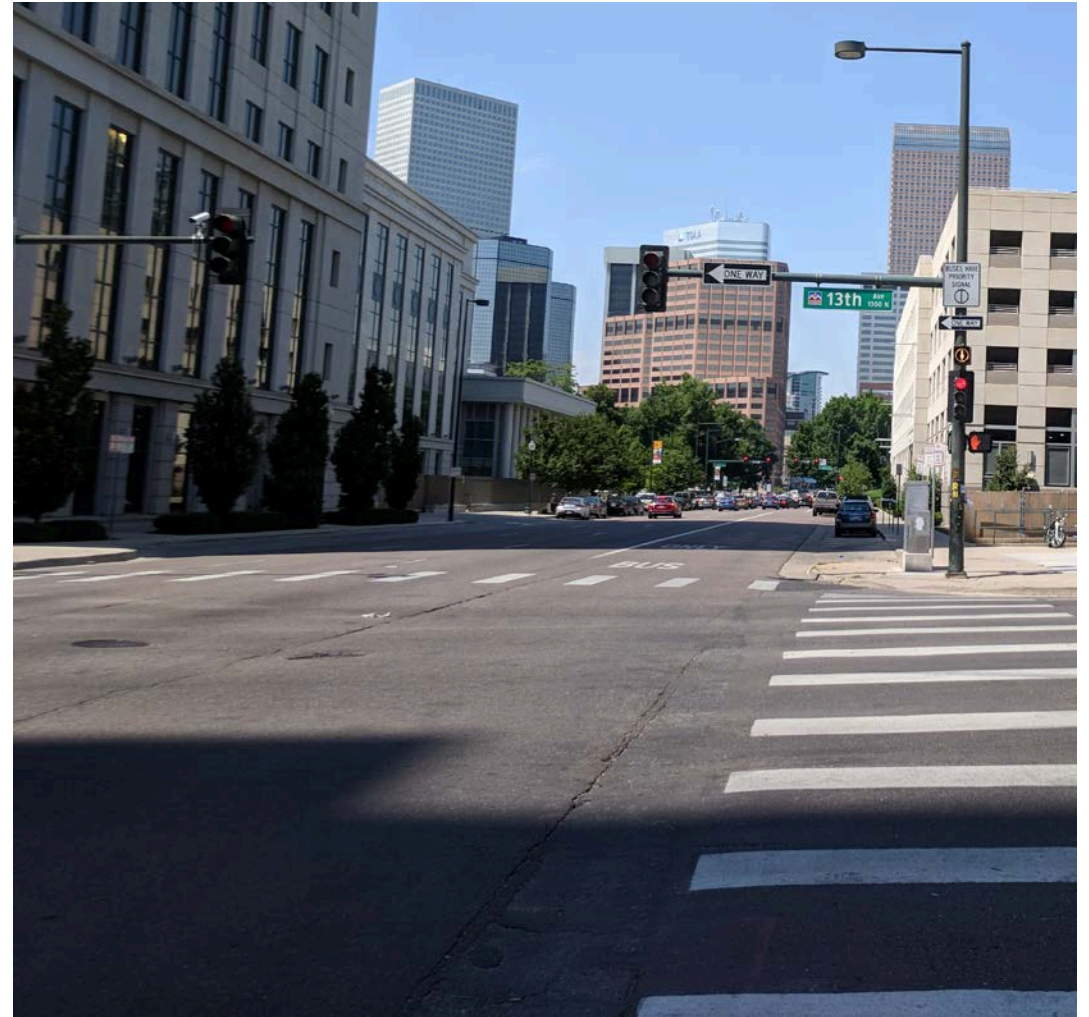
Bus Lanes

- Established in 1975
- Northbound on Lincoln Street
 - Operated 7-9am
 - Exposition Avenue to 14th Avenue
 - South 1.5 miles was parking lane at other times
 - North 1 mile was general traffic lane at other times
- Southbound on Broadway
 - Operated 3-6pm
 - Colfax Avenue to Exposition Avenue
 - General traffic lane at other times
- 86 peak buses per hour in 1989
 - 441 daily buses
- 44 peak buses per hour today
 - 318 daily buses



Bus Lanes

- Marked with flashing lights
- Queue bypass signal at northbound end @ 13th Ave
- Right turns allowed
 - Other vehicles must turn at next intersection
- Frequent lane violations
 - Vehicles blocking queue jump



Conversion to 24-hour Transit Lanes

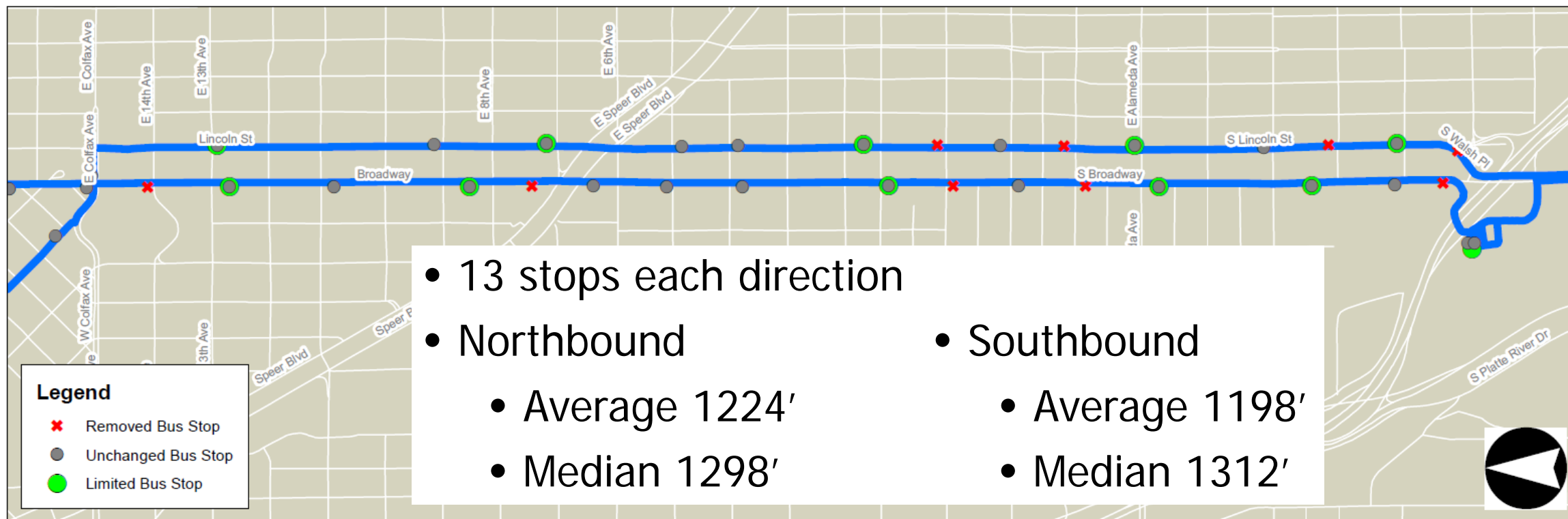
- If traffic is manageable at the peak, why do lanes ever need to allow vehicles other than buses?
- NACTO Transit Accelerator Program
 - City & County of Denver applied and was accepted
 - Experts visited Denver
 - Toured corridor
 - Planned and designed treatments for corridor to improve bus service



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THE MILE HIGH CITY

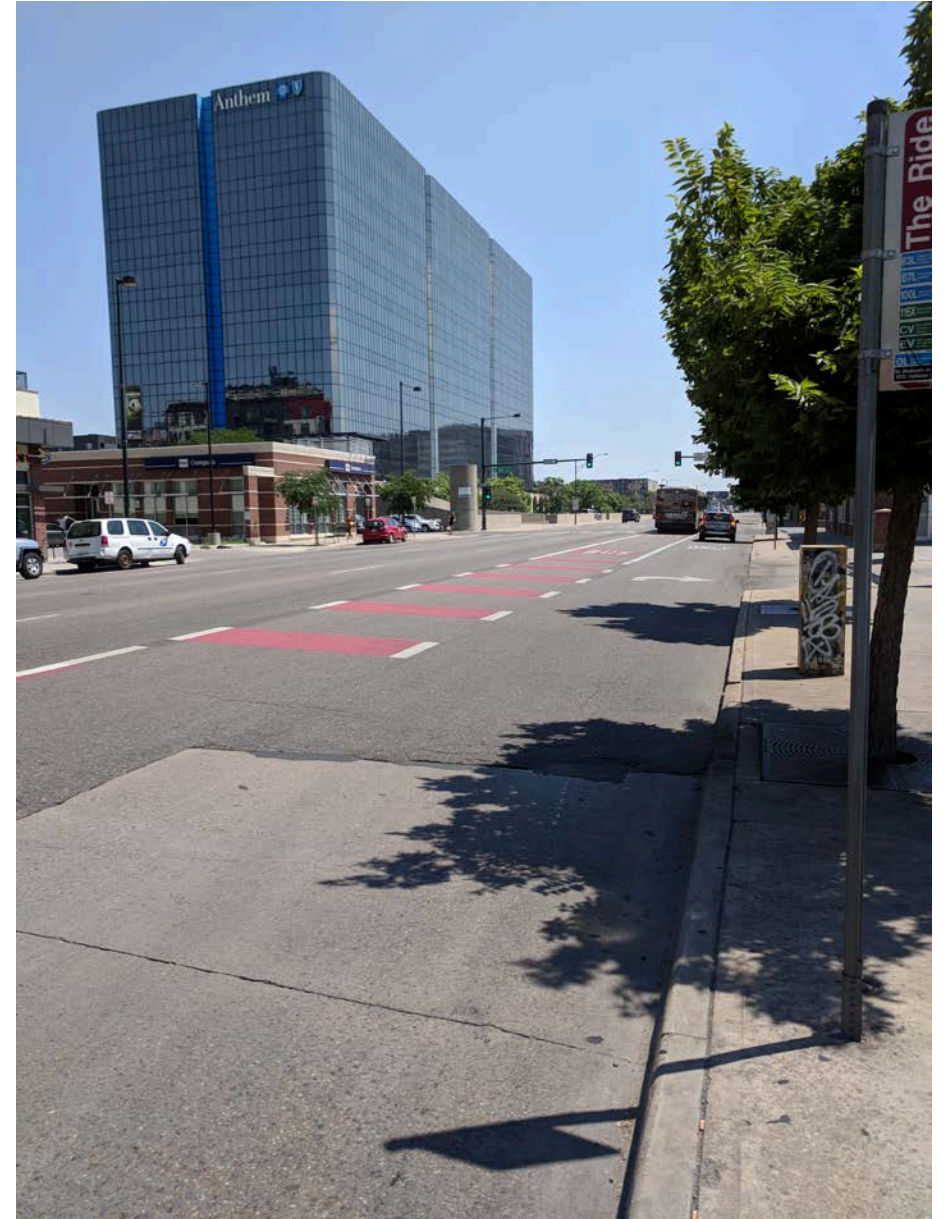
Stop Consolidation

- Standardize stop spacing every 2 blocks (1/4 mile)
- Busiest removed stop – 225 boardings & alightings



Bus Lanes

- Bus Lanes converted to 24 hour operation
 - Except for southern 1.5 miles on Lincoln Street
- Southbound lane extended 2 blocks north
- Flashing lights operate continuously
- Time restrictions removed from signs



Red Bus Lanes

- Red paint treatment tested at strategic locations
- Red stripe adjacent to general purpose lane
- Dashed red paint at intersections where other vehicles must turn
- Bus lane violations reduced significantly



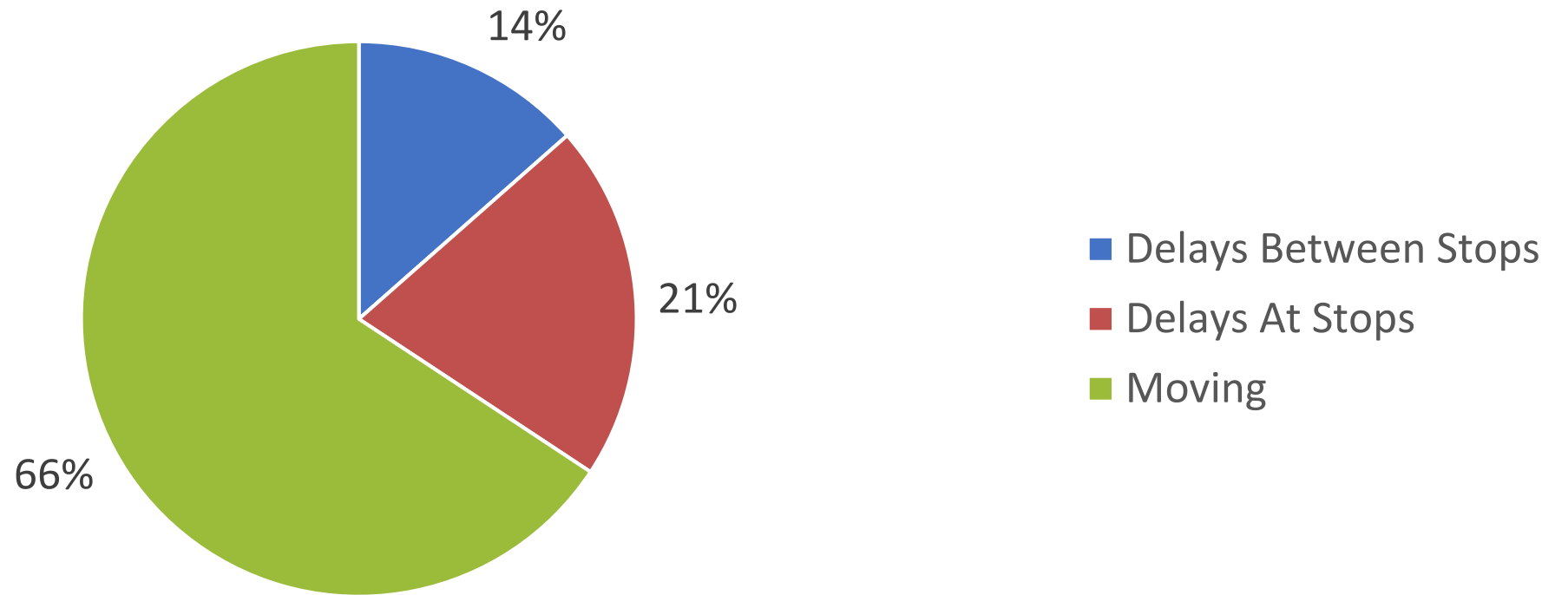
Speed Improvements

- 7% faster running time all day
 - 2.5 minutes
- 10% faster outbound in AM Peak
 - 1.4 minutes
- 5% faster inbound in PM Peak
 - 1.1 minutes
- 11% faster outbound in PM Peak
 - 1.9 minutes
- Up to 15% improvement on some segments/time periods



Speed Improvements

2018 - Route 0 Travel Operations
between Colfax and I-25 & Broadway Station



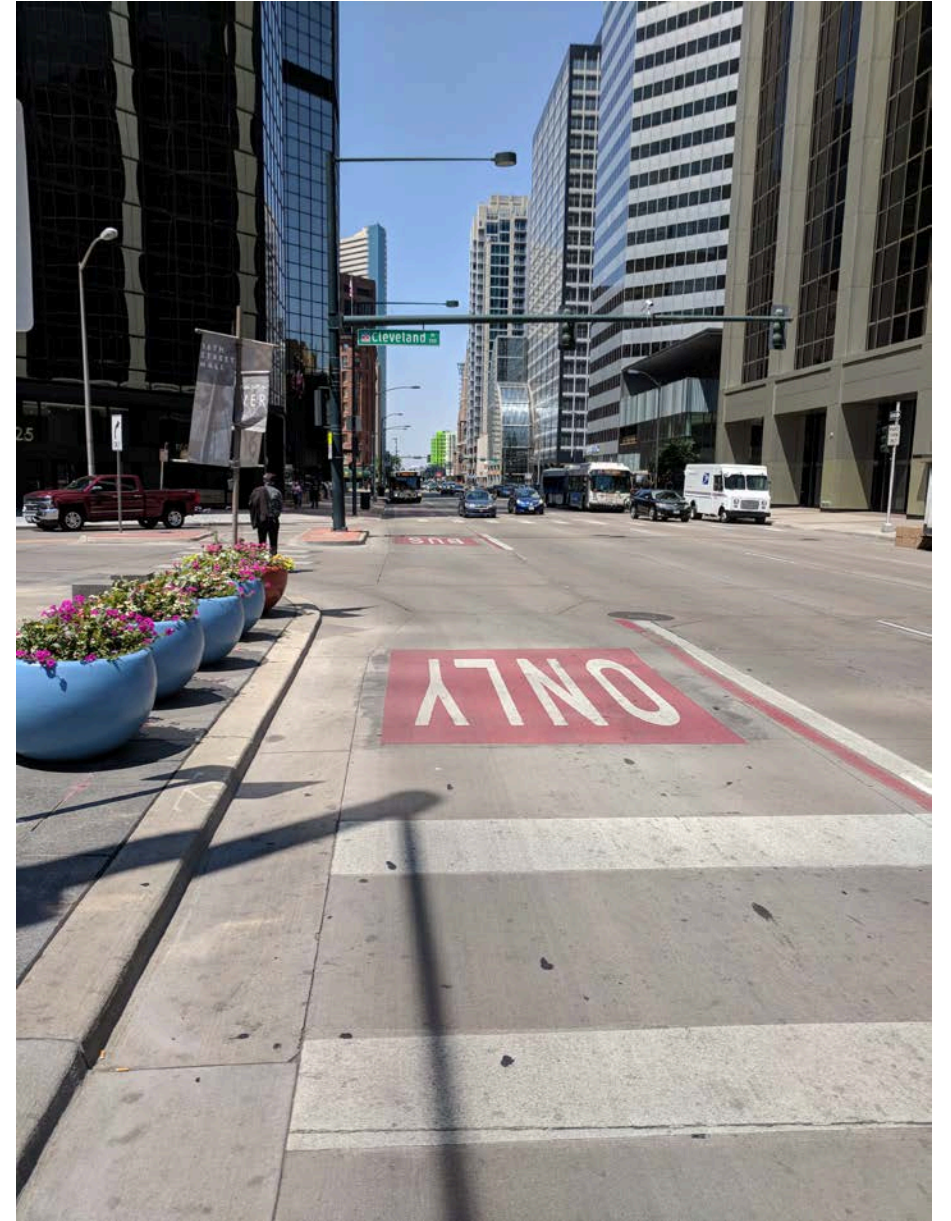
Ridership Improvements

- 2.5% ridership increase
- Passengers at removed stops found their way to adjacent stops



Cost

- No cost to RTD
- \$110,000 to the City & County of Denver for road markings and signage
- Negligible impact to traffic



Future

- Explore options for southern 1.5 miles of northbound lane
 - Move parking to left side of street?
 - Limited hours for bus lane extending through PM Peak?
- Transit enhancements
 - Stop relocations
 - Bus bulbs
 - Signal priority
 - Queue jump before Colfax
- Turn savings into more service



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