



# Example Congested Corridor

- Vermont Ave among Top 20 Congested
- Under study for BRT improvements
- 12.5 mile Corridor
  - Local – 68 stops – 84 min – TTI 1.75 (peak)
  - Rapid – 24 stops – 65 min – TTI 1.54 (peak)

## Corridor Profile (South to North)

- 2.5 mi 1 parking / 3 travel lanes wide median
- 2.5 mi 1 parking / 3 travel lanes thin or no median
- 7.5 mi 1 parking / 2 travel lanes no median



# Reduce Stop Dwell Times

## All Door Boarding and Far Side Stops



- All Door Boarding
  - Currently on Orange and Silver Lines
  - Line 754 (Vermont) in June 2018
  - Line 720 (Wilshire) in Oct 2018

- Far Side Bus Stops
  - On Vermont Ave:
    - Rapid 76% far-side
    - Local 44% far-side

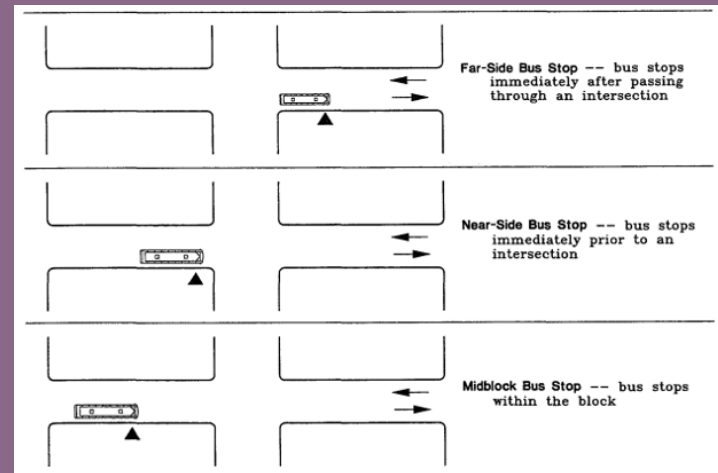


Figure 1. Example of Far-Side, Near-Side, and Midblock Stops.

# Reduce Stop Dwell Times

## Curb Extensions

- Buses can serve a stop from a moving lane so that merging with the traffic flow is not necessary
- Creates more sidewalk space for the bus stop and associated street furniture
- Forces traffic to wait behind the bus, or try to pass it, so the treatment is most useful at lower demand stops where the bus does not dwell long



# Reduce Running Time

## Bus Only Lanes

- Bus Lanes use exclusively or at limited times such as peak periods
- Curb vs. Median
- Added enforcement often required to keep lanes clear during restricted periods



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# Reduce Running Time

## Transit Signal Priority

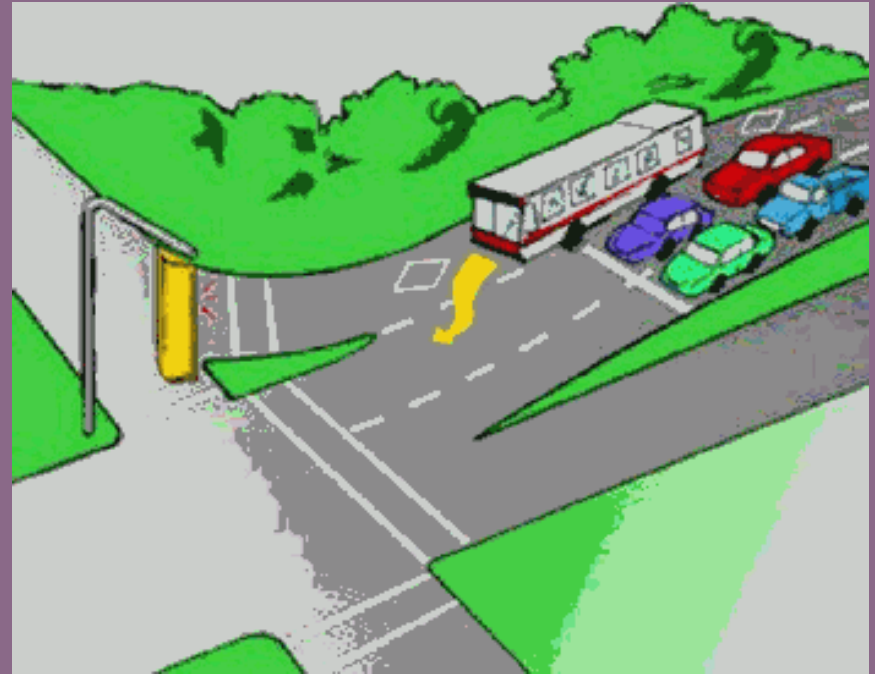
- Buses must be equipped with emitter to signal presence
- Each signalized intersection must have appropriate hardware
- Prioritization strategy must balance wider bus bandwidth against adverse cross street traffic impacts
- Works best with far-side stop locations so that bus doesn't trigger signal multiple times



# Reduce Running Time

## Queue Jumps

- Buses must be equipped with emitter to signal presence
- A curb lane is reserved for buses near a signalized intersection with the stop line moved back so that right turning vehicles do not block buses
- When buses are present the traffic signal will provide a few seconds of advance green so that buses may get in front of other traffic



# Vermont Ave – Weekdays

## Preliminary List of Mitigations

| Segment NORTHBOUND     | Severe Congestion                             | Applicable Mitigations   |
|------------------------|---|--|
| 120th to Green Line    |   |  |
| Green Line to 92nd     | AM - 754                                      | 1 - Bus Stop Location<br>2 - Dwell Time  |
| 92nd to Manchester     | AM - 754<br>PM - 754                          | 3 - Exclusive Lanes<br>5 - Transit Signal Priority   |
| Manchester to 54th     | AM - 204,754<br>Mid - 754<br>PM - 204,754     | 1 - Bus Stop Location<br>2 - Dwell Time<br>4 – Peak Period Lanes   |
| 54th to Slauson        | AM - 204,754<br>Mid - 754<br>PM - 204,754     | 5 - Transit Signal Priority<br>7 - Curb Extensions   |
| Slauson to Exposition  | AM - 204<br>Mid - 754<br>PM - 204             |  |
| Exposition to Adams    | AM - 204,754<br>Mid - 754<br>PM - 204,754     |  |
| Adams to Wilshire      | AM - 204,754<br>Mid - 204,754<br>PM - 204,754 | 1 - Bus Stop Location<br>2 - Dwell Time<br>5 - Transit Signal Priority<br>6 - Queue Jumps<br>7 - Curb Extensions |
| Wilshire to Monroe     | Mid - 754<br>PM - 754                         |  |
| Monroe to Santa Monica | AM - 754<br>Mid - 754<br>PM - 754             |  |
| Santa Monica to Sunset | AM - 754<br>Mid - 754<br>PM - 754             |  |

| Segment SOUTHBOUND     | Severe Congestion                 | Applicable Mitigations   |
|------------------------|-----------------------------------|--|
| Sunset to Santa Monica | Mid - 204,754<br>PM - 204,754     |  |
| Santa Monica to Monroe | Mid - 754<br>PM - 204,754         |  |
| Monroe to Wilshire     | Mid - 754<br>PM - 204,754         | 1 - Bus Stop Location<br>2 - Dwell Time<br>5 - Transit Signal Priority |
| Wilshire to Adams      | Mid - 754<br>PM - 204,754         | 6 - Queue Jumps<br>7 - Curb Extensions                                 |
| Adama to Exposition    | AM - 754<br>Mid - 754<br>PM - 754 |  |
| Exposition to Slauson  | Mid - 754<br>PM - 754             |  |
| Slauson to 54th        | Mid - 754<br>PM - 754             | 1 - Bus Stop Location<br>2 - Dwell Time<br>4 – Peak Period Lanes       |
| 54th to Manchester     | AM - 754<br>Mid - 754<br>PM - 754 | 5 - Transit Signal Priority<br>7 - Curb Extensions                     |
| Manchester to 92nd     |                                   |  |
| 92nd to Green Line     |                                   |  |
| Green Line to 120th    |                                   |  |



# Next Steps



- Conduct detailed analysis of congestion “Hot Spots” on 5 severely congested corridors and identify specific solutions
- Consider systemwide application of specific strategies as part of NextGen Bus study
- Work with local communities to implement identified actions

*Thank You!*



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