Congestion Protection for Transit: Lessons from Europe and Application to MBTA Route 66

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Break the Vicious Cycle

- more people use cars
- congested streets
- slower transit
- congestion protection
Zurich: A Model of Congestion Protection

- 1970’s referenda: NO to a metro, YES to priority for trams and buses

- Astonishing success
  - Virtually no traffic delay for trams and buses
  - Legendary punctuality
  - 56% transit share for work trips
  - 550 annual transit trips per capita
  - Auto ownership at 50% of national level
A Combination of Strategies

1. Global strategies to reduce congestion
2. Physical congestion protection
3. A traffic signal control system suited to transit priority
4. Signal priority tactics
5. Continuous improvement
1. Global Strategies to Reduce Congestion

• Downtown parking freeze (1990)
• Intensive development allowed only at transit hubs
• Major investment in commuter rail (1992)
• Perimeter traffic metering
• And more ...

*If the streets are drowning in congestion, there isn’t much you can do besides build a metro*
*Excess road capacity makes transit priority easier*
2. Physical Congestion Protection

- Bus Lanes
- Protection from:
  - Illegally stopped /parked cars
  - Accidents with turning cars
  - Cars turning into long queues
2. Physical Congestion Protection

Buses in the Inside Lane

- Between-lane platforms (other option: weave right)
- Greater stop spacing (1/4 to 1/5 mile)
- Left-turn restrictions, protected bus phases
- Zurich: dual-direction lane
2. Physical Congestion Protection

Dublin: Tram Lanes together on One Side
2. Physical Congestion Protection

Remove Bus Stops from Hot Spots

- Don’t let stop be blocked by queue
- Let bus bypass right-turn congestion

For bus in mixed traffic, make the stops

FAR-SIDE or

MIDBLOCK
Partial Road Closures: Through transit, but not through traffic

Lane closure (Zurich)

crossing closure (Brussels)
2. Physical Congestion Protection

Contraflow Bus Lanes (Brussels)

self-enforcing … mostly
Bus Lane with Shared Intersection Approach (Brussels)
2. Physical Congestion Protection

Road / Lane Closure
“Vanishing Traffic”

• Zurich: Construction closure proved feasibility
  – Permit program for local access

• Travel demand has more flexibility than we think
3. A Traffic Signal Control System Suited to Transit Priority

- Home-made signal control programs
- Small coordination zones (1 to 3 intersections)
- Detectors and logic for actuation & queue management
- Outcome: system that is *responsive* and *interruptible*
4. Signal Priority Tactics

- Early green, green extension
- Phase insertion (6 s transit-only phase)
- Near-side stop: Turns light red so peds can cross to center platform!
- Meter traffic entering mixed traffic segment
5. Continual Improvement

• 3 full-time signal control programmers,
• Continual investment
MBTA Route 66 (Harvard - Dudley)

10 minute service

HOT SPOTS

N. Harvard @ Soldier’s Field Rd

N. Harvard & Cambridge St

Allston Village

Coolidge Corner

Huntington Ave along Mission Hill
Cambridge St./N Harvard St.
# Allston Village

<table>
<thead>
<tr>
<th>PARKING METERS</th>
<th>PRIVATE VEH LANE</th>
<th>RESERVED BUS LANE</th>
<th>PRIVATE VEH LANE</th>
<th>PARKING METERS</th>
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Allston Village - Harvard Ave/Brighton Ave
Allston Village – Harvard Ave/Comm. Ave
Coolidge Corner – Existing
Coolidge Corner – Option 1
Coolidge Corner – Option 2
Huntington Ave along Mission Hill