Integrated Public Transport Priority and Traffic Management

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• What is Integrated Public Transport Priority/Traffic management?
• Why is it important?
• How should it be planned and executed?
Integrated Public Transport Priority/Traffic Management?

- Combines PT and roadway infrastructure and operations management improvements with objective of increasing speed, reliability and safety for people using public and non-motorized transport

- Comprehensive, integrated program of complimentary improvements
  - Covers entire route/corridor or sub-area
  - Focus on facilitating movement of people
Traditional Public Transport Priority and Traffic Management

• Seen as two separate issues

• TM (e.g., traffic engineering, ITS), targeted at vehicular congestion at individual “problem” intersections or roadway segments

• PT priority, planning focused on bus-only lanes and perhaps signals

• For TM planning, PT operations (e.g., fare collection, number and locations of stops) secondary considerations at best

• Central planning objective most often minimising impact on general vehicle traffic, not reducing total all-mode passenger travel times
What’s Wrong with Traditional PT Priority Approach (Contd.)?

• Focus on bus lanes neglects significant delays caused by other than “running congestion,” especially where dedicated bus lanes or busways impossible

• General traffic management, public transport operations and/or passenger safety rarely planning emphasis areas

• Benefits of individual spot or segment improvements often too small to impact travel behaviour or bus operations
Public Transport “Priority” without Traffic Management Integration
Critical Ingredients for Success

• Identify and then work with a “champion”
• Do your technical homework to develop a win-win plan
• Make sure everyone (e.g., police, shop keepers, citizens) is aware of what’s being planned and contributes to its success
Do your Technical Homework

Integrated Public Transport Priority/Traffic Management Planning

- Evaluate Current, Near Term Future Problems
- Identify Public Transport Priority Infrastructure, Operations & Traffic Management Alternatives
- Evaluate Individual Alternatives, Package, Evaluate Packages
- Goal: Improve Efficiency, Effectiveness, Safety of Public Transport System

Decision
Begin With Data Collection: What’s The Problem We Are Trying To Solve?

- Delay and safety issues related to public transport first areas of inquiry, e.g., detailed travel time studies for corridor in question
  - Segment by segment, intersection by intersection
  - Public transport, general traffic
  - Peak periods
Route 38
Vanness to 33rd
Midday and PM

- Moving in Traffic: 49%
- Loading/Unloading: 23%
- Signal Delay: 16%
- Pull-out: 9%
- Other Delays: 3%
Other Useful Information

• PT and general traffic counts
  – Passenger vehicle volumes at critical points
  – Boarding/alighting counts by stop

• PT on-board survey
  – Travel patterns
    • Origins/destinations
    • Time of day
    • Trip purpose
  – System satisfaction

• Non-PT user surveys
  – Motorized vehicle, NMT users

• Accident survey: numbers/locations/causes
Identify a Reasonable Range of Public Transport Priority and Traffic Management Alternatives

- Public Transport running ways
  - Dedicated curb, shoulder bus lanes
  - Median, shoulder transitways
  - Bus-only expressway ramps, loops

- Improved PT Stops
  - Shelters
  - Real time passenger information
  - Maps, schedules
  - Better access/egress
  - Provisions for better access/egress by disabled
  - Lighting
Traffic Management Strategies

• Intersection channelization
• Traffic engineering
  – Signal programming and priority
  – Turn prohibitions (right and left)
  – Access control (parking lot and garage entrances)
  – One-way streets
  – Queue jumpers
  – Parking management
  – “Virtual” bus lanes
Virtual Bus Lane: Get Ahead of the Queue

- Pre-Signals
- Enforcement Camera
- Pre-Signals
- Main Signals

Use detectors to compare flows and adjust green time at pre-signals
London Queue Jumper/"Virtual Bus Lane"
No Left turns Across Transitway

Mexico City
Traffic Management Strategies

• Signage, markings
  – colored pavements
  – variable message signs
• Congestion pricing
• **Parking Management**
  – Bus lanes
  – Bus stops
Public Transport Service, Operating Plan Options

- Route re-alignment (all or partial)
- Combine routes (e.g., for through-routing)
- Split routes to improve reliability
- Add limited stop routes, expresses
- Move routes to other corridors
- Combine, split, move stops
- Off-board fare collection, just busy stops or system
- Dispatch “double headers”
Use Different PT Vehicles

- More, wider, doors
- Lower floor, fewer steps
- Different interior configuration
  - Fewer seats, wider aisles
- Match vehicle floor, stop platform heights
- Change propulsion system
  (higher acceleration, lower noise, emissions)
ITS for Public Transport

- Signal priority
- Automatic vehicle location
- Digital communications
- Smart cards
- Surveillance cameras, variable message signs
Improving Non-Motorized Travel

- Sidewalks, dedicated bikeways
- Raised zebra pedestrian crossings
- Pedestrian over/underpasses
- Protective traffic signals for pedestrians at bus stops
- Pedestrian, bike (and PT) - only zones
- Roadway fencing
- Bike parking
- Better lighting, sidewalks on PT access routes
Bike Access to Transmilenio

Transmilenio

Singapore
Evaluate, Package

- Evaluate singly, then package complimentary, feasible strategies into comprehensive PT Priority/Traffic Management Packages

- Cost-effectiveness, impacts are important

- Effectiveness criterion to use to is total passenger travel time, irrespective of mode
Key Words for Planning

• Integration (Public Transport Priority and Traffic Management)

• Comprehensive (Across entire route/corridor and journey)

• Complimentary (All elements produce more benefits together than sum of individual benefits)
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