Integrated Public Transport Priority/Traffic Management?

- Combines PT and roadway infrastructure and operational 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

- Targeted at individual “problem” intersections or roadway segments
- Focused on bus-only lanes or busways
- Traffic management (e.g., signal priority), PT operations (e.g., fare collection, number and locations of stops) secondary considerations at best
- Overwhelming planning objective most often minimising impact on general vehicle traffic, not reducing total all-mode passenger travel times

- What is Integrated Public Transport Priority/Traffic management?
  - Why?
  - How?
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 are planning emphasis areas
• Benefits of individual spot or segment improvements are often too small to impact travel behaviour or bus operations

Public Transport “Priority” without Traffic Management Integration

Jianguomen Da Jie, Beijing

London Quality Bus Corridors Case Study*

• A response to growing congestion, declining bus speeds and reliability and large and increasing public subsidies for PT operations
• Grew out of need to improve surface public transport system with more than traditional public transport priority measures
• Multi-agency partnership, PT, roads and traffic

*Adapted from Presentation by Peter Yendell
AECOM/Faber Maunsell
London’s New Approach

• Combined “whole route” and “whole journey” concepts into one integrated approach
  – Whole journey concept covers every aspect of all corridor travel, from all origins to all destinations
  – Whole route concept means that integrated PT priority/traffic management scheme covers entire geographic extent of corridor travel market

*Adapted from Presentation by Peter Yendell, AECOM/Faber-Maunsell

The “Whole Journey”

Typical London Route PT Trip

Developing the Whole Journey Concept
London's Bus Priority Philosophy

• “Bus Priority” given wherever physically and operationally possible, unless reasons can be provided for not doing so
  – Bus priority became the essential road system traffic management policy
  – Much more holistic than done previously

*Adapted from Presentation by Peter Yendell

Public Transport Priority Strategy

• Off Board Fare collection in congested CBD
• Articulated buses with more door streams per unit capacity than double deckers
• Some bus re-routing
• Better enforcement of bus lanes and stops

Basic Traffic Management Philosophy

• Recognize that over-all route quality dictated by weakest link
• Impacts on other vehicles should not restrain nature of scheme
• Create “virtual” bus lanes where traditional bus lanes cannot be provided

“Total Route Control”

• Dynamic signal control
• Queue management
• Traffic volume restraint
• Control of side road flows
• Removal of random effects - Zebra Crossings
• Complementary parking, loading and stopping, access (e.g., to parking lots) restrictions
Traffic Management Planning

- Identify all sections of route with potential for bus lanes in one, or both, directions
- Identify all sections of route where buses are delayed
- Relocate queues to sections where bus lanes can be installed
  - Use traffic signals to hold general traffic while buses "jump" past queue

Results: As Of 2003/2004

- Highest number of passengers since 1968
- Fastest rate of passenger growth since 1946
- 10.8% passenger growth in 2003/04 – an extra 140 million passenger trips
- 31.1% aggregate growth from 1999/00 to 2003/04

Results (Contd.)

- The first three quarters of 2003/04 showed a 19% increase in night bus passenger users compared to last year
- Best service quality since records began in 1977
- 17% more passengers per bus since 1999/2000
- Real evidence of mode shift
  - Car to bus (5%+)

Costs

- Initial demonstration corridor (Route 43), less than $10m US
- Bus company investments (driver recruitment and training, equipment etc)
  - Private sector funding unclear
- O/M subsidy
  - £88 million in 00/01 ($ 154 million)
  - £562 million in 03/04 ($ 983 million)
  - Reduction in fares + increase in trips
- Now largely financed by congestion pricing scheme
Extending Lessons of London, etc.

- Identify and then work with a “champion” (e.g., Ken Livingstone)
- 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

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

- Find out where PT is losing time
  - Detailed travel time studies for corridor in question
  - Segment by segment, intersection by intersection
  - Public transport, general traffic
  - Peak periods

Do your Technical Homework

Integrated Public Transport Priority/ Traffic Management Planning

Goal: Improve Efficiency, Effectiveness, Safety of Public Transport System

- Evaluate Current, Near Term, Future Problems
- Identify Public Transport Priority Infrastructure, Operations & Traffic Management Alternatives
- Evaluate Individual Alternatives, Package, Evaluate Packages
- Decision

San Francisco “Muni”: Route 38, Geary Street

PM Travel Times
Begin With Data Collection: What's The Problem We Are Trying To Solve?

- PT and general traffic counts
  - Passenger vehicle volumes at critical points
  - Boarding/.alighting counts by stop
- PT on-board survey
- Motorized vehicle user survey
- 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 shelters
  - Real time passenger information
  - Maps, schedules
  - 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
  - "virtual" bus lanes

Virtual Bus Lane: Get Ahead of the Queue

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

Houston

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"
Transmilenio Service Plan

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

Facilities for 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
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)