WHAT IS BRT?
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What is Bus Rapid Transit (BRT)?

A flexible, high performance rapid transit mode that combines a variety of physical, operating, and system elements into a permanently integrated system with a quality image and unique identity.

- Flexible design
- Flexible cost
- Fewer operating constraints than LRT
- Scalable
- Reliability
- Serves primary or secondary corridors
Elements of a BRT System

• BRT is tailored to each unique corridor

• BRT can be implemented incrementally
Existing/Planned U.S. BRT Systems

Based on NBRTI Survey (as of March 2011)
BRT Spectrum

**BRT – Lite**
Swift BRT - Everett

**Hybrid BRT**
Eugene EmX

**Full BRT**
Orange Line - LA

$1-4 \text{ M per mile}$

$4-12 \text{ M per mile}$

$12-28 \text{ M per mile}$
Elements of a BRT System

- BRT is tailored to each unique corridor
- BRT can be implemented incrementally
Stylish Vehicles

- Easy to board
- Customer friendly
- Environmentally compatible
Style of BRT Vehicle

- Rail-like vehicle styles available
  - New vehicles
  - Articulated and standard length
  - Roadway design restrictions
  - Available storage/ maintenance facilities
- Retrofit of existing/ conventional-style vehicles
  - Front cones
  - Wheel covers
- Composite bus structure
Examples of BRT Vehicles

- Eugene (OR) EmX
- Kansas City MAX
- Santa Clara (CA) Rapid
- Cleveland Silver Line
- York (ON) viva
- Las Vegas MAX
- Los Angeles Metro Rapid
- Los Angeles Orange Line
Boarding Enhancements

- Low-floor boarding/alighting
- Wider doors
- Doors on left side/both sides
- Precision docking

Optical precision docking

Low-floor boarding

Left-side doors
Running Ways

- BRT can operate in a wide variety of physical environments
  - On street
  - Bus lane
  - Busway
- Median, Offset lane or Curb lane
- Exclusive lane or Mixed traffic
- Parallel side running with freeway
- Guided or non-guided
- Contra-flow and reversible lanes (special safety with headlight glare and ped crossing)

Benefits
- Standard construction methods/costs
- Local contractors familiar with work
Las Vegas MAX
Exclusive Curb Lane

Mostly exclusive BRT curb lane - but also used as driveway access to Businesses - “BAT” Lane
BRT mixed traffic
Leeds Superbus – Curb guided
Rapid Transit to Operating in Existing Roadway
Bi-Directional Lane - Eugene, Oregon
Contra-flow running way

A single bi-directional lane may perform with better headways than that of two mixed traffic running ways.
Bi-Directional Curb-Side Bus Lane - Against Traffic
Bus/Transitway on Freeway ROW

Shoulder Brisbane: SE Busway

Cambridgeshire, England

Median Houston Transitway
BRT Stations

- Attractive and Safe
- Lighting
- Customer information
- ITS

- Off bus fare collection
- Level boarding
- Artwork

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BRT Station Characteristics

- 1/4- to 1 mile typical station spacing
- Permanent, substantial, and protected from weather
- Passenger amenities
- Passenger information
- Good pedestrian, local bus, and auto access
- Safe and secure
- Convey identity and image
- Design integrated with surroundings
Station Accessibility
Examples of U.S. BRT Stations

- Boston Silver Line
- Kansas City MAX
- York (ON) viva
- Pittsburgh MLK Busway Extension
- Cleveland Health Line
- Los Angeles Orange Line
- Las Vegas MAX
- Orlando LYMMO
- Los Angeles Metro Rapid
Added Station Amenities

- Enhanced shelter
- Enhanced lighting
- Seating
- Vending
- Telephone
- CCTV cameras
- Emergency call box
- Real-time information
- Static information
- Public art
- Ticket vending machines
- Level boarding
- Route signage
- Bike racks
- Kiosks
- Solar power?
Examples of Fare Collection Systems

Las Vegas MAX
Ticket vending machine
Smart card and reader
Barrier system
Smart card and reader
Intelligent Transportation Systems (ITS) Technologies

- Automated vehicle location (AVL)
- Real-time passenger information system
- Transit signal priority
- Safety and security system
- Communications
- Vehicle guidance and control
Examples of ITS - Passenger Information

Los Angeles Rapid

York (ON) viva

Station sign

Vancouver B-Line

On-board passenger information

What is BRT?

Real Time Station Information
Examples of Transit Preferential Treatments - TSP

- **Curb extension**: Widened sidewalk at BRT station means bus does not have to wait to merge back into travel lane to leave station.

- **Queue jump**: BRT uses special lane to bypass stopped cars.

- **Transit signal priority**: Approaching BRT vehicle may get a green light if it is behind schedule.
Branding

- "Branding" is conveying a recognizable, consistent, and unique system identity and image
- **Vehicles** - branded using design, color, graphics, and signage
- **Stations** - branded using design, colors, graphics, signage, and materials
- **Running ways** - branded using barriers, pavement markings/materials/colors, graphics, signage, and landscaping
Branding: Consistent, Unique Graphics

Brisbane SE Busway

Swift BRT – Community Transit, Everett WA
Branding the Vehicle

- System-wide, recognizable logo
- Color scheme
- Wrap advertising?

- Larger windows and enhanced lighting
  - Real and perceived security

- Enhanced interior amenities
  - Comfort
  - Perceived cleanliness
  - Perceived security

Aesthetic Enhancements

Vehicle branding example

On-board transit TV

Branded seating

Vehicle branding example
BRT Service Plans

- **Base**: all-day, local all-stop trunk line
- **Peak-only or all-day integrated services**
- **All-day, frequent service**
  - Service every 10 minutes
  - No schedule needed
- **Simple route structure**
  - Direct
  - Easy to understand
• Take advantage of BRT flexibility.
• Visualizations are critical.
• Need both sizzle and substance.
• Sum is greater than the individual parts.
• If can get exclusive right-of-way, grab it.
• “Plagiarism” is good
• Capital costing – early and often
• Ridership only mildly affected by Station consolidations
• Do not oversell BRT