

National Bus Rapid Transit Institute

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Bus Rapid Transit Stations and Shelters

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BRT Shelters

- Should be provided at every station and stop
- Differentiated from regular bus stops
 - convey identity and image
- Enhanced shelters and/or transit center design
 - integrated with surroundings
- Sense of permanence
- Joint-development/multi-use – TOD supportive
- Designated passenger “platform”, possibly raised
 - facilitate boarding and make boarding rapid



Ottawa

BRT Shelters

- Precision docking
- Should extend the full length of the platform
- Provide protection from the elements (rain, sun, snow)
- Materials
 - Durable
 - Easy to maintain
 - Vandal resistant
 - Readily available



AC Transit - Oakland

Station Location and Spacing

- Should be far apart as compared to conventional bus service
- Will vary dependent upon the type of running way, development density, and mode of arrival
- Should be key to major passenger concentrations
 - Business districts, employment areas, universities, recreational centers

Running Way Types and Station Spacing

	Distance (in feet)
Freeways and Busways	2,000 to 21,000 feet
Arterial Streets	1,000 to over 4,000 feet (Cleveland and Vancouver)

Typical BRT Station Spacing by Arrival Mode

Main Arrival Mode	Spacing (Miles)
Pedestrians	0.25 – 0.33
Bus	0.5 – 1.0
Automobile	2.0

Passenger Amenities

- Signage and Graphics
 - Station identification signage
 - Transit route maps
 - Local neighborhood maps
 - Be distinguishable from conventional bus service
 - Tactile signage and audible information may also be used
- ITS Displays and Passenger Information
 - Real-time, variable message signs providing “next bus” and systemwide schedule delay information



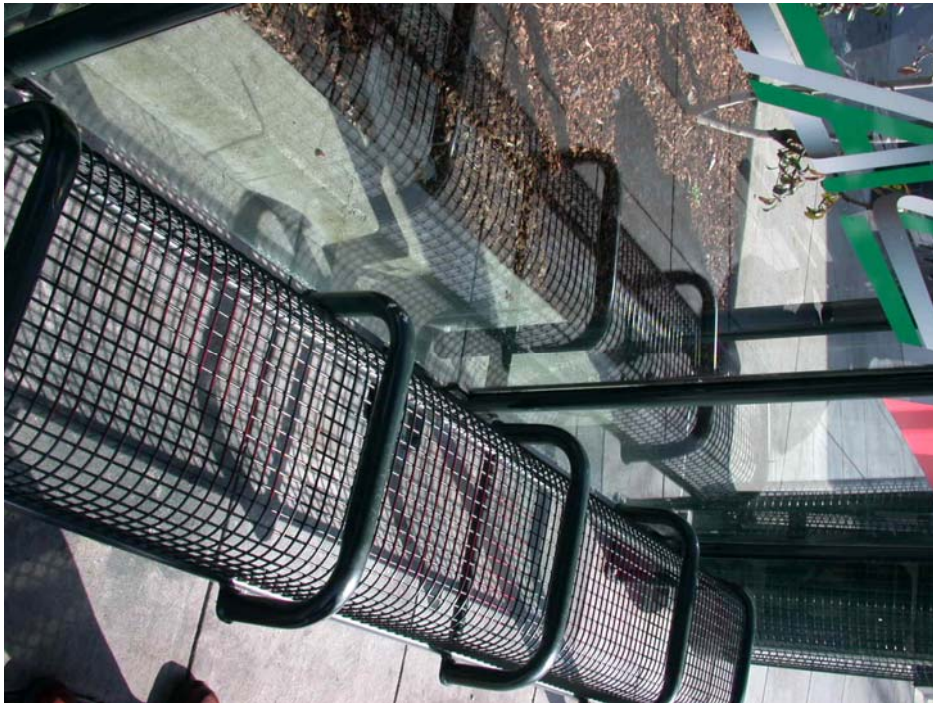


Vancouver

Passenger Amenities

- Street Furniture
 - Seating and/or leaning rails
 - Trash receptacles
- Other amenities
 - Bicycle racks
 - Newspaper vending equipment
 - Public telephones
- Other amenities (larger stations)
 - Restrooms
 - Drinking fountains
 - ATMs
 - Convenience stores
 - Newsstands





AC Transit – Oakland



Vancouver

Fare Collection

- Controlled Access
 - *Free* and *Paid* areas
 - Turnstiles, other control devices
 - Common in grade-separated BRT systems
- Proof of Payment
 - Passengers purchase fare beforehand and carry a pass or receipt





Ticket Vending Machine – Las Vegas

Safety and Security

- Visibility
 - Passengers should be able to see their surroundings
 - Passengers should be seen
 - Unobstructed views to the street or public way
 - Landscaping should not obstruct a passengers view
 - Ample lighting is essential
 - Security equipment
 - Closed-circuit television monitoring
 - Emergency call boxes





Security Monitoring - Ottawa

Illumination

- Adequate lighting is essential for attractiveness, safety, and security of BRT stations
- Planned in coordination with adjacent, exterior public places
- Lighting should be vandal resistant
- Open platforms
 - In the range of 5 footcandles
- Areas beneath canopies
 - 10 to 15 footcandles



Miami, FL

Operational Planning Issues

- Platform requirements
 - Most BRT stations have low platforms
 - Low-floor vehicles
 - Some systems have high platforms
 - Quito, Curitiba
- Bypass Capabilities
 - Express buses must be able to bypass buses dwelling in stations

Platforms

- Side Platforms
 - Compatible with conventional bus door configurations
 - Tandem (opposite each other)
 - Dedicated busways with grade-separated pedestrian crossings
 - Staggered
 - At-grade busways, median arterial busways, and in most curbside operations
- Center Platforms
 - Most efficient, but rare with BRT
 - Require contra flow operations with conventional buses or nonstandard door configurations

Platforms

- Vehicle-based precision docking systems
 - Two kinds of precision docking
 - Optical guided steering (Las Vegas, Rouen)
 - Mechanically guided systems (Adelaide and Essen)
 - Accurately steer the vehicle into alignment with the platform
 - Assists in faster boarding and shorter dwell time



Las Vegas MAX



Precision Docking Testing Site - San Diego

Curitiba, Brazil



Brisbane, Australia



Ottawa



Los Angeles, CA



MAX BRT, Vegas – Station Construction



Small scale stations are used in Vancouver & Leeds



Vancouver



Leeds

Boston, MA



LYNX Lymmo – Orlando, FL



Miami Busway



Rapid Bus - Oakland



Rouen, France

