Proposed Corridors

Following is a list of BRT corridors proposed by RT. During regional planning efforts currently underway other BRT corridors may be identified. Please contact RT for updates.

- Florin Road
- Stockton Boulevard
- Sunrise Boulevard
- Watt Avenue/Elk Grove Florin Road

For more information about BRT, please contact:

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Regional Transit

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Regional Transit

Definitions, Goals & Design Guidelines for Bus Rapid Transit in the Sacramento Area

Adopted by Sacramento Regional Transit Board of Directors on November 14, 2005

Introduction

Over the last few years, Bus Rapid Transit (BRT) has become an emerging mode of transportation. It has found success in various cities in the world and in a number of cities in our nation. For example, Los Angeles opened their Orange BRT Line in the San Fernando Valley on November 1, 2005. The Orange Line experienced 11,000 riders on its first day of service. This is considerably higher than the 5,000 to 7,000 riders per day that were projected.

BRT has been identified as a high capacity mode of transit that can be built for a much less cost than light rail transit. In January 2004, Sacramento Regional Transit (RT) began the first phase of what might eventually become a BRT service along Stockton Boulevard (the Stockton *50-E Bus*). The *50-E* features traffic *signal priority**, *queue jumps* and *limited stop service*. On the back page of this brochure is a list of proposed corridors that have been designated for BRT by RT.

During discussions about BRT, it was found that there was an inconsistent understanding of what BRT is – ranging from a bus service that skips a few stops to service that operates in exclusive lanes with distinctive vehicles and stations. In November 2004, RT assembled a task force to develop standards for BRT service in the Sacramento area. The BRT Task Force consisted of members of the general public, disabled community, college district administration, businesses, transportation agencies and planning departments in the region (specific members are listed on the right). Their mission was to develop definitions, goals and design guidelines for transportation planners to use to help develop BRT in the Sacramento region. The product developed by the BRT Task Force and adopted by RT's Board of Directors is on pages 4 and 5.

** Terms in italics are defined in the Glossary on Page 3.*

BRT Task Force

Jim Brown	Sacramento Area Council of Governments
Gabriel Corley	Caltrans District 3 Office of Regional & Transit Planning
Warren Cushman	Californians for Disability Rights
Don Dean	Caltrans Research
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Tom Garcia	City of Folsom
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Wayne A. Lewis	CalTrans District 3 Deputy District Director
Tim Murphy	General Corp. Sacramento Metropolitan Chamber of Commerce
Erik Reitz	Yolo County Transportation District
Jon Sharpe	Los Rios Community College District Vice Chancellor of Finance & Administration
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ELEMENT	CRITERIA	Local Bus	Express Bus	E-Bus	BRT
Special Identification	Vehicles have special color branding & appearance			X	X
	Stations have special color & appearance, are specially signed, illuminated, with amenities			X	X
Running Ways Vehicles	Over 50% of the route is grade-separated exclusive lanes (transitway)				X
	At-grade designated transit lanes/High Occupancy Vehicle (HOV) lanes		X	X	X
	Mixed flow lanes with queue jumps at intersections	X	X	X	
	Lane-assist and precision-docking guidance technology				X
	Specialized BRT vehicles (40-foot, 60-foot, or 80-foot)				X
	Stylized or specially upgraded buses (40-foot or 60-foot)		X	X	X
	Conventional 40-foot buses, may include Neighborhood Ride Buses	X			
Fare Collection	Pay on-board or show pass/transfer to the operator	X	X	X	X
	Possess proof-of-payment, display on demand of inspector			X	X
FOR THE ROUTE, SUM UP THE NUMBER OF (X's) IN EACH COLUMN AND DIVIDE BY THE FACTOR SHOWN (PLACE ANSWER BELOW AS A PERCENTAGE)		÷ 9	÷ 10	÷ 15	÷ 17
RESULTANT PROPORTION OF EACH BUS SERVICE TYPE REPRESENTED					

Example

If a bus service has:

- Less than 25% of its stations spaced greater than 1/2 mile apart;
- Average headway of 30 minutes;
- The route has major direction changes;
- No or few traffic signal priority intersections;
- Buses do not have real time passenger information;
- Buses operate in mixed flow lanes;
- Buses are conventional 40-foot buses; and
- Passengers pay on-board or show pass to operator.

Eight check marks may be made in the Local Bus column, three in the Express Bus Column and zero in the Enhanced Bus and BRT columns. Using the formulas, the bus service is 78% like a Local Bus (7÷9); 30% like an Express Bus and 0% like Enhanced Bus or BRT.

Appendix A: Evaluation Criteria

The evaluation criteria counts the elements used to define a particular service. Criteria includes: stations/stops, service and operating plan, ITS, special branding identification, running ways, vehicles and fare collection. The table below may be used to compare existing or proposed bus service with the elements and criteria listed.

If the service being evaluated has one of the elements or criteria listed below, an (X) may be placed in the appropriate column. By totaling the responses (X's) and comparing them to the total elements and criteria typically found in that service, the type of service provided may be identified. Follow the directions at the end of the table to determine what the service is most like. It may be concluded that the bus service is most like the one with the closest percentage to 100.

ELEMENT	CRITERIA	Local Bus	Express Bus	E-Bus	BRT
Stations	More than 75% of stations spaced greater than 1/2 mile apart				X
	Between 25-75% of stations spaced greater than 1/2 mile apart		X	X	
	Less than 25% of stops spaced greater than 1/2 mile apart	X			
	Station platform height allows level entry into vehicles			X	X
Service & Operating Plan	Average headway 15 minutes or less			X	X
	Average headway 20 minutes or more	X			
	Average headway Peak Hour Service only	X	X		
	Straight-line route with few bends or direction changes			X	X
	Generally straight-line route, some bends and loops		X		
	Major direction changes, bends, neighborhood loops	X			
Intelligent Transportation Systems (ITS)	Coordinated traffic signal timing for transit service			X	X
	More than 75% of route has traffic signal priority				X
	Between 25-75% of route has traffic signal priority			X	
	Less than 25% of route has traffic signal priority	X	X		
	More than 75% of stations have real-time passenger information				X
	Some stations have real time passenger information		X	X	
	Buses have real-time passenger information	X	X	X	X

What is BRT?

BRT allows buses to travel faster ideally in separate rights of way, but can be in mixed flow of traffic by utilizing the following features:

- Stations spaced 1/2 to 1 mile apart
- Elevated platforms to allow fast and easy boarding
- Specialized buses
- Fast fare collection
- *Intelligent Transportation System (ITS)* such as traffic signal priority
- Queue jumps

These elements result in decreased travel time, increased reliability, improved identity and image, improved safety and security and increased capacity.

Why do we need to "define" BRT?

Because of the wide-range of options that can potentially speed up bus service, defining BRT is an industry-wide problem. It is necessary to define it because funding can be contingent on the definitions of a particular service. A lot of focus has been given to this on a national level as it applies to federal funding (SAFETEA-LU: Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, 2005). For example, one of the defining factors being considered on a federal level is that at least 50 percent of the service must be in an exclusive lane to be considered BRT. While developing RT's definitions, goals and design guidelines, the BRT Task Force tried to be consistent with the national trends. A provision also included the ability to amend RT's guidelines with any new national guidance.

Design guidelines are also needed to provide consistency of application and to inform developers as to RT's expectations pertaining to right-of-way for dedicated lanes and station areas.

Glossary

fixed-route service: A bus route that does not deviate from its route.

grade separation: When a lane (or rail track) separates from the road to cross over/under a street or other obstacle.

Intelligent Transportation System (ITS): The use of technology such as traffic signal timing, signal priority or real-time information to make transit more efficient or effective.

limited stop service: When a route is designed to not stop at every bus stop at which a local route would normally stop.

queue jumps: The bus sends an electronic message to the traffic signal giving the crossing lanes a yellow, then red light. The right hand turn lane receives a green light allowing the traffic to make their right turn. This clears the right hand lane allowing the bus to use it to bypass traffic.

signal priority: The bus sends an electronic message to the approaching traffic signal telling it to either extend the green light or give the crossing lanes a yellow, then red light. Crossing times for pedestrians are affected but pedestrians still have adequate time to cross the street.

Definitions

Definitions have been created for Regional Transit's family of *fixed-route* bus service. Definitions have been included for: Local Bus, Express (commuter) Bus, Enhanced Bus (*E-Bus*) and BRT. These definitions identify the characteristics of the particular service. In some cases the elements used to define the service may overlap with different services. In order to help make a determination between the service types, evaluation criteria have also been developed (please see Appendix A on pages 6 and 7).

Local Bus:

Bus service that picks up and discharges passengers at frequent, designated places (stops) that are on public thoroughfares (mixed flow traffic). Passengers pay on-board or display passes/transfers to the operator. This service operates at low average route speeds (6-11 miles per hour).

Express (Commuter) Bus:

Bus service similar to local bus service at the beginning and end of the route, often-using expressways or freeways for part of the trip. Usually operates during peak travel periods and in peak directions. Passengers pay on-board or display passes/transfers to the operator. This service operates with a higher average route speed than local bus service.

Enhanced Bus (E-Bus):

Bus service with easily identified vehicles and stations. Operates with frequent headways (15-minute service). Station spacing is typically 1/2 to 1 mile apart along major corridors. Includes some traffic signal priority. Amenities (e.g. headways, station spacing and design, right-of-way, use of passenger information technologies, fare-collection method) fall short of Bus Rapid Transit. This service typically operates faster than local bus service, but slower than Bus Rapid Transit.

Bus Rapid Transit (BRT):

Premium bus service with large easily identified vehicles in conjunction with high platform stations that allow rapid boarding capability. Operates with frequent headways (15 minutes or less). Station spacing typically 1/2 to 1 mile apart along major corridors. BRT service employs simple routing schemes, with a significant amount of traffic signal priority at roadway intersections along the corridor, and may incorporate exclusive or specially designed rights-of-way. Passenger information technologies are incorporated into vehicles and stations. Passengers carry a valid ticket/pass subject to random inspection. This service achieves high average route speeds (20 miles per hour or greater off-peak, 15 miles per hour or greater during peak periods).

Goals

The following goals are recommended to be adopted by local jurisdictions within appropriate policy documents. Current and long-range planning documents and efforts to support Bus Rapid Transit shall:

Goal 1: Recognize the value of high capacity transit as a means of reducing air pollution, traffic congestion and providing mobility for residents and visitors in the region;

Goal 2: Work closely with Regional Transit to provide an integrated long-range transit vision for transit application in the region. This includes setting aside right-of-way and infrastructure for public transit;

Goal 3: Recognize the full range of bus service available including, but not limited to Local Bus, Express Bus, Enhanced Bus and BRT. Any of these modes may be used as an interim service until the long-range transit vision is attained; and

Goal 4: Incorporate amenities to speed service including traffic signal priorities, queue jump and ITS.

Enhanced Bus and BRT Design Guidelines

The following design guidelines were developed to assist local planners, developers and Regional Transit staff when evaluating development projects (please refer to the list of proposed BRT corridors on the back page):

1. Stations should be 1/2 to 1 mile apart, unless increased speed and/or higher ridership justifies closer placement (e.g. near town centers, industrial parks and airports). Enhanced Bus and BRT stops/stations shall be incorporated into development projects where appropriate. Pedestrian access to the stops/stations should be maximized; lighting, covered walkways and shelters should be provided. Stations and shelter design shall be coordinated with RT staff.
2. Where appropriate, park and ride facilities should be provided in close proximity to significant stops/stations. Shared or joint use parking should be encouraged.
3. The impacts of cross traffic in relationship to transit should be minimized using *grade separations*, queue jumps and signal preemption.
4. Each station should have good access for other modes of travel including autos, pedestrians, bicycles, electric vehicles, buses and shuttles.
5. The design standard for right-of-way for BRT travel lanes shall be a minimum of 12.5 feet for each travel lane or 25 feet for two lanes. Right-of-way width for two-travel lanes and station area shall be 40 feet with a length of 200 feet. The 40-foot width would accommodate two 12.5-foot wide lanes and a 15-foot wide station.
6. ITS shall be incorporated as it becomes feasible to do so.
7. RT, City and County staff shall work together to maximize traffic signal timing, traffic signal priority, queue jumps and other measures to move transit vehicles through corridors at greater speeds.
8. Off-board fare collection shall be implemented where possible.