

**Metro**Los Angeles County
Metropolitan Transportation AuthorityOne Gateway Plaza
Los Angeles, CA 90012-2952213.922.2000 Tel
metro.net**PLANNING AND PROGRAMMING COMMITTEE
MAY 16, 2012****SUBJECT: PERSONAL RAPID TRANSIT****ACTION: RECEIVE AND FILE****RECOMMENDATION**

Receive and file this report on the comparison of Personal Rapid Transit (PRT) to other modes considered for the Airport Metro Connector project.

ISSUE

The April Planning and Programming Committee approved the recommendation to rename the Metro Green Line to LAX to the Airport Metro Connector and received the Alternatives Analysis (AA) for the Metro Green Line to LAX and the Build alternatives that were recommended to move forward into the environmental analysis. The Build alternatives include: Direct Light Rail Transit (LRT) Branch, Modified LRT Trunk, Circulator Automated People Mover (APM), and Circulator Bus Rapid Transit (BRT) and were based on the evaluation conducted as part of the AA study and consultation with the Los Angeles World Airports (LAWA). Public comment received at the Committee requested that PRT be considered as a modal option. The Committee requested that a report be presented at their May meeting comparing PRT to the other modes being moved forward into the Draft Environmental Impact Statement/Report (DEIS/R).

DISCUSSION

At the beginning of the AA phase, our evaluation included service-proven transit technologies such as LRT, BRT and APM that have been implemented at other airports around the country. There are several technologies that could be classified as an APM that have different operating characteristics and passenger capacities. One such technology is the PRT system, sometimes called "podcars". What differentiates PRT from standard APM service is that PRT is designed to offer direct, point-to-point travel with no intermediate stops with an emphasis on on-demand, rather than regularly scheduled service. Likened to an automated taxi or horizontal elevator, PRT systems typically involve smaller vehicles that carry up to six or eight passengers per vehicle and may be well suited to situations where demand is not concentrated.

PRT Systems

We identified three PRT systems currently operating in the world, two of which just began operation in the last two years. Built in 1975, the 8.6 mile West Virginia University PRT system circulates passengers across the widely dispersed campus and to downtown Morgantown. The other two systems recently opened for service in Masdar City, Abu Dhabi, United Arab Emirates (November 2010) and for parking garage circulation at Heathrow Airport in London, England (September 2011). Currently, these two recently implemented systems have only a few stations and effectively operate as a low-capacity, on-demand APM system. As these systems have not expanded to serve more stations, the value of point-to-point service with PRT is not yet evident. A summary of these three systems is provided in Attachment A.

The amount of data available to support rigorous transit planning efforts, as is required for developing a regional transit connection to LAX, is still very limited. Key factors for evaluation are capital and operating costs, vehicle and guideway specifications, operating characteristics, maintenance facility requirements, and capacity and operating speeds. In June 2011, we met with ULTra, the company that developed the Heathrow PRT system, to gather information and to discuss what data were available to support evaluation during the AA. We were able to obtain some information from the Heathrow project given that it began operation later that year in September, but much of the data on modern systems are still preliminary with some information proprietary.

One of the key objectives for the Airport Metro Connector project is to provide a reliable, fast, and convenient connection for passengers traveling between LAX and the regional rail network. Because passenger capacity requirements for the Airport Metro Connector may be as high as several thousand passengers per hour, the estimated capacity of the PRT systems (as they are being developed now) may be insufficient to meet the travel demand anticipated. A comparison of operating characteristics, including passenger capacity, among transit modes is provided in Attachment B.

Initial Assessment

With the technical data currently available, PRT (as a lower capacity, on-demand version of APM) has limited applicability for connecting the regional transit system and LAX, the primary market under study for the Airport Metro Connector. PRT may be suitable for smaller travel markets such as connecting a variety of dispersed businesses (i.e. hotels, rental car facilities, parking lots, and office buildings) to the regional transportation system.

NEXT STEPS

We will begin the Draft EIS/R process including conducting scoping meetings this Spring and will continue our coordination with LAWA. It is anticipated that we will return to the Board in Spring/Summer 2013 for selection of the project's Locally Preferred Alternative. During the environmental process, we will provide updates to the Board at key project milestones.

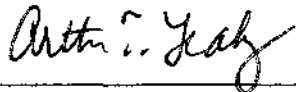
ATTACHMENTS

- A. Personal Rapid Transit Systems in Operation
- B. Comparison of Personal Rapid Transit and Other Transit Modes

Prepared by: Cory Zelmer, Transportation Planning Manager
Roderick Diaz, Director
Renee Berlin, Executive Officer



Martha Welborne, FAIA
Executive Director, Countywide Planning &
Development



Arthur T. Leahy
Chief Executive Officer

ATTACHMENT A

Personal Rapid Transit Systems in Operation

System	Location	Vendor	Date of Opening of Service	System Length & Number of Stations	Seating Capacity	Operating Context
Morgantown PRT	Morgantown, West Virginia	Boeing (no longer in the market)	1975	8.6 miles 5 stations	8 (+ 12 standing)	Circulation on campus and to downtown
Masdar PRT	Masdar City, Abu Dhabi, United Arab Emirates	2getthere	November 2010	1 mile 2 stations	4 to 6	Circulation in master planned city and university
Heathrow Pods	London, England	ULTra	September 2011	2.4 miles 3 stations	4	Between an airport terminal and a parking garage

ATTACHMENT B

Comparison of Personal Rapid Transit and Other Transit Modes

Transit Mode	Maximum Capacity			Operating Environment			Status of Technology (Number of operating systems around the world)
	Passengers per Vehicle	Passengers per Train	Passengers per Hour per Direction*	Operating Speed	Alignments	Typical Markets	
Light Rail Transit	76	228	5,472	Up to 65mph, less with frequent stations	Aerial, At-Grade or Below Grade	Concentrated Demand	Widely Used (Hundreds of operating systems)
Automated People Mover (non-PRT forms)	39	117	2,808	Up to 50 mph, less with frequent stations	Aerial or Below Grade	Concentrated Demand	Widely Used (Over 130 operating systems)
Bus Rapid Transit	55 - 74	55 - 74	1,650 – 2,220**	Up to 65 mph, less with frequent stations	Aerial, At-Grade or Below Grade	Any Market (both Dispersed and Concentrated)	Widely Used (Hundreds of operating systems)
Personal Rapid Transit (a lower-capacity, on-demand version of APM)	6	6	720	Up to 25 mph	Aerial or Below Grade	Dispersed Demand	3 operating systems in service

*Capacity assumes frequencies of:

- One train every 2 ½ minutes for Light Rail Transit and Automated People Mover
- One bus every minute for Bus Rapid Transit
- One pod every 30 seconds for Personal Rapid Transit

** Bus system capacity varies by the size of the bus

Personal Rapid Transit

Planning and Programming Committee

May 16, 2012



Metro

Characteristics of Personal Rapid Transit (PRT)

- Direct, point-to-point service
- No intermediate station stops
- Smaller vehicles (up to 8 passengers)
- Requires more stations for direct service



Metro

Heathrow Pod System
Source: ultraglobalprt.com

PRT Systems in Operation

System	Location	Vendor	Date of Opening of Service	System Length & Number of Stations	Seating Capacity	Operating Context
Morgantown PRT	Morgantown, West Virginia	Boeing (no longer in the market)	1975	8.6 miles 5 stations	8 (+ 12 standing)	Circulation on campus and to downtown
Masdar PRT	Masdar City, Abu Dhabi, United Arab Emirates	2gether	November 2010	1 mile 2 stations	4 to 6	Circulation in master planned city and university
Heathrow Pods	London, England	ULTra	September 2011	2.4 miles 3 stations	4	Between an airport terminal and a parking garage

Comparison of PRT and Other Transit Modes

Transit Mode	Maximum Capacity		Operating Environment		Status of Technology
	Passengers per Hour per Direction*	Maximum Operating Speed*** (mph)	Typical Markets		
Light Rail Transit	5,472	65	Concentrated Demand		>200
Automated People Mover (non-PRT forms)	2,808	50	Concentrated Demand		>100
Bus Rapid Transit	2,220**	65	Any Market (both Dispersed and Concentrated)		>200
Personal Rapid Transit (a lower-capacity, on-demand version of APM)	720	25	Dispersed Demand		3

*Capacity assumes frequencies of:

- One train every 2 ½ minutes for Light Rail Transit and Automated People Mover
- One bus every minute for Bus Rapid Transit
- One pod every 30 seconds for Personal Rapid Transit

** Bus system capacity varies by the size of the bus

*** Actual operating speed varies depending on station spacing

