



MEMO

August 26, 2009

To: Director Curt Pringle
From: Will Kempton, Chief Executive Officer
Subject: **Overlay Graph of Planned Bravo! Service Lines**

At the August 5, 2009, Executive Committee meeting, you requested an overlay graph of planned and proposed Bravo! service lines.

Attached is a map showing the three Bravo! bus rapid transit (BRT) lines the Orange County Transportation Authority (OCTA) is planning to deploy next year. Also illustrated on the map, in dashed lines, are five studied routes that would form the balance of the BRT network in Orange County.

Added to the map are the proposed station stops for the three initial routes as well as the many destinations that would be served. The future Anaheim Regional Transportation Intermodal Center would be served by Line 557 in December 2010, with additional BRT service provided along Katella Avenue in the future.

With respect to service design, BRT fits between local bus and express bus in terms of speed and capacity. It is designed to attract those riders traveling longer distances than the average local bus rider. BRT is not designed to compete with express bus which typically offers even longer distance, point-to-point travel, much of which is continuous without any stops along freeways and in some cases, taking advantage of high-occupancy-vehicle (HOV) lanes. The average trip length for local bus riders is a little over four miles in Orange County, while the average trip length for passengers traveling on express bus is closer to 12 miles. BRT riders will probably travel an average distance between the two values.

The transit industry considers BRT to be a flexible mode that can be readily adapted to local community needs and roadway constraints. The Federal Transit Administration (FTA) supports BRT service as a versatile tool that can achieve some of the benefits of more expensive modes, such as light rail, by incorporating similar attributes such as limited stops (compared to local bus), distinctive vehicles, distinctive station stops, and Intelligent Transportation System (ITS) traffic control elements that enable BRT buses to operate with less time spent waiting at intersections. The FTA also agrees that BRT installation can be incremental; this accommodates circumstances when

funding may not be available upfront for all planned components of a BRT network.

While dedicated right-of-way offers the best opportunity to achieve performance close to light rail, the FTA realizes that operation in mixed-flow traffic may be the only option available in some communities. Coupled with some of the attributes described above, mixed-flow BRT can offer significant improvement in travel time compared to traditional local bus service.

Additionally, with installation in mixed-flow traffic, it is expected and desirable to have a significant number of existing local bus riders use the BRT service, particularly those traveling farther than the average local bus passenger. With the grid system that exists in the Orange County central core, it is essential that BRT stops be made at major connection points with other bus routes since riders must transfer to intersecting services in most cases to complete their trip.

Generating high ridership is an important goal for BRT projects. The FTA believes BRT trips are generated through a number of sources, including existing riders that divert from other transit services; new passengers not currently utilizing local bus service; and trips previously made by other modes such as walking, bicycling, carpooling, and driving alone.

OCTA's first planned BRT route, Line 543, is designed with 21 station stops in each direction, spaced an average of about 1.2 miles apart. This spacing compares well with other projects in operation such as the Los Angeles County Metropolitan Transportation Authority's Wilshire Boulevard Rapid Bus and Toronto's York Region Transit VIVA BRT; both systems space stops about .7 miles apart. BRT stop spacing varies widely from project to project. The FTA reports other BRT projects where stations are spaced from .2 miles to 1.5 miles apart.

The table below illustrates the projected impact on Bravo! ridership if station stops for Line 543 are reduced from the planned 21 locations to 12 and then seven locations. The impact on ridership and associated performance indicators is significant while the improvement in travel time from terminal to terminal is less compelling.

Number of Stops (One-way)	Estimated Daily Boardings	Estimated Productivity (B/RVH) *	Estimated Cost Per Boarding *	Estimated Average One-Way Travel Time Savings (Cal State Fullerton to Newport Beach Pier over 22 Miles) **
21	9,000	45-60	\$1.40-\$1.90	-
12	4,900	24-33	\$2.60-\$3.50	6 Minutes
7	2,900	15-19	\$4.40-\$5.50	10 Minutes

* Variation due to estimated range in boardings/revenue vehicle hour (B/RVH) and costs.

** Estimated travel time savings is based on an average boarding time between 30 and 45 seconds at station stops.

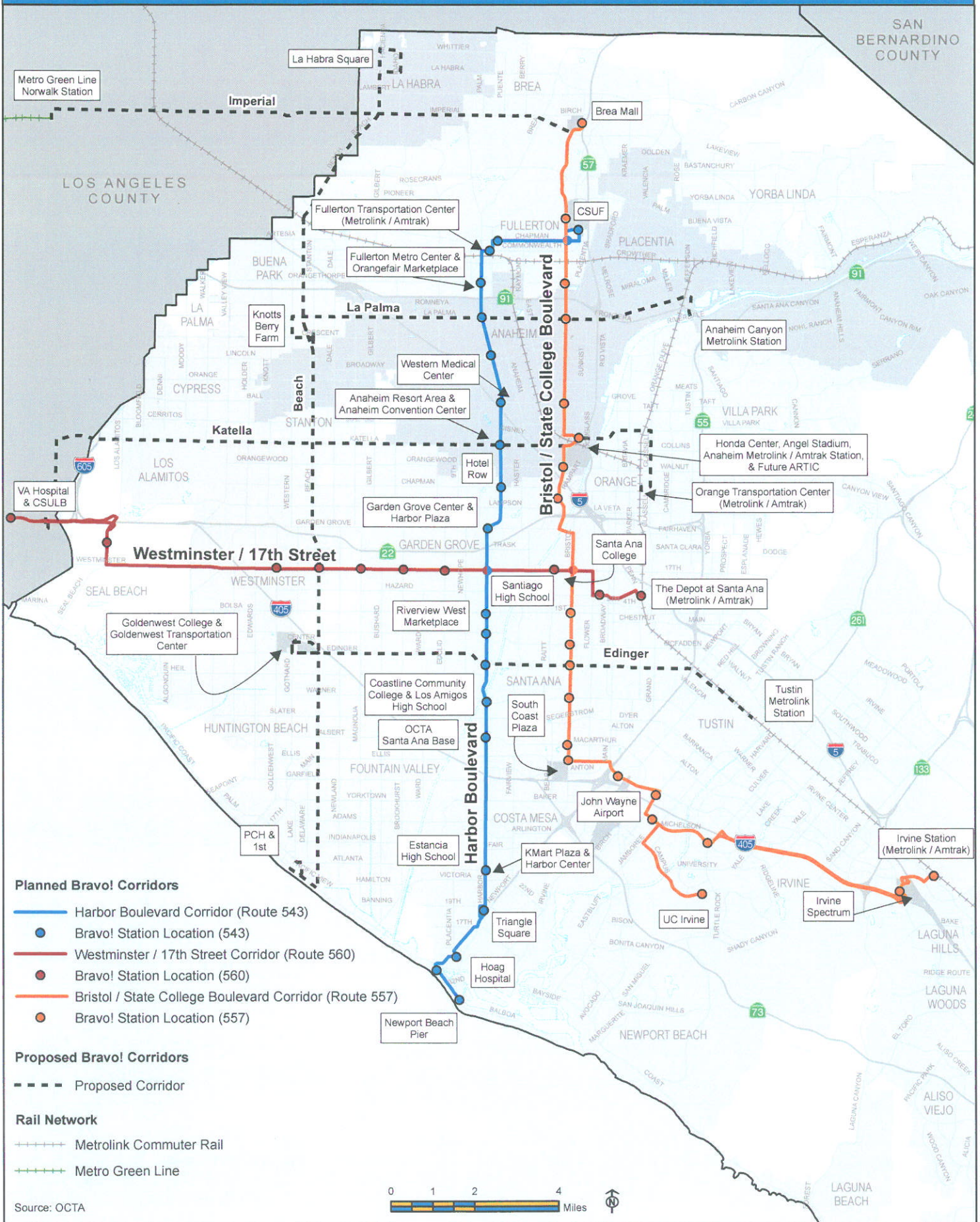
Finally, the new Line 543 Bravo! service will offer a very attractive alternative to local bus travel between California State University, Fullerton (CSUF) and Newport Beach. Currently, a direct connection to the beach community and recreation area is not possible from CSUF to Newport Beach. Passengers must travel on two different routes which could stop at some 80 bus stops compared to a direct trip on Bravo! with only 21 station stops served by Line 543. Travel time on the local bus service would require a transfer and could vary from one hour and 54 minutes to two hours and 15 minutes, while, according to the test schedule, the same trip on Line 543 has an estimated travel time of one hour and 29 minutes with no transfer needed. Additionally, an analysis of the travel time by automobile during peak afternoon hours indicated that the BRT service compared favorably to the automobile trip which took only twelve minutes less, at one hour and seventeen minutes.

If you have any additional questions or require further information regarding the Bravo! services, please feel free to contact Beth McCormick, General Manager, Transit, (714) 560-5964.

WK: grr
Attachments

c: Board of Directors
Executive Staff

Bravo! Corridors



Planned Bravo! Corridors

- Harbor Boulevard Corridor (Route 543)
- Bravo! Station Location (543)
- Westminister / 17th Street Corridor (Route 560)
- Bravo! Station Location (560)
- Bristol / State College Boulevard Corridor (Route 557)
- Bravo! Station Location (557)

Proposed Bravo! Corridors

- - - Proposed Corridor

Rail Network

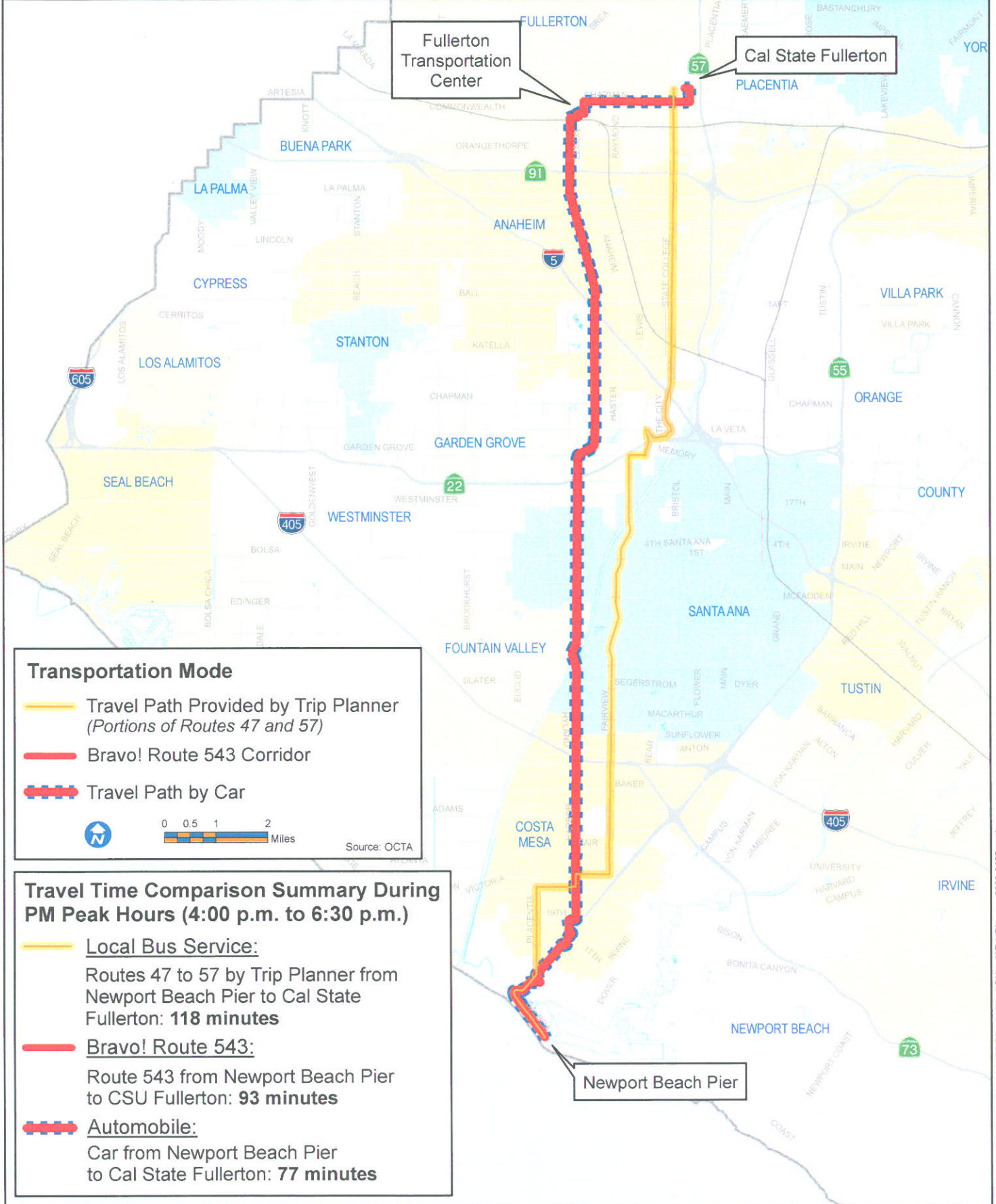
- +++++ Metrolink Commuter Rail
- +++++ Metro Green Line

Source: OCTA



Travel Time Comparison and Transportation Modes

Local Bus Service, Route 543 Bravo! Service, and Automobile Modes



Transportation Mode

- Travel Path Provided by Trip Planner
(Portions of Routes 47 and 57)
- Bravo! Route 543 Corridor
- Travel Path by Car



0 0.5 1 2 Miles

Source: OCTA

Travel Time Comparison Summary During PM Peak Hours (4:00 p.m. to 6:30 p.m.)

- Local Bus Service:
Routes 47 to 57 by Trip Planner from Newport Beach Pier to Cal State Fullerton: **118 minutes**
- Bravo! Route 543:
Route 543 from Newport Beach Pier to CSU Fullerton: **93 minutes**
- Automobile:
Car from Newport Beach Pier to Cal State Fullerton: **77 minutes**