

EVALUATION
OF
NEW SERVICE
IN THE
SOUTH BAY AREA

SOUTHERN CALIFORNIA
RAPID TRANSIT DISTRICT

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Prepared by
Surface Planning

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BACKGROUND

The South Bay Transit Improvement Program was implemented on June 27, 1976, in the area roughly bounded by the Pacific Ocean, Manchester Avenue and the Harbor Freeway. Implementation of this program increased weekday vehicle miles by 9,760 (18.1%), vehicle hours by 702 (17.6%) and the number of buses by 30 (8.5%).

The new and revised lines in the South Bay area provide commuter service, local circulation and cross-county service. Besides new and more direct routings, an increased level of service frequency was instituted, along with extended hours and days, including nights and weekends. These improvements resulted in a system of routes to and within the South Bay area that are substantially more convenient and easy to use. The new lines, when added to the unchanged routes in the area, provide a network of 38 transit lines operating within the 16 cities in the South Bay Sector.

PURPOSE OF REPORT

This report represents the initial findings of the South Bay Transit Improvement Program Evaluation. Data for this evaluation was gathered starting 90 days after implementation of the program for the purpose of judging the progress of the program and the effectiveness of the system in accommodating travel patterns. Lines were examined and evaluated utilizing the criteria adopted by the District's Board of Directors.

Although a three-month period is ordinarily sufficient to establish patronage patterns and general trends, two incidents occurred during this period that have had a negative impact on the patronage of the entire system: (1) an approximate 40 percent fare increase; and (2) a 36-day work stoppage. Because of these incidents, it is believed that the three-month data does not truly reflect the potential for growth that exists in the South Bay area.

CHARACTERISTICS OF THE AREA

To properly consider the development of the revised South Bay system, topographic, socio-economic and demographic

characteristics of the area must be placed in perspective. The South Bay sector contains an area of some 160 square miles, with a population of 970,000 persons, and an average population density of 6,000 per square mile.

Topographically, the South Bay area consists of declining plain, with moderate hilly areas near the west coast and a mountainous area covering the southern one-fifth of the region. Development has been continuous over the past 50 or so years, so that most of the area in the flat lands has now been developed for residential, commercial or industrial uses. Major employment centers are along the Torrance Boulevard, Century Boulevard, Sepulveda Boulevard, the Harbor and San Diego Freeway corridors, and at the Los Angeles International Airport.

As is typical of most of the Los Angeles region, diverse travel patterns are prevalent, having been developed and sustained by the numerous activity centers, including shopping, civic and employment centers. These trips are being served where possible by an extension of the "South Central Grid" system to cover the remainder of the general southwest sector of Los Angeles County. A complete and pure grid is not possible in this sector because of (1) the impenetrable service areas of the Gardena and Torrance municipal systems and (2) by the lack of continuity in the existing street network. Regional trips to the Los Angeles Central Business District are served by express buses that use the Harbor, San Diego or Santa Monica Freeways for a portion of their trip.

COMMUNITY INVOLVEMENT AND SYSTEM REFINEMENTS

Community Involvement

In order to respond to public transit needs, the District's Planning and Community Relations staffs operated a field office located in a store front at Crenshaw and Artesia Boulevards in Torrance. From the time it was first opened on June 1, 1976 (four weeks before implementation of the South Bay Program on June 27, 1976), this field office was the regional contact point between the public and government agencies and the District. Although functionally active during the first weeks of the new program, the field office was closed during the work stoppage. Concurrent with the resumption of bus service, the South Bay field office was reopened on September 28, 1976, and continued its functions of government liaison and a source of public information and for community input. As the public became familiar with the new system, and as operating problems were worked out, activity at the field office declined, and it

was finally closed on November 26, 1976. After that date, its functions were provided on a part-time basis one day a week at public buildings in San Pedro, Redondo Beach and Lawndale.

As a tool for providing communication between District staff and the public, the field office was quite valuable during the change-over period. It provided a method of gauging public response to the new system, and resulted in several adjustments to routes and schedules in the South Bay area.

System Refinements

In anticipation of problems that are involved in such a major realignment of service, staff prepared a procedure for handling initial public contacts. Comments that were received generally fell into five categories:

1. Request for reinstatement of a former routing.
2. Request for removal of new service from a street that had previously been without service.
3. Requests for relocation of bus stops and layover zones.
4. Requests for service to new areas.
5. Requests for smaller size buses.

With respect to the new routings, staff has received complaints as well as compliments. Negative comments have decreased as familiarity with new routes improved-- both among the public and the drivers. The requests for new service will be considered along with adjustments to the existing service upon completion of the full evaluation of the South Bay Program.

When problem areas are identified, either through letters, petitions or personal contact with the general public, civic groups or governmental agencies, District staff begins the process of evaluation. Beginning with a review of the problem and the existing operation, an on-site inspection is then made, followed by the development of different alternatives that include routing, scheduling and cost analysis, as well as positive and/or negative impact upon ridership and continued accessibility to transit service. Community participation is included before finite solutions are developed so that eventual decisions are acceptable to all concerned.

A list of changes that have been made in the system as a result of requests that have been received to date are included below. These changes are all of the "system refinement" nature; substantial changes will be proposed only after a thorough evaluation of ridership data and various alternatives.

Line 114 -- To better serve the Carson industrial area, this line was rerouted from Artesia Boulevard to Walnut Avenue, between Central Avenue and Avalon Boulevard.

Line 115 -- That portion of Line 115 that was on Imperial Highway, including that portion within the South Bay sector, was duplicated by more frequent service on Line 836. To eliminate this duplication, Line 115 was discontinued. The portion of the line in the Willowbrook-Compton area was absorbed by an extension of Line 306.

Line 607 -- To be able to stop at Grand and Main in El Segundo, the turnaround loop was changed and layover zone was moved from Richmond and Holly to Richmond and El Segundo.

Line 813 -- Service was extended to Seawolf Drive, a residential area located about one-quarter mile east of the original Marineland terminal, at the request of residents.

Line 814 -- At the request of the City of Palos Verdes Estates, the layover zone at Malaga Cove was moved from in front of the Shopping Center parking lot to Palos Verdes Drive-West and Via Corta.

Line 838 -- In accordance with requests from the City of El Segundo that many buses not layover in the same location, the turnaround loop was changed and the layover zone was moved from Richmond and El Segundo to Richmond and Holly. This move was made in connection with the change made on Line 607; essentially there was a swap of turnaround loops and layover zones between Lines 607 and 838.

Line 841 -- At the request of businessmen, the layover zone in San Pedro at Seventh and Weymouth was moved to Ninth and Weymouth.

Line 849 -- Requests were made by residents in the San Pedro Palisades area along the present turnaround loop to remove buses from these streets. Several test trips, with appropriate community participation, were operated to find a suitable alternative. Other than removing service from the area, no acceptable solution could be found. Because a survey of residents in the area showed support for retaining the service, no change was made.

Line 861 -- The original turnaround loops at both ends of this line were changed because of traffic flow patterns. At the Hawthorne terminus, the original loop was changed so that buses could stop and layover at newly constructed bus turnouts in front of Hawthorne Plaza Shopping Center. At the Torrance terminus, the turnaround loop was changed to provide a shorter route and easier access to the Del Amo Fashion Square bus terminal area.

Line 867 -- The original turnaround loop and layover zone in Inglewood was changed at the request of the City of Inglewood from Prairie and Grace to Locust and Grace.

Line 869 -- The original turnaround loop in Inglewood was changed at the request of the City of Inglewood from Prairie and Grace to Locust and Grace. At the request of the City of Palos Verdes Estates, the turnaround loop in the vicinity of Malaga Cove Plaza was changed to eliminate operation on a residential street. The terminal of the Palos Verdes Drive-North branch was originally located at Rolling Vista Drive in the City of Lomita. Complaints were received from businessmen and residents in the area; in addition, a left turn prohibition was instituted at the break in the median at which the turning movement was made. To respond to these problems, and provide service to the Harbor City Kaiser Hospital and connections with District Lines 849 and 873, the route was extended along Palos Verdes Drive-North and Normandie Avenue to Pacific Coast Highway.

Line 870 -- Requests have been received from residents for service on Palos Verdes Drive-East for service in the area between Miraleste and Crest. Several test trips were operated; including one with community participation. No recommendation on this extension was made, due to lack of a turnaround location. Peninsula cities requested that minibus equipment be operated on this line. A test trip was operated with minibus equipment; turnaround loop was found but is rather lengthy. Pending Board action on minibus operation, no recommendation has been made.

Line 871 -- At the request of local residents, the Redondo Beach terminal layover zone was changed from Catalina and Avenue I to Palos Verdes and Catalina.

Line 872 -- Because of complaints from residents in the area of the original southern turnaround loop (San Pedro Palisades), service south of 26th and Alma was discontinued. This reduced the number of buses in the complaint area by half. Requests for the operation of minibuses on Lines 872 and 874 have been received by citizen groups and City agencies because of narrow streets in bad condition.

Line 874 -- At the request of San Pedro High School officials and local residents, special school trips were reinstated to two areas not served by regular buses. One of these trips is to the Toscanini Drive area of North San Pedro; the other is the Anchovy Drive area of Southwest San Pedro. Both services were changed to stop in front of San Pedro High School at 17th and Alma.

Line 875 -- As with Line 813, this route was extended from its Marineland Terminal to the Seawolf Drive area, about one-quarter mile to the east, at the request of residents.

Downtown Terminal and Route -- Because of potential problems with security at the original Los Angeles CBD terminal for Lines 813, 814 and 871 at Macy and Vignes, it was changed to Union Station (the original terminal for Line 810). In addition, a portion of the original downtown route was changed (from San Pedro Street to Los Angeles Street) to avoid congestion and better serve certain civic center buildings.

EVALUATION

While planning the South Bay Transit Improvement Program, staff included arrangements to evaluate the sector by comparing pre-implementation data with those of the new system. In the evaluation included herein, data is presented for each line that enters the South Bay Sector. Information is listed for each line in total; in addition, the same information is listed for the South Bay Sector portion of each line, with the remainder listed as "Other Sectors."

Objectives and Criteria

A major element of staff efforts has been to determine the objectives of the evaluation process and to develop criteria for measuring their accomplishment. The objectives that have evolved and the criteria for measurement are presented in Table 1.

Table 1

Evaluation of New Services
Objectives and Criteria

<u>Objective</u>	<u>Criteria</u>
To determine if the new service has attracted more riders than the previous service.	Passenger totals, day and night, by line, total and sectors, pre and post.
To determine if new service is as productive as previous service.	Passengers in the sector per vehicle hour on lines operating entirely within sectors, or portions of lines that operate outside the project sector, day and night, pre and post.
To determine if productivity is adequate to continue service.	Productivity of the line at maturity should exceed 20 passengers per vehicle hour day and night, for each line, project sector and other sectors. Transit dependency and system integrity are also taken into consideration.

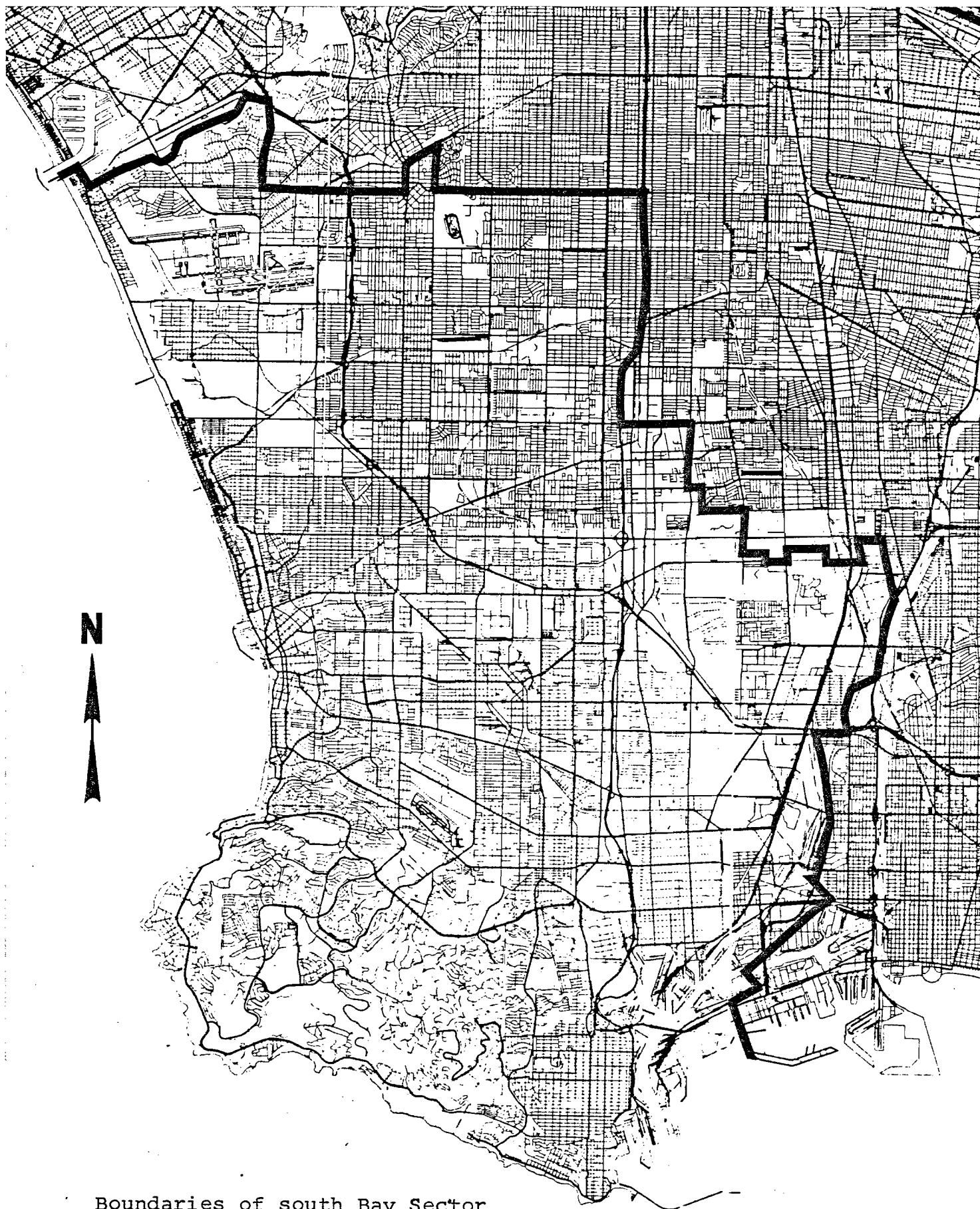
Methodology

In designing the service evaluation program for projects implemented early in 1976, it was felt that all improvement projects should be evaluated the same way so that one could be compared with another. Project evaluation for the South Bay program, it is believed, should be comparable to the other projects implemented in the San Fernando Valley, South Central, East Los Angeles, Mid-Cities and San Gabriel Valley in 1975 and 1976.

Sector Boundaries

To satisfy the requirement that evaluation of the South Bay project be comparable with the other programs, sector boundaries were specified so that a meaningful comparison could be made between the before and after data (i.e., so that comparisons would be made on lines within exactly the same area). For the purpose of this evaluation, the boundaries of the South Bay Sector were determined to be:

- o From the Pacific Ocean at Ballona Creek, easterly along Ballona Creek to the Los Angeles City (Westchester) limits.
- o From the Los Angeles City limits at Ballona Creek, easterly along the northern Los Angeles City (Westchester) limits to Sepulveda Boulevard.
- o From Sepulveda Boulevard at the Los Angeles City limits (Centinela Avenue) southerly along Sepulveda Boulevard to Manchester Avenue.
- o From Manchester Avenue and Sepulveda Boulevard, along Manchester Avenue and Manchester Boulevard to La Brea Avenue.
- o From La Brea Avenue and Manchester Boulevard, northerly along La Brea Avenue, easterly along Florence Avenue, and southerly along Prairie Avenue to Manchester Boulevard.
- o From Manchester Boulevard and Prairie Avenue, easterly along Manchester Boulevard and Manchester Avenue to the Harbor Freeway.
- o From the Harbor Freeway and Manchester Avenue, southerly along the Harbor Freeway to Rosecrans Avenue.
- o From Rosecrans Avenue and the Harbor Freeway easterly along Rosecrans Avenue, and southerly along Avalon Boulevard to the Carson City limits.
- o From Avalon Boulevard and the Carson City limits, easterly and southerly along the northern Carson City limits to Wilmington Avenue and Victoria Street.
- o From the Compton City limits at Wilmington Avenue and Victoria Street, easterly along the southern Compton City limits to the Long Beach City limits at Bort Street and Susana Drive.
- o From Bort Street and Susana Drive, southerly along the western Long Beach City limits to the Los Angeles Harbor Breakwater.
- o From the Los Angeles Harbor Breakwater at the Los Angeles-Long Beach City limits, westerly and northerly along the Los Angeles Harbor Breakwater and the Pacific Ocean Coastline to Ballona Creek.



Boundaries of south Bay Sector

A listing of the lines that were included in the *before* data, and a delineation of the South Bay Sector portion of each, is presented in Table 2; similar data for lines that are included in the *after* condition is presented in Table 3.

Ridership

Another essential element in meeting the evaluation objectives of comparability for mature lines was to decide on a consistent definition of ridership. A rider is a boarding passenger, regardless of the type of fare paid.

Ridership Growth with Time

Previous evaluation of the South Central and San Fernando Valley Grid Systems by District staff and the Joint Agency Transit Advisory Committee indicated that line ridership of new services increases for some time after implementation. The point at which this growth levels off cannot be specified because of demographic variations of areas served by the lines under study, and differences in the extent of changes made in the different lines. Evaluation of this project may allow staff to successfully predict line performance in the future.

Results

Once a *rider* was defined and passenger counts were scheduled, the checking process got underway.

100 Percent Ridership Checks

Passengers are counted by District Traffic Checkers who ride on each trip of a line from end to end. In what is known as a 100 percent check, these checkers count, at each stop on each trip, the number of passengers boarding and alighting, and records the type and amount of fare paid. The 100 percent check is widely accepted as representative of annual ridership on a line, but has limitations because of daily ridership fluctuations of up to five percent. Inclement weather can cause variations in the range of ten percent. The 100 percent check is, in reality, a sample, and is subject to normal sampling errors when it is used to draw conclusions about the total annual ridership of a line. It took 23 working days (between October 19, 1976, and January 20, 1977) to complete the checks for the 37 lines involved in the post-implementation phase of this study. (A 38th route, Line 115, was discontinued in November; its check was made in July of 1976). A list of the dates on which the pre and post implementation checks were taken is provided in Table 4.

Table 2

Pre Implementation Line Description

Line No.	Line Name	One-Way Route Miles		Segment of Line Within Sector Boundaries	
		Total	South Bay	From	To
				South Bay Sector Boundaries	
				Segment of Line Within Sector Boundaries	
5	L.A. - Hawthorne	18.8	6.5	179th & Hawthorne	Manchester & Market
6	South Vermont Ave.- Highland Park	19.0	2.5	120th & Vermont	Manchester & Vermont
10	Adams Blvd.-Normandie Ave.-Prairie Ave.	19.6	7.5	179th & Hawthorne	Manchester & La Brea
21	Hollywood-Culver City	9.7	*	None	
33	L.A.-Compton- Wilmingon	24.7	8.7	"D" & Avalon	Artesia & Santa Fe
37	L.A.-Wilmington-San Pedro	28.2	18.9	Ports O' Call Village	Manchester & Harbor Fwy.
51	L.A.-L.A. Airport- Redondo Beach	27.5	15.8	Palos Verdes West & Via Corta	Manchester & La Tijera
66	Huntington Park-Long Beach-San Pedro	25.9	7.4	Sixth & Sampson	Anaheim & Paul Jones
73	Van Ness Ave.- Arlington Ave.	12.3	4.7	Rosecrans & Crenshaw	Manchester & Van Ness
84	Western Ave.	12.4	2.2	Imperial & Western	Manchester & Western
85	Crenshaw Blvd.- Vine St.-La Brea Ave.	22.3	4.1	Rosecrans & Crenshaw	Manchester & Crenshaw
88	San Diego Freeway Flyer	25.0	1.7	Los Angeles Airport	Manchester & Sepulveda
96	Normandie Ave.	13.9	3.9	Rosecrans & Normandie	Manchester & Normandie

* No portion of Line 21 is located within the Sector. Data is included because this line was combined with a line that does operate within the sector.

Table (continued)

Line No.	Line Name	One-Way Route Miles		Segment of Line Within Sector Boundaries	
		Total	South Bay	From	To
100	Century Blvd.	13.4	7.1	Los Angeles Airport	Century & Figueroa
101	Redondo Beach-Crenshaw Blvd.	16.8	16.8	Lomita & Hawthorne	Manchester & Crenshaw
102	Aviation Blvd.-El Nido	15.1	15.1	171st & Hawthorne	154th & Hawthorne
103	Manhattan Beach-Yukon Ave.	15.8	15.8	Torrance & Catalina	Rosecrans & Compton
104	Inglewood Ave.	10.6	10.6	Torrance & Catalina	Regent & Prairie
105	Inglewood - L.A. Airport	5.8	5.8	Regent & Prairie	Los Angeles Airport
114	Carson-Compton-Lynwood	16.0	5.8	Turmont & Central	Gardena & Avalon
115	Compton-Imperial Hwy.	12.9	4.3	Imperial & Hawthorne	Imperial & Figueroa
123	El Segundo Blvd.	16.3	9.5	Arbor Vitae & Lillienthal	El Segundo & Figueroa
125	L.A.-South Bay-Rolling Hills-Marineland	35.4	27.2	Marineland	Manchester & Harbor Fwy.
126	Ninth St.-Averill Park	3.0	3.0	Sixth & Sampson	16th & Dodson
129	Barton Hill	3.5	3.5	Sixth & Sampson	Patton & Summerland
130	Pacific Ave.-Point Fermin	3.2	3.2	Sixth & Sampson	Pacific & Shepard
131	Gaffey St.	3.0	3.0	Sixth & Sampson	26th & Patton

Table 2 (continued)

Line No.	Line Name	One-Way Route Miles		South Bay Sector Boundaries Segment of Line Within Sector Boundaries		
		Total	South Bay	From	To	
145	San Pedro-Harbor City	11.3	11.3	Eighth & Pacific	Carson @ Harbor General Hospital	
150	Long Beach-Santa Monica	32.1	22.5	Anaheim & Paul Jones	83rd & Lincoln	
353	Vermont Ave.	10.0	2.5	120th & Vermont	Manchester & Vermont	
359	120th St.	5.1	2.8	Imperial & Western	120th & Figueroa	
606	Culver Blvd. Freeway Express	20.8	4.8	Richmond & Grand	Culver & Nicholson	
607	La Tijera Blvd.- L.A. Airport Freeway Express	18.6	3.4	L.A. Airport	Manchester & La Tijera	
832	Manchester Ave.- Firestone Blvd.- Norwalk Ave.	28.9	10.2	Manchester & Pershing	Manchester & Figueroa	
836	Imperial Hwy.	27.0	8.5	Grand & Main	Imperial & Figueroa	
840	Rosecrans Ave.	26.3	17.2	Richmond & Grand	Rosecrans & Figueroa	
846	Artesia Blvd.	21.2	4.0	179th & Hawthorne	Artesia & Vermont	

Table 3

Post Implementation Line DescriptionSouth Bay Sector Boundaries

<u>Line #</u>	<u>Line Name</u>	<u>Total</u>	<u>South Bay</u>	<u>From</u>	<u>To</u>
5	Santa Barbara Ave.- Crenshaw Bl-Hawthorne Bl.	18.8	6.5	179th & Hawthorne	Manchester & Market
6	South Vermont Ave- Highland Park	19.0	2.5	120th & Vermont	Manchester & Vermont
10	Adams Blvd-Normandie Av- Prairie Ave	19.6	7.5	179th & Hawthorne	Manchester & La Brea
33	LA-Compton-Wilmington	24.7	8.7	"D" & Avalon	Artesia & Santa Fe
73	Van Ness Ave-Arlington Av	12.3	4.7	Rosecrans & Crenshaw	Manchester & Van Ness
84	Western Ave	12.2	2.2	Imperial & Western	Manchester & Western
85	Crenshaw Blvd-Vine St- La Brea Ave	22.3	4.1	Rosecrans & Crenshaw	Manchester & Crenshaw
88	San Diego Freeway Flyer	23.8	1.2	98th & Vicksburg	Manchester & Sepulveda
96	Normandie Ave	14.3	4.6	Rosecrans & Normandie	Manchester & Normandie
101	Crenshaw Blvd-Artesia Bl	8.3	8.3	179th & Hawthorne	Manchester & Crenshaw
114	Carson-Compton-Lynwood	16.0	5.8	Central & Turmont	Gardena & Avalon
115	Imperial Hwy	12.9	4.3	Imperial & Hawthorne	Imperial & Figueroa
206	Airport Shuttle	2.9	2.9	98th & Vicksburg	Los Angeles Airport

Table 3
(continued)

Post Implementation Line Description

South Bay Sector Boundaries

<u>Line #</u>	<u>Line Name</u>	<u>One-Way Route Miles</u>			<u>Segment of Line Within Sector Boundaries</u>	
		<u>Total</u>	<u>South Bay</u>	<u>From</u>	<u>To</u>	
353	Vermont Ave	10.0	2.7	120th & Vermont	Manchester & Vermont	
359	108th St - 120th St	13.4	6.7	Imperial & Western 108th & Prairie	120th & Figueroa 108th & Figueroa	
606	Culver Bl-Manhattan Beach Freeway Express	24.0	7.6	10th & Hermosa	Culver & Nicholson	
607	La Tijera Bl-LA Airport- El Segundo Fwy Express	21.1	4.5	Richmond & Holly	Manchester & La Tijera	
810	LA-Carson-Wilmington- San Pedro	27.9	19.1	Ports O'Call Village	Manchester & Harbor Fwy	
813	LA-West Torrance-Rolling Hills-Marineland	32.4	24.9	Marineland	Manchester & Harbor Fwy	
814	LA-North Torrance-Redondo Beach-Palos Verdes	28.8	20.4	Palos Verdes West & Via Corta	Manchester & Harbor Fwy	
832	Manchester Ave-Firestone Blvd-Norwalk Blvd	28.9	10.2	Manchester & Pershing	Manchester & Figueroa	
834	Century Blvd	13.0	6.7	98th & Vicksburg	Century & Figueroa	
836	Imperial Hwy	27.5	8.9	Grand & Main	Imperial & Figueroa	
838	El Segundo Blvd	14.8	8.0	Grand & Main	El Segundo & Figueroa	

Table 3
(continued)

		South Bay Sector Boundaries			
<u>Line #</u>	<u>Line Name</u>	<u>Total</u>	<u>South Bay</u>	<u>From</u>	<u>To</u>
				<u>Segment of Line Within Sector Boundaries</u>	
840	Rosecrans Ave	26.4	8.6	Grand & Main	Rosecrans & Vermont
841	Huntington Park-Long Beach-San Pedro	28.6	8.8	Seventh & Weymouth	Anaheim & Paul Jones
846	Artesia Blvd	24.6	9.2	Torrance & Catalina	Artesia & Vermont
849	San Pedro-Harbor City-East Torrance	11.3	11.3	Meyler-Paseo Del Mar	Carson @ Harbor General Hospital
861	Yukon Ave-Manhattan Beach Blvd-Carson St	16.7	16.7	Del Amo Fashion Square	120th-Hawthorne
867	Inglewood Ave	10.6	10.6	Torrance & Catalina	Grace & Locust
869	Aviation Blvd-Prospect Ave-Silver Spur Rd	25.7	25.7	Crenshaw & Crest and Palos Verdes North & Rolling Vista	Grace & Locust
870	Palos Verdes Drive	17.6	17.6	Palos Verdes West & Hawthorne	Indian Peak & Crossfield
871	LA-Westchester-Redondo Beach	23.7	11.5	Ave I & Catalina	Manchester & La Tijera
872	San Pedro:Summerland Ave-13th St.-Alma St.	5.5	5.5	26th & Alma	Summerland & Patton
873	Long Beach-Santa Monica	32.0	22.2	Anaheim & Paul Jones	83rd & Lincoln
874	San Pedro:Centre St-13th St-Dodson Ave	5.3	5.3	Sixth & Gaffey	Summerland & Patton
875	Westchester-Redondo Beach-Palos Verdes-Marineland	21.1	21.1	Marineland	La Tijera & Manchester
877	Hollywood-Culver City-Playa Del Rey-LA Airport	21.0	9.0	98th & Vicksburg	Culver & Nicholson

Table 4

Dates of Passenger Counts Taken For
Pre and Post Implementation Evaluation

<u>PRE IMPLEMENTATION</u>		<u>POST IMPLEMENTATION</u>	
<u>Line #</u>	<u>Date of Count</u>	<u>Line #</u>	<u>Date of Count</u>
5	Wed 01-14-76	5	Tue 01-18-77
6	Thu 01-08-76	6	Wed 01-19-77
10	Mon 03-01-76	10	Wed 12-15-76
21	Tue 01-20-76	33	Thu 01-20-77
33	Thu 02-26-76	73	Tue 12-14-76
37	Wed 03-31-76	84	Tue 01-06-77
51	Fri 04-09-76	85	Thu 12-16-76
66	Wed 03-17-76	88	Tue 10-19-76
73	Fri 12-05-75	96	Wed 12-15-76
84	Fri 10-30-75	101	Tue 10-26-76
85	Wed 01-07-76	114	Mon 12-13-76
88	Fri 01-30-76	115	Fri 07-16-76
96	Wed 03-31-76	206	Tue 10-26-76
100	Thu 07-17-75	353	Tue 12-14-76
101	Thu 04-29-76	359	Tue 11-02-76
102	Fri 05-28-76	606	Mon 11-01-76
103	Fri 03-05-76	607	Tue 11-02-76
104	Fri 03-05-76	810	Wed 10-27-76
105	Thu 06-24-76	813	Mon 11-08-76
114	Thu 02-19-76	814	Thu 10-28-76
115	Fri 10-17-75	832	Wed 12-01-76
123	Tue 01-27-76	834	Mon 11-08-76
125	Mon 02-23-76	836	Fri 12-03-76
126	Tue 10-21-75	838	Fri 11-05-76
129	Tue 10-21-75	840	Fri 11-12-76
130	Fri 10-24-75	841	Tue 10-26-76
131	Fri 03-05-76	846	Fri 10-29-76
145	Fri 03-05-76	849	Fri 11-12-76
150	Mon 03-01-76	861	Thu 10-28-76
353	Mon 12-08-75	867	Tue 11-02-76
359	Wed 09-17-75	869	Thu 10-28-76
606	Fri 02-13-76	870	Fri 11-05-76
607	Wed 03-24-76	871	Mon 11-15-76
832	Wed 04-21-76	872	Mon 10-25-76
836	Fri 04-23-76	873	Tue 11-02-76
840	Wed 04-21-76	874	Mon 10-25-76
846	Thu 04-29-76	875	Fri 11-12-76
		877	Wed 10-27-76

The total ridership numbers, therefore, contain some inconsistencies introduced by possible variations between lines checked on different days. The same procedure was followed for the pre-implementation checks, except that these counts were taken over an extended period between September, 1975, and June, 1976.

Passenger Totals

The passenger counts for all the lines in the pre-implementation condition are shown in Table 5. During daytime hours (start of service to 7:00 p.m.) there were 165,838 boardings, while 7,773 rode at night (7:01 p.m. to the end of service) for a total of 173,611.

Ridership totals for South Bay Sector lines in the post-implementation state are shown in Table 6. Under the revised system, there were 162,221 daytime passengers (down 3,617) and 7,971 nighttime passengers (up 198). Total passengers decreased from 173,611 to 170,192 (3,419 passengers), a loss of 2.0 percent.

Factors Contributing to the Decrease

When the South Bay Transit Improvement Program was instituted, it was expected that there would be a gain in patronage. The fact that the data shows that there was actually a decrease in ridership would tend to cast doubt upon the appropriateness of the program. Such doubt would be more well founded if it were not for extenuating circumstances: that is, incidents that occurred which have had a negative impact on ridership in general (i.e., the 36-day work stoppage and the approximate 40 percent fare increase).

One indication of the belief that the new system actually did attract new riders is the fact that total daily boardings within the South Bay Sector boundaries increased by 3.9 percent (up 1,816 from 46,156 to 47,972). Further, the fact that boardings on South Bay lines outside the sector boundaries (where virtually no changes were made) decreased 4.1 percent (down 5,235 from 127,455 to 122,220) reinforces the position that all routes in general were still suffering from the negative ridership effects.

Finally, it is believed that the South Bay Program has not yet had time to reach its potential, and will not fully mature until the completion of 12 months of operation following the resumption of service after the strike.

Table 5

Pre-Implementation Ridership and Productivity

Line #	BOARDING PASSENGERS			VEHICLE HOURS OPERATED			PRODUCTIVITY -(Psgrs/Veh. Hour)			
	Line Totals		South	Line Totals		South	Line Totals		South	
	Day	Night	Total	Day	Night	Total	Day	Night	Total	
5	21,102	1,180	22,282	372	57	429	56.7	20.7	51.9	45.1
6	24,803	1,134	25,937	317	50	367	78.2	22.6	70.7	58.9
10	2,484	27	2,511	98	7	105	25.3	3.9	24.0	17.2
21	2,218	NNS	2,218	45	-	45	49.3	-	49.3	-
33	4,074	94	4,168	117	5	122	34.9	18.1	34.2	8.2
37	2,635	136	2,771	84	12	96	31.0	11.3	28.9	33.1
51	3,480	256	3,736	139	18	157	25.0	14.3	23.8	27.6
66	4,787	381	5,168	119	26	145	40.2	14.7	35.6	21.5
73	2,616	55	2,671	95	7	102	27.5	7.9	26.2	21.7
84	21,500	1,189	22,689	256	22	278	84.1	53.6	81.6	64.0
85	23,857	1,227	25,084	291	51	342	82.0	24.1	73.3	47.9
88	3,165	108	3,273	89	9	98	35.8	11.4	33.4	37.0
96	7,415	418	7,833	114	26	140	65.0	16.1	56.0	47.9
100	5,142	543	5,685	89	19	108	57.8	28.4	52.6	70.2
101	1,582	NNS	1,582	51	-	51	31.0	-	31.0	31.0
102	531	2	533	25	1	26	21.2	2.0	20.5	20.5
103	404	NNS	404	32	-	32	12.6	-	12.6	12.6
104	292	NNS	292	23	-	23	12.7	-	12.7	12.7
105	247	17	264	15	2	17	16.8	8.1	15.5	15.5
114	1,084	NNS	1,084	38	-	38	28.5	-	28.5	24.6
115	1,112	NNS	1,112	30	-	30	37.1	-	37.1	58.5
123	1,639	3	1,642	87	1	88	18.8	4.3	18.7	19.3
125	803	NNS	803	50	-	50	16.1	-	16.1	14.2
126	338	NNS	338	14	-	14	24.1	-	24.1	24.1
129	213	NNS	213	12	-	12	17.8	-	17.8	17.8
130	732	19	751	29	1	30	25.6	13.6	25.0	25.0
131	518	1	519	19	1	20	27.6	0.8	26.0	26.0
145	852	16	868	27	2	29	31.6	8.0	29.9	29.9
150	1,195	86	1,281	68	15	83	17.6	5.7	15.4	15.9

NNS - No night service.

Table 5

(continued)

Pre-Implementation Ridership and Productivity

Line #	BOARDING PASSENGERS				VEHICLE HOURS OPERATED				PRODUCTIVITY -(Psgrs/Veh. Hour)			
	Line Totals		South		Line Totals		South		Line Totals		South	
	Day	Night	Total	Bay	Day	Night	Total	Bay	Day	Night	Total	Bay
353	4,805	206	5,011	958	81	8	89	19	59.5	24.8	56.3	49.6
359	630	50	680	310	52	6	58	26	12.1	8.2	11.7	11.9
606	302	3	305	46	26	2	28	8	11.5	1.8	10.9	6.0
607	418	2	420	114	71	1	72	18	5.9	1.4	5.8	6.4
832	12,026	348	12,374	7,684	280	33	313	156	43.0	10.5	39.5	49.3
836	3,791	175	3,966	2,011	141	17	158	65	27.0	10.0	25.1	30.9
840	2,521	98	2,619	921	97	15	112	39	25.9	6.5	23.3	23.7
846	483	41	524	90	72	13	85	18	6.7	3.1	6.2	5.1
TOTALS	165,796	7,815	173,611	46,156	3,565	427	3,992	1,371	46.5	18.3	43.4	33.6

Table 6

Post-Implementation Ridership and Productivity

Line #	BOARDING PASSENGERS			VEHICLE HOURS OPERATED			PRODUCTIVITY --(Psgrs/Veh. Hour)			
	Line Totals		South	Line Totals		South	Line Totals		South	
	Day	Night	Total	Day	Night	Total	Day	Night	Total	
5	21,009	1,123	22,132	56	409	109	59.5	20.0	54.1	47.6
6	22,758	1,153	23,911	50	354	45	74.9	23.1	67.5	64.0
10	3,665	45	3,710	7	145	70	25.6	28.1	25.6	18.8
33	3,467	78	3,545	5	121	20	29.9	15.6	29.3	6.9
73	3,000	94	3,094	9	103	35	32.0	10.1	30.0	26.8
84	16,397	897	17,294	37	270	39	70.5	24.0	64.1	48.8
85	24,258	1,554	25,812	50	350	49	80.9	31.1	73.7	54.4
88	3,430	211	3,641	11	100	4	38.5	19.2	36.4	67.8
96	8,139	558	8,697	25	141	30	70.2	22.3	61.7	64.2
101	913	33	946	6	45	45	23.2	5.9	21.0	21.0
114	1,058	NNS	1,058	-	38	11	27.8	-	27.8	16.5
115	617	NNS	617	-	25	6	24.7	-	24.7	24.9
206	531	82	613	15	72	72	9.3	5.5	8.5	8.5
353	5,197	177	5,374	7	89	21	63.5	24.6	60.4	53.1
359	1,138	20	1,158	4	73	38	16.6	4.7	15.9	13.9
606	298	NNS	298	-	25	8	11.9	-	11.9	10.0
607	731	NNS	731	-	74	24	9.9	-	11.5	11.5
810	2,457	104	2,561	20	150	93	18.9	5.2	17.1	19.9
813	1,069	11	1,080	10	108	68	10.9	1.2	10.0	11.7
814	552	NNS	552	-	74	50	7.5	-	7.5	6.6
832	12,110	389	12,499	33	314	156	43.1	11.8	39.8	50.9
834	5,346	403	5,749	19	108	58	60.0	21.2	53.2	67.6
836	4,647	173	4,820	17	158	63	32.9	10.4	30.5	40.0
838	1,517	43	1,560	14	101	47	17.4	3.1	15.4	19.2
840	2,367	62	2,429	13	112	28	23.9	4.8	21.7	29.0
841	4,267	268	4,535	32	163	47	32.6	8.4	27.8	18.5
846	810	53	863	18	116	45	8.3	2.9	7.4	8.2
849	1,339	32	1,371	8	66	66	23.1	4.0	20.8	20.8
861	741	19	760	8	77	77	10.7	2.4	9.9	9.9

NNS - No night service.

(continued)

Table 6

Post-Implementation Ridership and Productivity

Line #	BOARDING PASSENGERS				VEHICLE HOURS OPERATED				PRODUCTIVITY --(Psgrs/Veh. Hour)			
	Line Totals		South Bay		Line Totals		South Bay		Line Totals		South Bay	
	Day	Night	Total		Day	Night	Total		Day	Night	Total	
867	526	12	538	538	55	8	63	63	9.6	1.4	8.5	8.5
869	741	9	750	750	108	10	118	118	6.9	0.9	6.4	6.4
870	124	NNS	124	124	30	-	30	30	4.1	-	4.1	4.1
871	2,041	102	2,143	871	117	19	136	60	17.4	5.4	15.8	14.6
872	298	3	301	301	29	3	32	32	10.2	1.1	9.5	9.4
873	1,187	128	1,315	881	68	18	86	57	17.4	7.2	15.3	15.5
874	210	6	216	216	29	3	32	32	7.2	1.8	6.7	6.6
875	590	36	626	626	82	12	94	94	7.2	2.9	6.7	6.7
877	2,676	93	2,769	114	118	4	122	39	22.7	23.3	22.7	2.9
TOTALS	162,221	7,971	170,192	49,972	4,143	551	4,694	1,949	39.2	14.5	36.3	24.6

Productivity

To determine whether the productivity of new service was as high as previous service, passengers carried in total and by segment or time period were divided by corresponding vehicle hours operated.

The overall productivity of lines included in the South Bay study was 43.4 passengers per vehicle hour before implementation of the Transit Improvement Program. Individual line ratios ranged from a low of 5.8 to a high of 81.6 passengers per vehicle hour. Within the South Bay Sector boundaries, in the pre-implementation phase, average productivity was 33.6 passengers per vehicle hour, with individual line ratios ranging from 5.1 to 64.0. The productivity of lines in the South Bay Transit Improvement Program for the pre-implementation phase is included in Table 5; similar data for the post-implementation phase is listed in Table 6. In the post-implementation phase, overall line productivity was reduced from 43.4 to 36.3 passengers per vehicle hour, with individual lines ranging from 4.1 to 67.5 per vehicle hour. Within the South Bay sector, overall productivity fell from 33.6 to 24.6 passengers per vehicle hour, with a range of from 4.1 to 67.8 per vehicle hour.

Night service showed a decline in productivity from 18.0 to 14.5 passengers per vehicle hour. The 12.6 percent increase in night ridership (from 7773 to 7971) was offset by a 63.7 percent increase in vehicle hours operated after 7:00 p.m. on lines that operate in the South Bay sector.

Conclusions

The South Bay Transit Improvement Program has simplified the route structure of lines in the South Bay area, as well as provided service to previously unserved areas. Although some major changes in travel patterns have occurred, provision for the continued use of old route patterns was maintained by means of a transfer.

Prior to implementation of the South Bay Transit Program, service in the western and southern sections of the sector was generally sparse, indirect or non-existent. A recently instituted grid system in the northeast portion of the sector is contrasted with a spider's web of routes in the remainder of the sector, with routes concentrated in the Hawthorne Boulevard corridor and along the coast. A complete system of routes in the South Bay sector was not possible because of the Existence of the Gardena and Torrance municipal bus systems. Except for the service

area of these two systems, an extensive network of local and regional freeway express lines was established.

Passenger counts were taken shortly after the resumption of service resulting from the 36-day work stoppage. The resulting data is conflicting, but in any case does not truly reflect the potential for development as the system matures.

RECOMMENDATIONS

- o Service in the South Bay sector should be continued without major routing or frequency changes until after a more thorough evaluation of existing counts is made, and until after completion and evaluation of a second round of passenger counts (to be made at least six months after the end of the strike).
- o Staff will monitor operations and effect minor adjustments as necessary.
- o Rider checks shall be conducted at the end of six months of continuous operation.