

Service Impact Analysis
Gardena Municipal Bus Lines
and
South Central Grid Lines

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

Surface Planning Department
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SUMMARY

- o Passenger counts indicate that the two systems--- Gardena Municipal Bus Lines and South Central Grid Lines have had a complementary effect on each other.

- o The objective of improved mobility of Gardena residents has been achieved through the cooperative development of a coordinated bus transit system by the City of Gardena and the Southern California Rapid Transit District.

- o Total ridership on Gardena bus Lines No. 1, 2, 3 and 5 has increased 20.6 percent with the implementation of the Grid lines.

- o Total bus transit usage has increased by about 2100 riders or 42 percent in the Gardena service area -- concomitant external benefits include social, economic and environmental factors.

INTRODUCTION

In a cooperative effort to improve public transportation, a coordinated bus transit plan was developed in the South Central Los Angeles area with the City of Gardena. On an experimental basis, a Grid system was implemented to test the viability of the "Grid" concept inducing a modal shift from the automobile to transit. Under the Grid concept, bus lines were routed on east/west and north/south aligned streets throughout the South Central Los Angeles Project sector on 20 minute frequencies. The complete Grid system was implemented on March 30, 1975.

Subsequently because of the experimental nature of the Grid project, evaluations were made of the Grid system lines after two and six months of operation. The findings showed that a significant increase in transit usage had resulted thus documenting the viability of the system in attracting additional bus patrons. However, the interactive effects of the Grid system and Gardena Municipal Bus Lines were not fully evaluated.

This report addresses the mutual effects of the Grid and Gardena system lines as measured by ridership and the effectiveness of the additional bus services in meeting the travel needs of the Gardena residents.

It should be noted that the effectiveness of bus services in the Gardena area was not evaluated in dollar terms. Unit cost figures for wages, administration, management operation, etcetera were not available to the degree required to assure representative, accurate accounting. Consequently surrogate measurements were used. Utilization was measured by total boarding passengers and productivity by passengers per unit of service (per bus-hour and per bus-mile).

BACKGROUND

The South Central Grid system was implemented March 30, 1975 as stipulated in an agreement between the Southern California Rapid Transit District and the County of Los Angeles as an experimental project. The objective of the project was to determine whether the "Grid" concept would induce increased transit usage. An evaluation of the Grid system showed that ridership did indeed increase and the Grid lines were generally highly utilized indicating the fulfillment of a previously unmet travel need.

In cooperation with SCRTD's efforts to improve public transportation, the City of Gardena participated in the project by allowing Grid lines to be extended into its municipal boundaries. The District in turn agreed to evaluate and report the effect of the Grid on the Gardena Municipal Bus Lines. Included in the evaluation was to be an assessment of the effectiveness of the Grid lines in serving Gardena residents and the mutual effects of the Grid and the Gardena operation.

Pursuant to the stipulation within the agreement, this evaluation report has been prepared to quantify the interactive effects of the Grid and Gardena bus lines and to determine whether the objective of improved mobility by transit had been achieved.

Setting

The Grid project sector is bounded by Olympic Boulevard on the north, Rosecrans Avenue on the south, Alameda Street on the east and Crenshaw Boulevard on the west. In this extensive area, the Gardena Municipal Bus Lines system operates as far north as Imperial Highway between Vermont and Western Avenues.

As a result of spatial proximity, four Gardena bus lines and three new District Grid lines presently mutually affect one another. In assessing the interactive phenomena, a brief inventory of the lines involved was made to provide a basis for further analysis.

Gardena Municipal Bus Lines

Gardena No. 1 - Gardena-Los Angeles provides inter-area and local service between and within the City of Gardena and Los Angeles Central Business District. Virtually no service changes have been made on this line since the commencement of the Grid operation. However, ridership has increased slightly subsequent to the implementation of the Grid system. (See Exhibit G-I).

Gardena No. 2 - Gardena and Vermont-Imperial-120th and Vermont provides local intra-area service. Service on this line was improved from 30 minute headways to 20 minutes for compatibility with the Grid service levels to facilitate better transfer connections. Ridership has increased by about 850 boarding passengers

or 69 percent (See Exhibit G-I). Productivity improved from 23.9 (pre-Grid) to 40.6 passengers per bus-hour (post Grid) indicating a lower average cost per rider.

Gardena No. 3 - Compton-Gardena provides inter-area service between the cities of Compton and Gardena. No apparent service or operational changes were made. Productivity has remained at approximately 33 passengers per bus-hour.

Gardena No.5- Redondo Beach Blvd.-Vermont Avenue-Rosecrans Avenue provides intra-area service. No apparent service changes were made. However, total ridership significantly increased from 118 to 196 boarding passengers or 66 percent. Productivity was about 9 passengers per bus-hour.

South Central Grid Lines

Initially four Grid lines operated to some degree within the Gardena service area. These lines were No. 73 - Arlington-Van Ness Avenues, 351-Normandie Avenue, 361 - 135th Street and 363 - Rosecrans Avenue. As a result of proposals developed from studies made through the District's Service Evaluation Program, several route and service changes have been effected. Line No. 361 on 135th Street was discontinued March 14, 1976 because of poor patronage - only 220 boarding passengers were carried on an average weekday equating 5.0 passengers per bus-hour. Also, Line 351 was consolidated with/into Line No. 96 to improve operating efficiencies and travel convenience. Further,

Line No. 363 was renumbered Line No. 840 to conform to the Mid-Cities Project numbers and extended easterly to the City of La Mirada and service frequencies reduced from 20 minutes to 30 minutes. These lines all provide essentially new services.

Line No. 73 - Van Ness-Arlington Avenue is a north-south route operating from Rosecrans Avenue on the south to Sixth Street on the north in the City of Los Angeles. Approximately one mile of the route extends into the Gardena service area. The productivity is approximately 29.8 passengers per bus-hour (Exhibit R-I). About 262 passengers are carried on the route south of 120th Street in the Gardena area.

Line No. 96 - Normandie Avenue is a north-south route operating from Rosecrans Avenue in Gardena to Hollywood Boulevard in the Hollywood area of the City of Los Angeles. Approximately one mile of the route extends into the Gardena service area. Within this one mile segment 387 boarding passengers were recorded. The productivity is approximately 55.4 passengers per bus-hour. (Exhibit R-I).

Line No. 840 - Rosecrans Avenue is an east-west route operating on Rosecrans Avenue between the Cities of El Segundo and Norwalk. Approximately two miles of the route lies within the Gardena service area. A total of 438 passengers boarded along this route segment. (Table I).

Overall line ridership has increased phenomenally with the route extension --- from approximately 1400 boarding passengers to 2500 confirming the existence of an east-west travel demand. As a corollary, productivity is presently about 22.5 passengers per bus-hour.

As a basis for comparison, it should be noted that the SCRTD regionwide average is about 40 passengers per bus-hour. The level of productivity below which corrective action is required by District Board of Directors' policy is 20 passengers per bus-hour. Corrective action includes such actions as service adjustments, route realignment, special marketing and/or discontinuation of unresponsive, nonproductive lines.

METHODOLOGY

With ridership established as the criteria of measurement, the mutual impact of the Grid and Gardena lines were assessed. The objective being the determination of whether the newer Grid lines were complementary to or detracting from the Gardena operation.

Under normal conditions, lines or route sections which overlap or parallel one another in close proximity result in competitive services. In contrast routes bisecting one another generally function in a complementary manner. The differentiation is derived from the "option" provided by the former situation (either line could be taken if the routes overlap) and the "interdependent" relationship under the latter case (a transfer is necessary for any right angle travel movements or origin/destination pairs).

The competitive situation does not appear to exist under the present arrangement in the Gardena service area. The reason is evidently due to the differences in type of service provided. The Gardena system provides predominantly intra-city service excepting Line No. 1 which operates into the Los Angeles CBD and to a lesser degree, Line No. 3 which operates into the City of Compton. The Grid lines in contrast have only a small portion of their one-way route miles within the Gardena service area. For example the combined total one-way route mileage of District Grid lines operating within the muni's area is 4.0 miles.

TABLE I

<u>Line No.</u>	<u>Route Segment</u>	<u>Gardena Service Area</u>		
		<u>Total</u>		<u>One-Way</u> <u>Route Miles</u>
		<u>Passengers</u> <u>1975</u>	<u>Boarding</u> <u>1976</u>	
73	Van Ness Avenue	196	262	1
96	Normandie Avenue	183	387	1
361	135th Street	37	-----	2
840	Rosecrans Avenue	344	438	2
TOTALS		723	1087	4

The Grid lines, in essence, provide services meeting inter-area travel needs which is separate and apart from that operated by Gardena. As a consequence two different user markets are served.

The rationale for evaluation is based on comparative analysis of ridership before and after implementation of the Grid lines. Changes in ridership were discernable on an aggregate and disaggregate basis -- that is by system, by line totals and by individual stops.

DATA

Collection

Riding checks were made on both Gardena bus lines and RTD Grid lines which operated within the former's service area. Gardena bus lines no. 1, 2, 3, and 5 were checked. Grid lines 73 - Arlington-Van Ness Avenues, 96 - Normandie Avenue (formerly Line No. 351) and 840 - Rosecrans Avenue (formerly Line No. 363) were also checked.

Passenger counts were made both before and after implementation of the Grid system. The before condition counts were made in March, 1975. Two post condition counts were conducted-- in May, 1975 and March, 1976. All trips were checked by District checkers from open to close of service and end-to-end of route. The passenger traffic was thus recorded stop by stop as well as by individual bus trip. Type of fares paid was also recorded providing information about the composition of the ridership.

Reduction

Computer passenger tabulations were developed from the riding checks by the District's Service Analysis Section for the March, 1976 checks. Tabulations for previous checks were developed manually. The tabulations itemized the individual boarding and alighting movements of route, time and stops. In addition passenger travel into and out of the Gardena service area were

tabulated providing a comprehensive picture of the passenger traffic on the two systems -- Gardena and South Central Grid.

· IMPACT

In making an assessment of the impact in the Gardena service area by the Grid lines, both community and operator factors were taken into consideration. Community considerations included social, economic and environmental factors. While admittedly these externalities are not precisely quantifiable, the evidence indicates that benefits have been derived from the new services. Total transit usage has increased approximately 2,100 passengers or about 42 percent. Concomitant non-quantifiable benefits include: 1) conservation of energy -- by the greater use of the higher capacity and more person moving efficient buses; 2) reduction of congestion and pollution emission --- by removal of an estimated 860 automobiles (computed by applying the Los Angeles Countywide occupancy ratio of 1.2 persons per automobile and 3) savings on total travel cost by trip makers to origin-destination pairs within and without the Gardena service area -- as a result of the low transit fares.

Isolated adverse effects of the new Grid services were registered. Some case of neighborhood disruptions were reported. As a consequence two turnaround loops were rerouted to comply with the wishes of affected residents. Noise created by the buses was cited as the major source of disturbance. Relocation of these turnaround loops remedied the situation.

The impact on the municipal operation appears to be complimentary and positive. Gardena system ridership has increased by over 1,000 boarding passengers or 20.6 percent. All four municipal

lines registered ridership increases, however, only two lines (No.s 2 and 5) could be considered significant - that is greater than the normal ridership fluctuation of plus or minus 10 percent.

Gardena No. 1: Although ridership increased slightly, it was not large enough to be considered significant. A micro-scale review of the passenger traffic did not reveal any major or notable changes. This status quo situation is understandable since no measurable change in service was made in the past year.

Gardena No. 2: Ridership increased by 66 percent - bettering the 33 percent improvement in service frequencies (from 30 minutes to 20). At transfer points with RTD lines, passenger traffic increased by 272 riders. Exhibit G-3 points out the intersecting, transfer points with RTD lines and the corresponding passenger traffic. Although the improvement in headways was undoubtedly a major cause of the increase in patronage, the corresponding increase in passenger traffic at the transfer points indicate that complimentary interactions are taking place with the intersecting RTD lines.

Gardena No. 3: A slight increase in ridership was recorded. An extensive investigation indicated that a mixed competitive situation exists with overlapping Grid lines 73 on Van Ness, 96 on Normandie and 361 on 135th Street.

Bus stop-by-stop comparisons show a random mixture of increases and decreases of passenger traffic along the overlapping route segments (see Exhibit G-4). Common and isolated stops alike show variances in boarding traffic. A summation of the passenger traffic, however, showed a net decrease in ridership along the affected route segment. Further study of the passenger traffic disclosed that the increase in ridership occurred on that segment of the route east of Vermont Avenue or in the City of Compton completely out of the Gardena City limits.

A directly related issue is the discontinuance of Grid Line 361 on 135th Street. Those riders boarding along 135th Street between Van Ness and Normandie Avenues will now have to take Gardena No. 3. The assignment of these riders to Gardena would balance the before and after grid ridership conditions.

Gardena No. 5: Ridership has significantly increased in the past year. Of all the Gardena lines this one appeared to be in a competitive situation with a Grid line (Line 840). However, a detailed review disclosed just the opposite (Exhibit G-5). A breakdown by individual legs of the line showed ridership increased by 64 percent on Rosecrans Avenue, 76 percent on Vermont Avenue and 49 percent on Redondo Beach Boulevard. (See ILLUSTRATION 4). These increases in patronage supports the hypothesis that a new user market is being served and destructive competition is not taking place.

The net effect of the Grid lines as indicated by the ridership increases appears to have been of benefit to both Gardena residents and municipal operation. The data does not indicate that any notable diversion of passengers from the Gardena system to the Grid lines have taken place. The Grid has essentially supplemented the public transportation services provided by the municipal operation.

A cursory review of the ridership composition, as indicated by the fare box summary (Exhibit 3-G), show two notable user exceptions. There was virtually no student ridership and very little senior citizen usage. No causal relationship has been ascertained, however, this may be an item for further study. The absence of these two generally transit dependent groups is unusual.

GRID EFFECTIVENESS

The ridership data fairly well substantiates the benefits being derived by the City of Gardena. In conjunction with the performance of Gardena's municipal operation, the effectiveness of the Grid lines were evaluated. Review of the Grid lines were further of interest because only the southerly extremities of the lines on Normandie Avenue and Van Ness Avenue extended into the Gardena service area.

Productivity

In reviewing the three Grid lines (No.s 73, 96 and 840) consideration was given to questions of the relative contribution of the route segments to the productivity of the entire individual lines. Circumstances which enhance the operation of a bus line exists when conditions are such that passenger traffic is uniformly distributed over the entire route of line. (A generalized passenger traffic profile show decreasing volumes at the line terminals). Contrary to the generalized situation, ridership on the route segments within the Gardena area did not significantly detract from the line productivity. The respective productivity on a per route mile basis were: Line No. 73 - Van Ness Avenue, 262 passengers/route mile; Line No. 96 - Normandie Avenue, 387 passengers/route mile and; Line No. 840 - Rosecrans Avenue, 219 passengers/route mile (see Table I).

These ridership figures in conjunction with the previously mentioned increase in passenger traffic at transfer points, show that the desired objective of a coordinated transit system has been achieved. The Gardena System is functioning as a collector/distributor system to the Grid lines. Consequently the general phenomena of a severe drop off in ridership has not occurred. A mutually beneficial interactive system has been evidently developed.

Rider Profile

A review of the fare tabulation provided a generalized cross-section of the ridership (see Exhibit R-II). The fares recorded were those collected within the Gardena service area.

Within the one year of operation, it is significant to note that:

- 1) confidence and reliance on public transportation has been developed as evidenced by the use of monthly passes;
- 2) a target transit, dependent market, students, has been reached and;
- 3) the Grid services are being used in conjunction with the municipal system.

A total of 168 riders used monthly passes indicating regular transit usage. The use of the monthly passes moreover results in greater cost savings to the user and expedites boarding movements. Student ridership totaled 151 riders. This number was surprising since there were very few student riders recorded on the Gardena system. The fare payment by transfers indicate the effective functioning of the Grid and municipal operation as a coordinated system.

The ridership composition, as indicated by the farebox tabulations, further substantiates the social and economic benefits being derived through the Grid services.

GARDENA MUNICIPAL BUS LINES
SYSTEM RIDERSHIP

<u>Line Number</u>	<u>Pre-Grid Total Passengers Boarding</u>	<u>May, 1975 Totals Passengers Boarding</u>	<u>Difference</u>	<u>March, 1976 Totals Passengers Boarding</u>	<u>Difference</u>
1	2787 (3/12/75) Wed.	2527 (5/8,9/75) Thrs.-Fri.	-260	2866 (3/4/76) Thrs.	+79
2	1223 (3/12/75) Wed.	1306 (5/8/75) Thrs.	+83	2071 (3/4/76) Thrs.	+848
3	815 (3/12/75) Wed.	785 (5/8/75) Thrs.	-30	827 (3/4/76) Thrs.	+12
5	118 (3/12/75) Wed.	126 (5/8/75) Thrs.	+8	196 (3/4/76) Thrs.	+78
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	4,943	4,744	- 199	5,960	+1,017

Service Evaluation Program

GC 4/7/76

Exhibit G-1

GARDENA MUNICIPAL BUS LINES
PRODUCTIVITY PARAMETERS

Line No.	Estimated ¹ One-Way Rte.-Miles	Estimated ^{2,3} Total Bus-Miles	Estimated Total Bus Hours	March, 1975			March, 1976		
				Total Boarding Passengers	Passengers Per Bus Miles	Passengers per Bus-Hour	Total Boarding Passengers	Passengers Per Bus Miles	Passengers Per Bus Hr.
1	16.9	1274.7	77.6	2787	2.12	35.9	2866	2.2	36.7
2	9.0	705.1	51	1223	1.73	23.9	2071	2.9	40.6
3	10.0	438.3	25.2	815	1.86	32.3	827	1.9	32.8
5	5.2	228.8	22	118	.52	5.4	196	.86	8.9
System	41.1	2661	175.8	4943	1.85	28.1	5960	2.24	33.9

- Notes: (1) One way route miles scaled
 (2) Product of one way route miles times number of trips.
 (3) On street vehicle miles

Southern California Rapid Transit District
 Service Evaluation Program

GARDENA MUNICIPAL BUS LINES
BUS STOP TRAFFIC COMPARISON

Gardena Line No. 2 - Gardena and Vermont-Imperial-120th and Vermont

<u>Bus Stops</u>	Pre-Grid <u>March</u> <u>1975</u>	<u>March</u> <u>1976</u>	<u>Differ-</u> <u>ence</u>	
Western/146th	13	27	+14	
Western/Rosecrans	30	45	+15	Transfer ¹
Western/139th	19	23	+ 4	
Western/135th	30	31	+ 1	
Western/134th	0	14	+14	
Western/132nd	47	42	- 5	
Western/El Segundo	46	67	+21	Transfer
Western/125th	2	2	0	
Western/124th	15	22	+ 7	
Western/121st	6	27	+21	
Western/120th	25	27	+ 2	Transfer
Western/Imperial	151	168	+17	Transfer
Imperial/Denker	19	25	+ 6	Common ²
Imperial/Normandie	22	33	+11	Transfer
Imperial/Van Buren	23	28	+ 5	Common
Imperial/Vermont	43	75	+32	Transfer
Vermont/116th	10	18	+ 8	
Vermont/120th	98	209	+111	Transfer
Vermont/123rd	11	9	- 2	
Vermont/125th	1	4	+ 3	
Vermont/El Segundo	23	55	+32	Transfer
Vermont/130th	13	30	+17	
Vermont/133rd-132nd	6	43	+37	
Vermont/135th	46	26	-20	
Vermont/138th	8	20	+12	
Vermont/13927	28	26	- 2	
Vermont/Rosecrans	22	53	+31	Transfer
Vermont/146th	<u>8</u>	<u>9</u>	<u>+ 1</u>	
	765	1158	+393	

NOTES: 1 Common refers to a shared bus stop.

2 Transfer refers to a common stop at which a transfer could be made to change one's direction of travel.

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GARDENA MUNICIPAL BUS LINES
BUS STOP TRAFFIC COMPARISON

Gardena No. 3 - Gardena-Compton

<u>Bus Stops</u>	<u>Pre-Grid March 1975</u>	<u>March 1976</u>	<u>Differ- ence</u>	
Van Ness/144th	0	12	+12	Common ¹
Van Ness/Ralphs Pkg.Lot	20	13	- 7	Transfer ²
Van Ness/139th	20	15	- 5	Common
Van Ness/Coral Apts.	35	11	-24	
135th/Wilton Pl.	5	17	+12	Transfer
135th/Western	16	15	- 1	Transfer
135th/1711	2	0	- 2	
135th/1615	1	1	0	Common
135th/Halldale	2	0	- 2	Common
Normandie/135th	4	12	+ 8	Transfer
Normandie/139th	17	8	- 9	Common
Normandie/141st	-	1	+ 1	
Normandie/Rosecrans	24	16	- 8	Transfer
Normandie/146th	0	9	+ 9	Common
	<hr/>	<hr/>	<hr/>	
	146	130	-16	

NOTES: 1 Common refers to a shared bus stop.
2 Transfer refers to a common stop at which a transfer could be made to change one's direction of travel.

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Exhibit G-4

GARDENA MUNICIPAL BUS LINES
BUS STOP TRAFFIC COMPARISON

Gardena No. 5 - Rosecrans Avenue - Vermont Avenue - Redondo
Beach Boulevard

<u>Bus Stops</u>	<u>Pre-Grid March 1975</u>	<u>March 1976</u>	<u>Differ- ence</u>	
Rosecrans/Vermont	18	27	+9	Transfer ²
Rosecrans/Berendo	0	2	+2	Common ¹
Rosecrans/Budlong	2	3	+1	Common
Rosecrans/Normandie	13	12	-1	Transfer
Rosecrans/Halldale	1	1	0	Common
Rosecrans/Denker	2	3	+1	Common
Rosecrans/Western	2	7	+5	Common
Rosecrans/St. Andrews	2	0	-2	Common
Rosecrans/Gramercy	5	4	-1	Common
Rosecrans/Van Ness	6	10	+4	Transfer
Rosecrans/Purche	0	0	0	Common
Rosecrans/Ardath	0	0	0	Common
Rosecrans/Crenshaw	6	14	+8	Transfer
	<hr/>	<hr/>	<hr/>	
	57	83	+26	

NOTES:

1 Common refers to a shared bus stop.

2 Transfer refers to a common stop at which a transfer could be made to change one's direction of travel.

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GARDENA MUNICIPAL BUS LINES
RIDERSHIP FARE BOX ANALYSIS
Thursday, May 8, 1975 Passenger Counts

Line #	Fares Paid	Fare and Transfer		All Monthly Passes		Students		Blind %	Senior #		All Tickets %
		Cash 25¢ %	35¢ %	Transfer %	Passes %	15¢ %	25¢ %		10¢ %	Citizen 20¢ %	
#1	2527	59.2	11.9	15.7	.4	1.3	.4	.1	7.3	.7	2.9
#2	1306	43.5	11.4	22.4	.4	4.7	3.1	.1	5.3	.3	8.8
#3*	785	44.5	11.1	31.9	0	0	0	0	4.7	0	7.8
#5	<u>126</u>	<u>61.9</u>	<u>4.8</u>	<u>15.8</u>	<u>1.6</u>	<u>0</u>	<u>0</u>	<u>1.6</u>	<u>14.3</u>	<u>0</u>	<u>0</u>
System Totals	4744	52.4	11.4	20.2	.3	2.1	1.1	.2	6.4	.4	5.2

Thursday, March 4, 1976 Passenger Counts

#1	2866	54.1	10.1	17.2	.7	.3	0	.7	10.3	1.1	5.3
#2	**1819	42.1	10.9	23.3	1.3	.4	.1	1.0	4.0	1.1	15.7
#3	827	49.9	10.2	21.7	0	0	0	.1	5.3	0	12.8
#5	<u>196</u>	<u>51.5</u>	<u>7.7</u>	<u>13.8</u>	<u>6.6</u>	<u>0</u>	<u>0</u>	<u>.5</u>	<u>16.3</u>	<u>.5</u>	<u>3.1</u>
System Totals	5708	49.6	10.3	19.6	1.1	.2	.1	.6	7.8	.9	9.6

** 252 fares not recorded # Free senior citizens fare included
* Fare types estimated

Southern California Rapid Transit District
Service Evaluation Program

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
PRODUCTIVITY PARAMETERS

<u>Line No.</u>	<u>Check Date</u>	<u>One-Way Rte.- Miles</u>	<u>Total Bus-Miles</u>	<u>Total Bus-Hrs.</u>	<u>Total Boarding Passengers</u>	<u>Passengers Per Bus-Mile</u>	<u>Passengers Per Bus-Hour</u>
73	4/9/76	11.8	1,126	102.21	3,045	2.5	29.8
96	3/3/76	14.1	1,771	139.37	7,728	4.4	55.4
361	9/18/75	5.0	469	44.08	219	5	5.0
840	4/21/76	26.3	1,831	111.42	2,450	1.3	22.0
Sums & Averages		59.1	4,728	353.00	13,223	2.8	37.5

SCRTD Systemwide average 40 passengers per bus-hour.

NOTES: Line No. 361 not included in totals (was discontinued 3/14/76).

Service Evaluation Program
MLB 5/3/76

Exhibit R-1

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

FARE BOX SUMMARY

Bus Line No.	Line Name	Total Fares Paid	Fares and Transfer			Fare and Transfer			FARE BOX REVENUE COMPONENTS					
			Cash 25 ¢ %	35 ¢ %	Transfer 50 ¢ %	Cash 50 ¢ %	Transfer 60 ¢ %	All Passes %	Monthly 15 ¢ %	Students 25 ¢ %	Blind Free %	Senior Citizen 10 ¢ %	20 ¢ %	All Ticket %
73	Van Ness Ave.-Arlington Ave.	262	27.1	12.6	0	2.2	13.4	13.7	17.6	7.3	0	0	.4	5.7
96	Normandie Ave	387	24.6	14.7	.3	0	22.5	14.2	16.8	3.6	.5	1.0	.5	1.3
840	Rosecrans Ave.	438	31.5	18.0	0	0	28.5	17.6	1.1	.7	0	1.6	.5	.5
	TOTAL	1,087	28.0	15.5	.1	.6	22.7	15.5	10.6	3.3	.2	1.0	.5	2.0

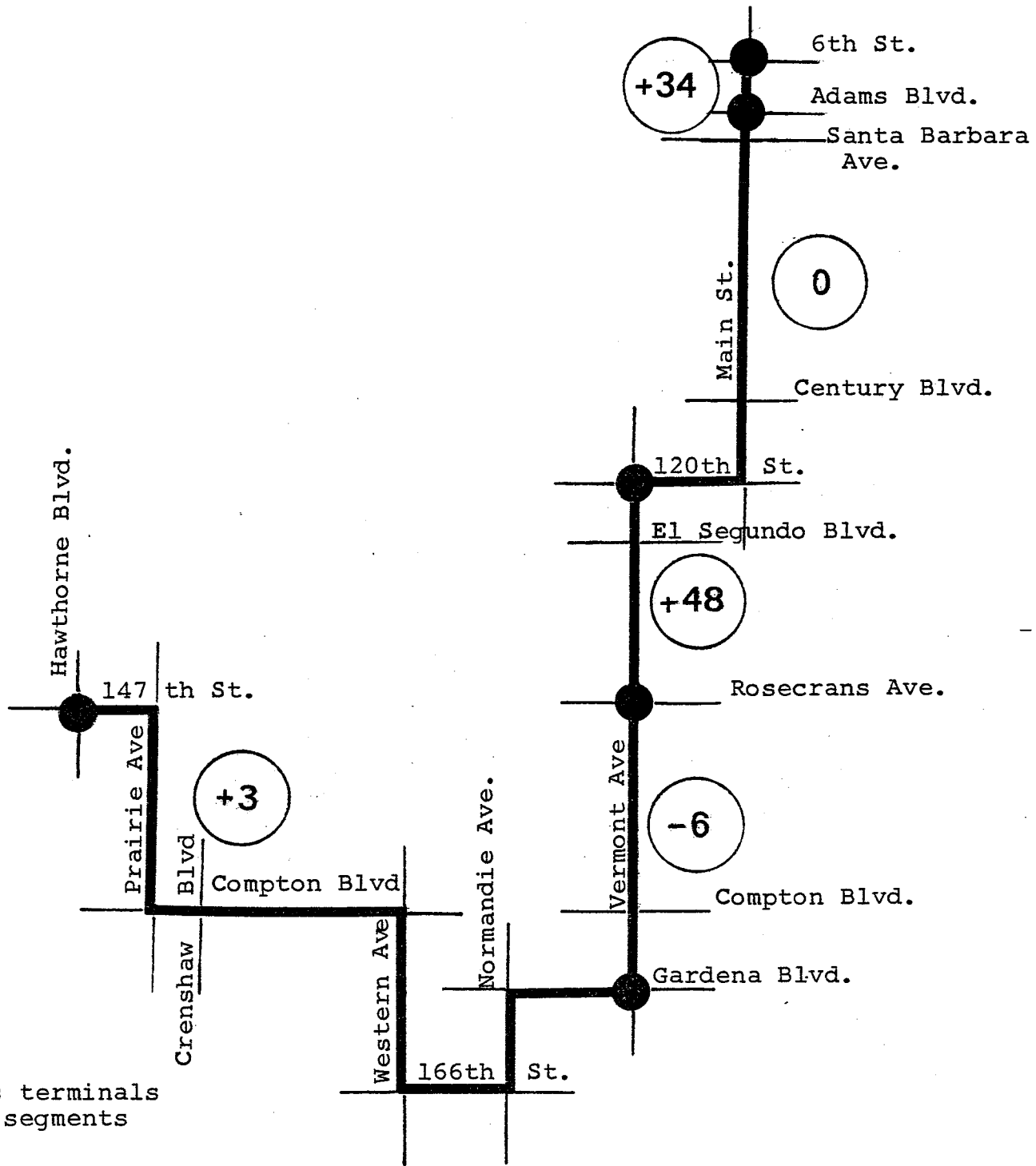
NOTE: * Fares recorded only for passengers boarding within the Gardena service area.

Service Evaluation
PSCS: 5/4/76

Exhibit R-II

GARDENA MUNICIPAL BUS LINES
 LINE NO. 1 - GARDENA - LOS ANGELES

Boarding Passengers by Segments
 Comparison between Pre-Grid March, 1975 and March, 1976

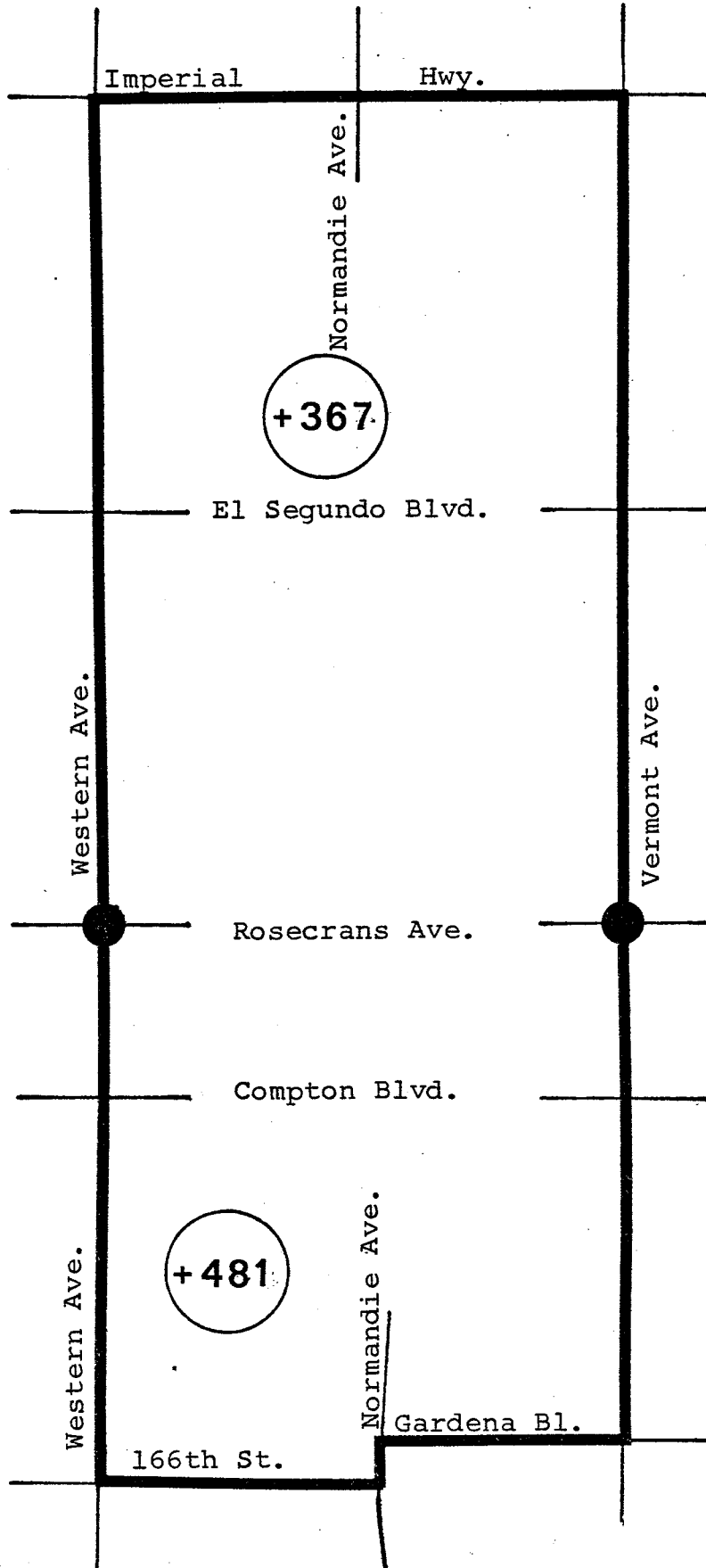


● Indicates terminals of route segments

○ Net increase (+) or decrease (-) in ridership on route segments.

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GARDENA MUNICIPAL BUS LINES
 LINE NO. 2 - GARDENA AND VERMONT-IMPERIAL-120th AND VERMONT
 Boarding Passengers by Segments
 Comparison between Pre-Grid March, 1975 and March, 1976



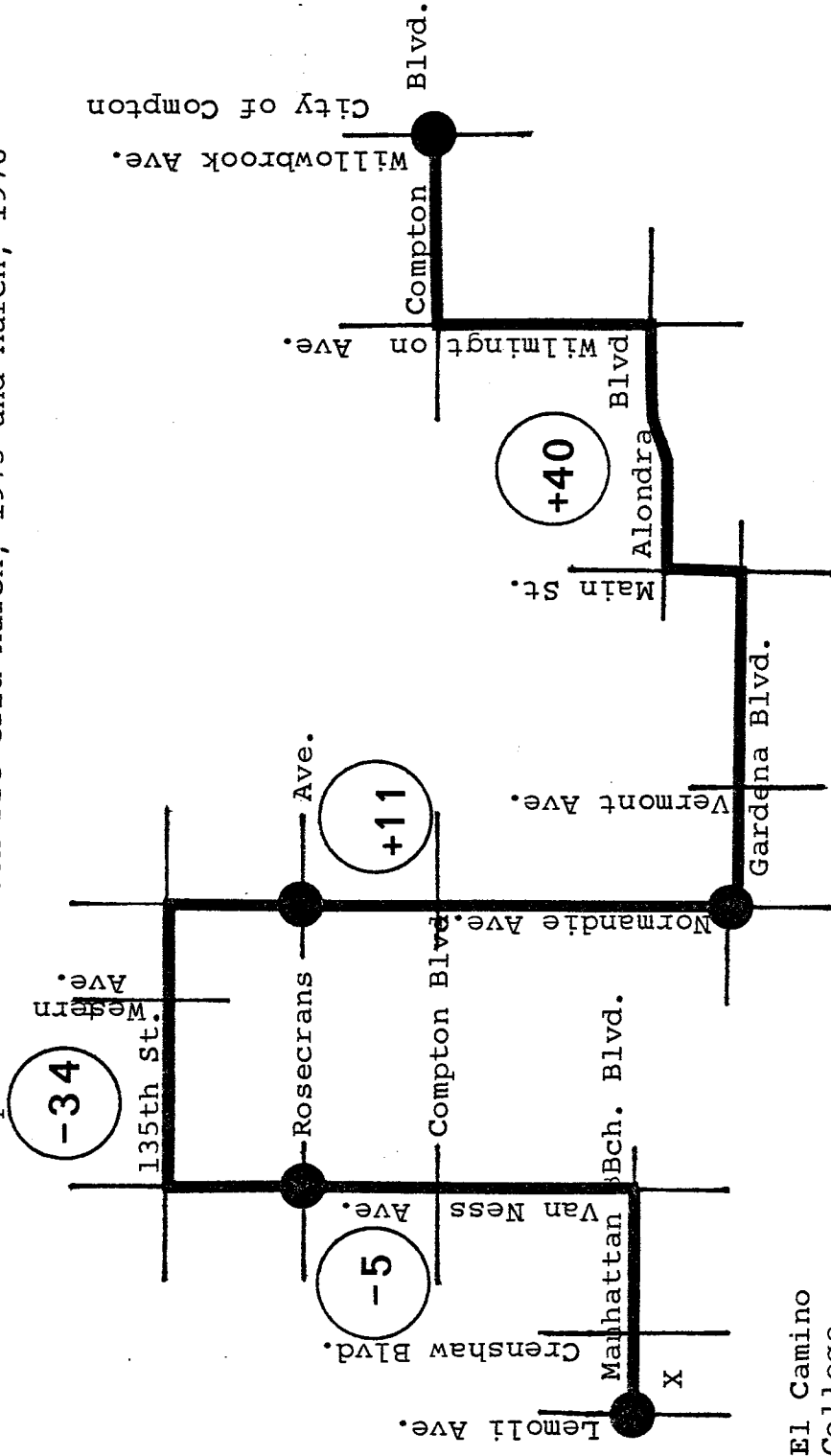
○ Net increase (+) or decrease (-) in ridership on route segments.

● Indicates terminals of route segments.

GARDENA MUNICIPAL BUS LINES

LINE NO. 3 - GARDENA - COMPTON

Boarding Passengers by Segments
Comparison between Pre-Grid March, 1975 and March, 1976



El Camino College

○ Net increase (+) or decrease (-) in ridership on route segments.

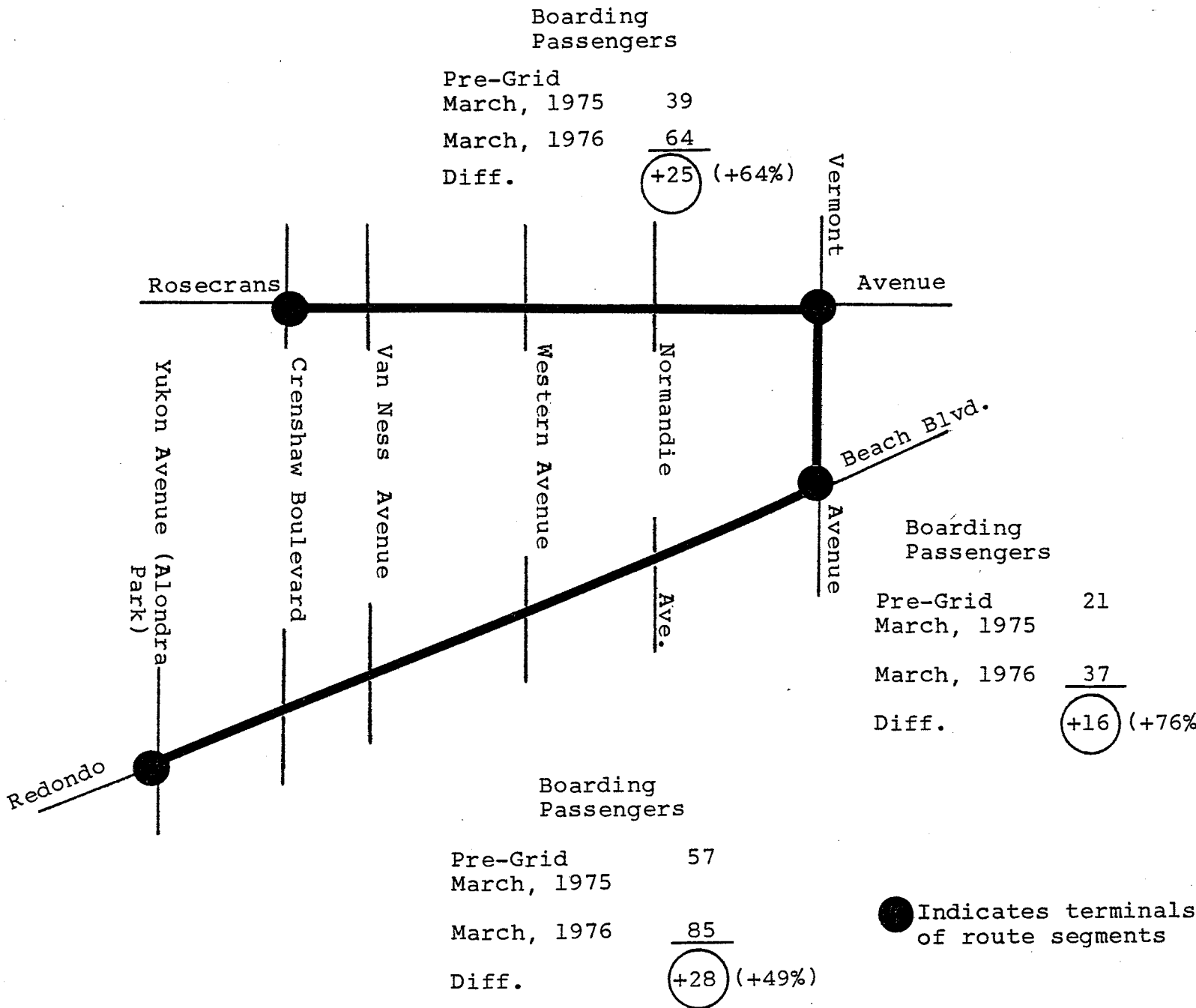
● Indicates terminals of route segments

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GARDENA MUNICIPAL BUS LINES

LINE NO. 5-ROSECRANS AVENUE-VERMONT AVENUE-REDONDO BEACH BOULEVARD



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