

Report On

POSSIBLE ALTERNATE RAPID TRANSIT PROGRAM
(In The Event Proposition "A" Does Not Pass)

By
Engineering Department
Southern California Rapid Transit District

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POSSIBLE ALTERNATE RAPID TRANSIT PROGRAM (In The Event Proposition "A" Does Not Pass)

I. Objective:

To develop a plan to get rapid transit in operation along approved transit corridors as soon as possible by the use of existing and former railroad rights-of-way and Proposition 5 money, supplemented by 2/3 UMTA money, as an alternative course of action if Proposition "A" does not pass.

II. Summary and Conclusions:

- A. We find that there are 169 miles of existing and former railroad rights-of-way available, and if five sections (totaling 14 miles) of subway are constructed, an effective 183 mile rapid transit system can be developed using all corridors recommended in the Corridor Study, except the lines along Wilshire and across Hollywood. Rapid Transit along the Wilshire Corridor is essential in any event as the "Exposition" rail alignment, (which connects the two sides of our "H" configuration) will not take its place.
- B. It appears that in six years, rail rapid transit service can be established and completed between Van Nuys and Long Beach, via the CBD, as an initial 42 mile route, financed with the 1/3 local share from Proposition 5 gasoline tax money and 2/3 from UMTA. Each year thereafter, additional sections of the

remaining 141 miles of rail routes available and the Wilshire "connector link" can be constructed as funding becomes available. It is probable that the 1946 -- 30 minute P.E. Express schedule to Long Beach could be revived on that route. The running time on other routes will be comparable; 35-40 MPH average.

III. Procedure and Criteria:

The first task performed identified the various routes and determined which type of operation was most practical; aerial, subway or existing grade. This determination was based on the following previously agreed upon criteria:

- A. Aerial construction is dictated where existing freight service with many sidings must be maintained; and over wide streets where former rail lines existed and where subway would be too expensive.
- B. Subway construction is necessary in the CBD for environmental reasons, to reduce general congestion and for quicker implementation and acceptance.
- C. At-grade lines are used where long stretches of a route can be fence protected, local streets dead-ended and major streets separated or gate and light protected.

The second task divided the overall plan into segments. Each segment was analyzed and a segment cost established, which included: grading, track, utility relocation, landscaping and fencing, tunnels or aerial structures, stations, electrification, control and communication, vehicles and maintenance facilities. The thirteen segments estimated are listed in Table "A".

IV. Cost Estimates:

Cost estimates are based on unit costs developed by the Corridor Consultants, except where conditions justified modification.

V. Operational Assumptions:

It has been assumed that service will be provided by four-car trains with 125 passengers per car (42 standees), running on a 6 min. hdwy. Thus the line haul capacity, in peak periods, would be 5,000 people per hour in each direction.

It is likely that electrification could not be completed over the entire initial route by the time the first cars are delivered. Therefore, the use of turbo-electric units similar to the type the Long Island Rail Road now has on order (& possibly some non-motorized cars) would permit immediate operation as segments of the initial route are completed. These turbo-electric cars would also permit operation over new routes as rapidly as they are acquired, prior to their electrification so the units would be usable over many years.

V. Financing:

Selection of the initial 42-mile route, extending from Van Nuys to Long Beach, was based on the generation of \$40 million per year, or \$240 million in 6 years from Proposition 5, which with an UMTA contribution of \$480 million results in a \$720 million total. The initial 42-mile line can be constructed within that figure. (See Table "C"). Other routes could be justified from patronage data, but it appears that the suggested route will offer the most service to the most communities as an initial step.

Proposition 5 funding could be used to provide the local matching share of financing the downtown central district auxiliary transit system which connects all important patronage generators in the CBD and the Busway. However, in lieu of using Proposition 5 money for this, it may be preferable to create a special benefit district in the CBD to raise that local share.

The Santa Fe Line through Pasadena to Glendora (ultimately to Pomona) could be a possible second step because it will be so easy to make use of it. It is only lightly used and back in '68 the ATSF indicated its willingness to dispose of this line. This line, for the most part, is in first class condition. Turbo-electric -- or even regular locomotive and passenger car commuter service -- could be initiated almost immediately thereon.

Because of the advantages that appear obvious, and the time limitations, detailed attention has been given only to the suggested initial 42-mile route, since it seems to satisfy the requirements of the objective. Other routes, possibly using other technologies, can be added as funds become available, thus creating a comprehensive system in an orderly manner. The technology on the initial routes can also be upgraded, using the same rights-of-way, if desired in the future.

VII. Initial Alignment Details:

Step one alignment details and alternates are: Burbank Branch from the Sepulveda Flood Control Basin to Burbank Junction, generally aerial; cross SP main line, aerial or subway into Burbank, subway under Burbank CBD and turning into the median of Glenoaks; thence aerial along Glenoaks, south on Brand Blvd.; cross river in the air using the old P.E. piers and then use the old P.E. R/W along Riverside Drive to Alessandro; then in the air over Riverside Drive to North Broadway; at grade along the easterly side of N. Broadway going to subway in the vicinity of Chinatown and thru the CBD subway to Adams; then aerial to the Willowbrook R/W and south thereon, at grade (with separation at all existing crossings) to Watts, Compton, Dominguez Jct., and into Long Beach on grade to the Terminal Station at Willow Street.

The Willowbrook line lends itself admirably to the suggested application. There are long stretches of private R/W, few crossings, and adequate space for double track. Part of the line is soon to be abandoned, generally in the Florence/Manchester area.

VIII. Alternate Configuration Thru Burbank and Glendale:

If Glendale and Burbank are willing to put up the difference in cost between aerial and cut-and-cover subway, in order to assure the presence of rapid transit through their communities, that certainly could be done. If Glendale and Burbank do not want either alternate, then a route following Victory Blvd. from Chandler through Griffith Park, adjacent to the freeway -- with a station at the zoo -- to the P.E. R/W alongside Riverside Drive could be used.

IX. Railroad Rights-of-Way:

The attitude of the railroad now operating very light service along the entire initial line indicates that negotiations can be pursued on the basis of outright purchase or shared use provided that existing freight service can be maintained or relocated.

In summary, it appears feasible, except for the Wilshire Line, to put 183 miles of rapid transit into service relatively soon within the corridors recommended by the Consultant Team using existing or former railroad rights-of-way for the most part.

TABLE "A"

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Engineering Dept.

MILEAGE, COST & TIME TABLE FOR
RAPID TRANSIT SEGMENTS USING EXISTING & FORMER RAILROAD LINES

	Guideway Miles			Stations			Station Cost	Guideway Cost	Average Schedule Time	
	G	A	S	Total	G	A				S
Van Nuys to CBD via Burbank	11.4	7.3	3.3	22.0	4	2	3	\$ 51,120,000	\$215,560,000	38 min.
Watts to CBD	3.6	4.0	1.0	8.6	2	2	1	24,460,000	89,905,000	14 min.
Long Beach to Watts	8.5	3.9	-	12.4	3	3	-	20,190,000	93,049,000	22 min.
San Pedro to Dominguez Jct.	6.0	5.0	-	10.7	-	2	-	8,800,000	95,698,000	18 min.
Orange County to Watts	-	12.3	-	12.3	-	5	-	22,000,000	164,303,000	28 min.
La Habra to Huntington Park	-	18.0	-	18.0	-	6	-	26,400,000	240,444,000	32 min.
N. Hollywood to Leimert Park	-	5.0	7.5	12.5	-	2	4	52,800,000	210,250,000	21 min.
Rolling Hills to Leimert Park	-	16.0	1.0	16.5	-	7	0	30,800,000	232,856,000	30 min.
Venice Loop to Leimert Park	-	21.0	-	21.0	-	5	1	33,000,000	280,518,000	33 min.
W. L. A. to Hollywood	-	5.8	-	5.8	-	2	-	8,800,000	77,476,000	10 min.
Chatsworth to Van Nuys	11.8	-	-	11.8	5	-	-	11,650,000	56,852,000	21 min.
Sylmar to Burbank	11.8	-	-	11.8	6	-	-	22,650,000	91,542,000	21 min.
Glendora to Pasadena	19.0	-	1.0	20.0	5	-	1	33,000,000	272,930,000	33 min.
				183.4						
								\$345,670,000	\$2,121,383,000	

TABLE "B"

COST ESTIMATE BASIS (From JV Reports)

1.	<u>TRACK @ GRADE -- EXISTING RIGHT OF WAY</u>	
	a) Grading and Sub Grade (100-540 ft) (320 ft. avg)	\$1,700,000/mile
	b) Track work (2 tracks)	\$ 686,000/mile
	c) Utility Relocation (Variable) (0 on existing way)	150,000/mile
	d) Landscaping & Fencing	<u>120,000/mile</u>
		SUBTOTAL
		\$2,656,000/mile
	e) Electrification (District)	\$1,162,000/mile
	f) Train Control	<u>\$1,000,000/mile</u>
		TOTAL COST/MILE @ GRADE
		\$4,818,000/mile
	Station @ Grade	\$2,330,000 ea.
2.	<u>TRACK ON AERIAL STRUCTURE -- EXISTING R/W</u>	
	a) 2-parallel bridges (5280 x 1800) =	\$9,500,000
	b) Track Work	686,000
	c) Utility Relocation (Variable, Aerial Lines)	400,000
	d) Landscaping	<u>120,000</u>
		SUBTOTAL
		\$10,706,000
	e) Electrification (District)	1,452,000
	f) Train Control - Communication	<u>1,200,000</u>
		TOTAL
		\$13,358,000/mile
	Stations	\$ 4,400,000 ea.

The above are 1974 costs --
 Add -- Engineering & Management
 Contingencies
 Escalation

3. TRACK IN SUBWAY

a) Tunneling - Complete	\$13,200,000
b) Track Work	686,000
c) Lighting	290,000
d) Vent Shafts	1,150,000
e) Assume no underpinning nor any utility relocation except at stations	<hr/>
	\$15,326,000/mile
f) Electrification (District)	\$ 1,452,000
g) Ventilation	\$ 1,150,000
h) Train Control	<u>\$ 1,200,000</u>
	TOTAL
	\$19,128,000
Subway Station	\$11,000,000 ea

REPAIR SHOP (RAIL)

Land (20 acres @ \$200,000/ acre) (District)	\$ 4,000,000
Buildings (WMATA)	5,000,000
Equipment (WMATA)	<u>6,000,000</u>
CURRENT TOTAL COST	\$15,000,000

REPAIR SHOP (BUS) (District Cost Data)

El Monte Facility (421,541 sq. ft. @ \$205,000/acre)

Land	\$ 1,982,927
Contract "A"	300,502
Contract "B"	1,766,000
Equipment	289,550
Miscellaneous	<u>25,000</u>
CURRENT TOTAL COST	\$ 4,363,979
USE	\$ 4,500,000

TABLE "C"

SUMMARY COSTS FOR 42 MILE INITIAL ROUTE

Segment #1	\$281,680,000
Segment #2	\$114,365,000
Segment #3	<u>\$113,239,000</u>
Subtotal Construction:	\$509,284,000
*Vehicles (40 Conv., 8 Turbine)	40,000,000
Engr. @ 10%	50,000,000
R/W Costs \$3/4M/mile	31,000,000
Maint. Facilities	15,000,000
Contingencies (10% of Const.)	50,000,000
Escalation Allowance	<u>25,000,000</u>
TOTAL:	\$720,000,000

*Vehicles

32 million for conventional (80 x 0.4M)
8 million for turbine
<hr/>
40 million for Vehicles

GLENDORA TO LONG BEACH ALTERNATE

There is a popular comment often repeated by knowledgeable people in the transit industry -- "Isn't it a shame that all of that old P.E. Right-of-Way was abandoned and lost". Some has been lost, but significant portions do exist and can be re-established as linear rights-of-way with very little disruption to individuals and community life. In fact, two railway lines were inspected by Don & I during the week. It was determined that, with appropriate permission one could take a locomotive drawn train from Glendora to Long Beach by way of Pasadena and Los Angeles, a distance of about 50 miles, and that the trip could be made in about 2 hours, without any change in existing track or local regulation.

Although most of the line now is single track, sufficient right of way exists that it could be double tracked without particular problem, except for one half mile in downtown Pasadena. In the median of Freeway 210 currently under construction, trains may operate up to 80 MPH without alteration.

Since Amtrack operates over the Santa Fe Line to Los Angeles, presumably a limited commuter service could be established on this line with a minimum of capital expenditure. Possibly only that which would be spent to establish stations with facilities for park and ride and/or bus to train transfer. A reasonable estimate for these facilities might be in the order of 20 million dollars, assuming use of the existing station in Pasadena. If the line were upgraded and a subway station installed in Pasadena, station only costs could climb to \$32,000,000.

In time, complete grade separation and double track would be required for high frequency, high speed service. As current cost it is believed that the whole line from Pasadena to Los Angeles could be double tracked and electrified for about 40 million dollars. Stations on the Long Beach Line could be established for about \$28 million. The line could be double tracked and electrified with complete grade separation for about:

(18 mi x 4818 x 18 = \$86.7 million + 93 + 40 =) \$220 million.

Summary - <u>Pasadena</u> Station	32
Elect. & Double track	<u>40</u>
	72
<u>Long Beach</u> Station	37
Elect. & Double track	<u>220</u>
	257
 TOTAL	 329 say \$330 million for 50 miles + equip.