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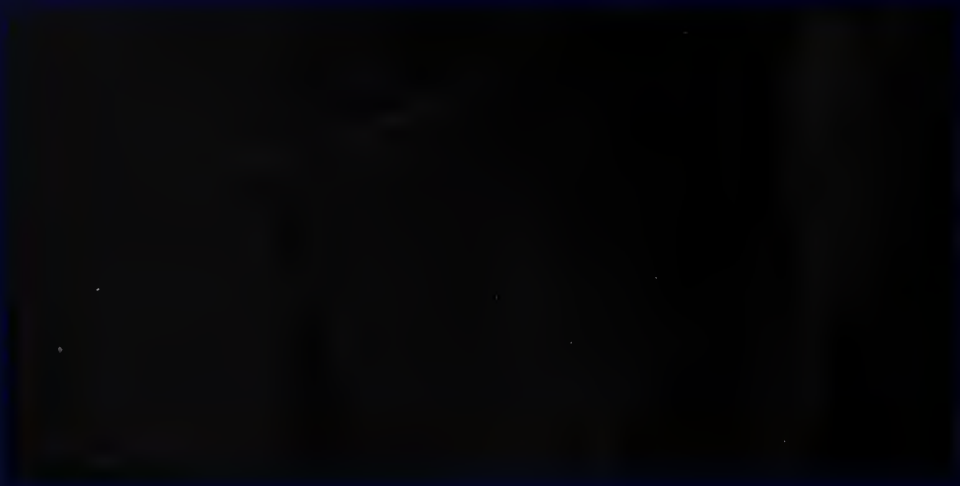

Transportation Planning in San Diego 1950–1975

SAN DIEGO TROLLEY IMPLEMENTATION PROCESS EVALUATION

Working Paper Number 3

FEBRUARY 1982

San Diego

ASSOCIATION OF GOVERNMENTS

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TRANSPORTATION PLANNING IN SAN DIEGO
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San Diego Trolley Implementation Process Evaluation
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I. EARLY REGIONAL TRANSPORTATION PLANNING (1950-1970)

A continuing transportation planning program has been underway in the San Diego area since the early 1950's. Modern transportation planning began in a 1952-53 roadside and dwelling unit origin-destination survey conducted by the California Division of Highways in cooperation with the U.S. Bureau of Public Roads, at a time when the process was still termed "traffic engineering." Shortly afterward, in 1954, the San Diego Metropolitan Area Transportation Study was initiated, and the City of San Diego created a Transportation Research Office within its organization. Subsequently the City and the County created the Advance Transportation Planning Team composed of staff from the Departments of City Planning, City Traffic Engineering, City Highway Design, County Planning, and County Highway Design.

Because of the progressive attitude of the community toward accomplishing adequate transportation planning, the National Committee on Urban Transportation selected San Diego as one of seven "Pilot Cities" for special studies in 1956.

Activities of the San Diego Metropolitan Area Transportation Study continued until 1966 under the auspices of a Technical Coordinating Committee. Included were more than a dozen organizations - cities, county, state and others. During this period, a complete traffic census program was in operation, biennial screenline and cordon line traffic counts taken, travel time periodically measured, parking inventoried, and traffic accidents analyzed.

The Comprehensive Planning Organization (the predecessor of SANDAG) came into existance in 1966 and broadened the scope of these studies to include transit and land use concerns. The following chronology summarizes the major activities and studies which were undertaken prior to the creation of the San Diego Metropolitan Transit Development Board in 1975.

1950- The City of San Diego adopted the 1950 Major Street Plan. The plan established a street classification system and a system of limited access highways.

- San Diego Needs Highways report was prepared by the State Senate Interim Highways Committee for the City of San Diego.

1952- The California Division of Highways and the U.S. Bureau of Public Roads conducted an origin-destination survey in San Diego County.

1954- The San Diego Metropolitan Area Transportation Study was initiated by the San Diego County Technical Coordinating Committee (predecessor of SANDAG).

- The City of San Diego created a Transportation Research Office.

- The City and County of San Diego joined to establish the Advanced Transportation Planning Team.

1955- The National Committee on Urban Transportation was formed.

1956- A Master Plan for Transit Improvement was prepared by the privately owned San Diego Transit System for the City of San Diego.

- The Pilot City Study by the National Committee on Urban Transportation began.

1957- As a result of the Pilot City Study and as part of the San Diego Metropolitan Area Transportation Study, San Diego-The Pilot City, a program to develop the continuing function of urban transportation planning for the San Diego metropolitan area was published. San Diego Transit System was an active participant in the program.

1962- The Federal Aid Highway Act of 1962 was passed by Congress.

- As part of the San Diego Metropolitan Area Transportation Study, the City of San Diego approved a Master Plan of Freeways and Major Streets.

1963- San Diego County Regional Plan was adopted by the Board of Supervisors. The plan, prepared by the San Diego County Planning Department, was developed as a cooperative effort between the County Supervisor and Road Commissioner, the San Diego City Planning Department, the Highway Development Association, and the Highway Committee of the San Diego Chamber of Commerce.

1964- Prospectus - 1964, produced by the Technical Coordinating Committee of the San Diego Metropolitan Area Transportation Study was adopted by the Board of Supervisors.

- The Joint Powers Agreement for Transportation Planning was created. Under the Agreement, a Transportation Policy Coordinating Committee (elected officials) and a Transportation Technical Coordinating Committee were formed. Membership was voluntary, but included all incorporated cities, the County, Port District and the State Division of Highways.

- A Monorail Plan, prepared by Rohr Industries and other private sector interests, using SD&AE right-of-way, was presented to the City of San Diego.

1965- The Transportation Technical Coordinating Committee began developing a work program to conform with Federal Aid Highway Act of 1962 requirements.

- San Diego County applied for a 701 Planning Grant to develop a countywide master plan.

- The State Division of Highways in cooperation with the City of San Diego and San Diego County set up a Traffic Analysis Zone system for the region.

- A Travel Time Study was completed by the City of San Diego and the State Division of Highways.

- The San Diego County Joint Powers Agreement was approved by the Bureau of Public Roads.

- The San Diego County Transit Act of 1965 (SB 1460 - Schrade, Mills) was signed into law. This bill enabled the formation of a County transit district, which has never been implemented.

1966- San Diego voters approved a proposition authorizing the City to purchase and operate the transit system through a non-profit corporation supported by a special 10 cent property tax.

- San Diego Transit Corporation was incorporated pursuant to the General Non-Profit Corporation Law (CA).

- Barton-Aschman and Associates was selected to prepare a Study Design for the Urban Planning Program.

- The Secretary of the League of California Cities was assigned by the City managers to work with the County chief administrative officer and the City managers to prepare a plan for management of the regional planning activity which would become known as the Comprehensive Planning Organization for San Diego County (CPO). CPO incorporated the technical and policy advisory committees of the 1964 joint powers agreement.

- CPO, which was still administered by the County, replaced the County Planning Commission as the Federal 701 Grant processor.

- CPO applied to HUD for funds to prepare a comprehensive, long-range transportation and land use plan for the San Diego region.

- The Organization for Social and Technological Innovation (OSTI) and the Ford Motor Company selected San Diego as the best location in the country for working with local government to create a showcase transportation system in the nation, endeavoring to solve long-range transportation problems.

- The Regional General Plan and Transportation Policy Coordinating Committee came under the auspice of the CPO.

1967- Regional transportation goals were incorporated into the Regional General Plan for San Diego County 1990.

1969- An Executive Director was appointed to be responsible for the overall administration of CPO.

1972- CPO reorganized independent of County government.

1975- Adoption of the first comprehensive multi-modal transportation plan for the region.

II. REGIONAL COMPREHENSIVE PLAN STUDIES (1970-1975)

A study effort was initiated by CPO during 1970 which was the most extensive transit research program ever undertaken in the San Diego region. It was a thorough investigation of the requirements for a future transportation system and the various modes that could be used in that system. The overall long-range transit and highway planning program culminated in the adoption of the San Diego Regional Transportation Plan (RTP) in March 1975.

In preparing the Transportation Plan, which is an element of the Regional Comprehensive Plan, CPO evaluated a number of land use and transportation alternatives that were developed and tested to identify a development strategy for the San Diego region. This evaluation process differed in two significant ways from previous studies conducted in other metropolitan areas:

1. Land use patterns were forecasted using a fully operational urban development model (UDM). The UDM forecasted the distribution of activities based on existing distributions, transportation facilities, and availability of land.

2. Distinct transportation system alternatives were evaluated along with each land use alternative. The systems evaluated were designed to be an integral part of the regional development concepts.

The land use and transportation concepts tested are shown in Table 1.

TABLE 1

REGIONAL DEVELOPMENT ALTERNATIVES

LAND USE CONCEPT	TRANSPORTATION CONCEPT
Existing Trends	Local Bus Express Bus
Radial Corridors	Heavy Rail
Controlled Trends	Light Rail Advanced Technology Express Bus

A single regionwide 1995 population forecast of 2.4 million people was used to evaluate all alternatives. The alternatives illustrated how the anticipated new population and employment growth would be allocated throughout the region. This allocation was based on the population and employment holding capacities of subregional areas as determined by alternative land development policies and on the attractiveness of various subareas due to the accessibility provided by the alternative transportation systems.

Existing Trends

The Existing Trends Alternative tested the consequences of continuing the same policies and attitudes about urban and rural growth that had prevailed through the 1960's. This did not mean that growth patterns would not change over the next 20 years. It meant rather that the same attitudes and policies would guide the extension of the transportation and urban services and facilities that will shape the region's development between now and 1995. For most areas in the region, the projection of Existing Trends was a representation of city and community plans as they existed in 1970-71 - in terms of the locations and amounts of land available for urbanization, residential densities, and the locations of employment.

From a transportation point of view, Existing Trends was a test of whether or not the region could continue to rely on the automobile-highway system as the primary mode of regional transportation while continuing to disperse population at relatively low residential densities throughout the region. The Existing Trends concept assumed the construction of the large number of new freeways and major highways included in the 1967 Circulation Element of the County General Plan.

The Existing Trends transit element was a test of whether the current concept of transit service - buses on streets and highways - would be an effective adjunct to the automobile-highway system over the next 20 years. The Existing Trends transit network was assumed to follow development rather than influence its direction. In the local bus option, express bus-on-freeway service was assumed to be implemented on major freeway routes within the urbanized area. Local bus service was provided to all urban and suburban areas. In the express bus option, extensive freeway flyer service was assumed throughout the region.

Radial Corridors

The Radial Corridors alternative assumed a high-speed, high-capacity fixed guideway transit system interconnecting all urbanized portions of the region. The system tested travelled on a separate right-of-way. Radial Corridors also included an extensive conventional bus system which would be needed to feed the fixed guideway portion of the system and which would accommodate short, local transit trips.

The complete system was assumed to have 134 miles of rail lines connecting all of the currently urbanized areas of the region. It was assumed that 74 stations would be provided with suburban stations spaced two to six miles apart and stations in the existing urbanized areas spaced from one-half to one mile apart. This kind of transit system can achieve top speeds of 80 miles per hour, competing with the speed of the automobile for longer trips.

The Radial Corridors concept placed greater emphasis on existing freeway routes paralleling the regional transit system than on extending the freeway system into currently undeveloped areas. Land development

policies kept the total population for most cities and community areas at the levels shown in their respective plans. In doing this, densities adjacent to the guideway were increased, while areas to be served with facilities which permit urban development were smaller than shown in the city and community plans.

Controlled Trends

In the Controlled Trends Alternative, policy assumptions were directed toward achieving more balanced, self-contained communities in the region - both in currently urbanized areas and in new suburban developments.

The Controlled Trends assumptions did not try to change the kind of residential development that is taking place today, but they did try to redirect where this development would occur. Land development policies guiding the extension of sewer facilities would discourage the leap-frogging of suburban development and encourage the in-filling and redevelopment of land closer to established employment and service centers. At the same time, public policies would encourage new employment opportunities to locate within the region's communities in closer proximity to the region's population, providing the opportunity for more people to live and work in the same community.

The Controlled Trends concept attempted to accommodate the use of the auto while trying to minimize some of its adverse side effects. Most of the additions to the current freeway system tested in Controlled Trends were located within the region's currently urbanized areas.

Because more people would live and work in the same community, improved localized transit was provided in addition to more convenient regionwide transit service. The transit systems tested under Controlled Trends attempted to meet these needs and also provide improved service for those people who may not have access to an automobile.

In the northern part of the region, an area of relatively low density development with several established community centers, region-serving transit was provided by an expanded express bus system connecting all of the major employment and community centers. This system also would connect North County with metropolitan San Diego. People using the express bus system would be able to transfer directly to the fixed guideway system operating in the southern part of the region.

Two different fixed guideway transit systems were tested under Controlled Trends to serve the southern part of the region. A light rail system was assumed to be manually operated and could be run directly on streets as well as on exclusive rights-of-way. The system assumed about 180 transit stations along the 118 mile light rail system. The more frequent stations and street operations meant that this system speed would be slower than the Radial Corridors system.

The second system tested, which was identified as "Advanced Technology Transit," was assumed to operate at frequent intervals on 77 miles of

guideway that would be totally separated from all other forms of traffic. By providing off-line stations, the concept of express service at selected stations was introduced. This concept could allow higher average speeds and still provide for the closer station spacing necessary for maximum pedestrian access to the system. Highly automated transit characteristics were assumed with this alternative system.

The Controlled Trends concept was also tested with an extensive express bus system serving the urbanized portions of the region. All three Controlled Trends transit options were tested using a more extensive feeder bus system than the assumed Radial Corridors system. The systems tested are shown on Figure 1 and Table 2.

Regional Land Use and Transportation Policies

Based on the evaluation of these alternatives, the CPO Board adopted regional land use and transportation policies in January 1974. The land use policies closely resembled the Controlled Trends alternative in that they specified in-filling, incremental new development adjacent to existing urbanized areas, moderate density increases and a balance of population and employment within the region's communities. From the Radial Corridors concept, the adopted policies indicated the use of the transportation system to structure urban development. Activity centers were to be located at the major access points to the regional transportation system.

The transportation policies did not identify a specific guideway technology. They did specify an intermediate capacity fixed guideway system to operate in the high demand corridors. This system was to directly serve the region's major activity centers and operate on exclusive rights-of-way to maximize system speed. An express bus system was to serve the moderate demand corridors, including all of the North County area.

Transit Development Program

In May 1974, CPO initiated the Transit Development Program study with the assistance of a large consultant team. The purpose of this program was to refine the adopted transportation policies, to identify transit corridors, evaluate impacts, refine patronage, and determine financial feasibility.

Although conventional (heavy) rail, light rail and advanced technology systems were evaluated in this program, a specific decision on system hardware was not made. A decision was delayed to potentially capitalize on technological breakthroughs which were expected to occur prior to 1980. (These breakthroughs never occurred.) For the purposes of patronage estimates, engineering feasibility and costing, the characteristics of conventional fixed guideway were assumed, as shown in Table 2.

Starting with the work done in previous studies, the guideway and express bus corridors shown on Figure 2 were developed through a series of model simulations. These corridors were adopted as part of the 1975 Regional Transportation Plan.

FIGURE 1
REGIONAL TRANSIT ALTERNATIVES
REGIONAL COMPREHENSIVE PLAN STUDIES

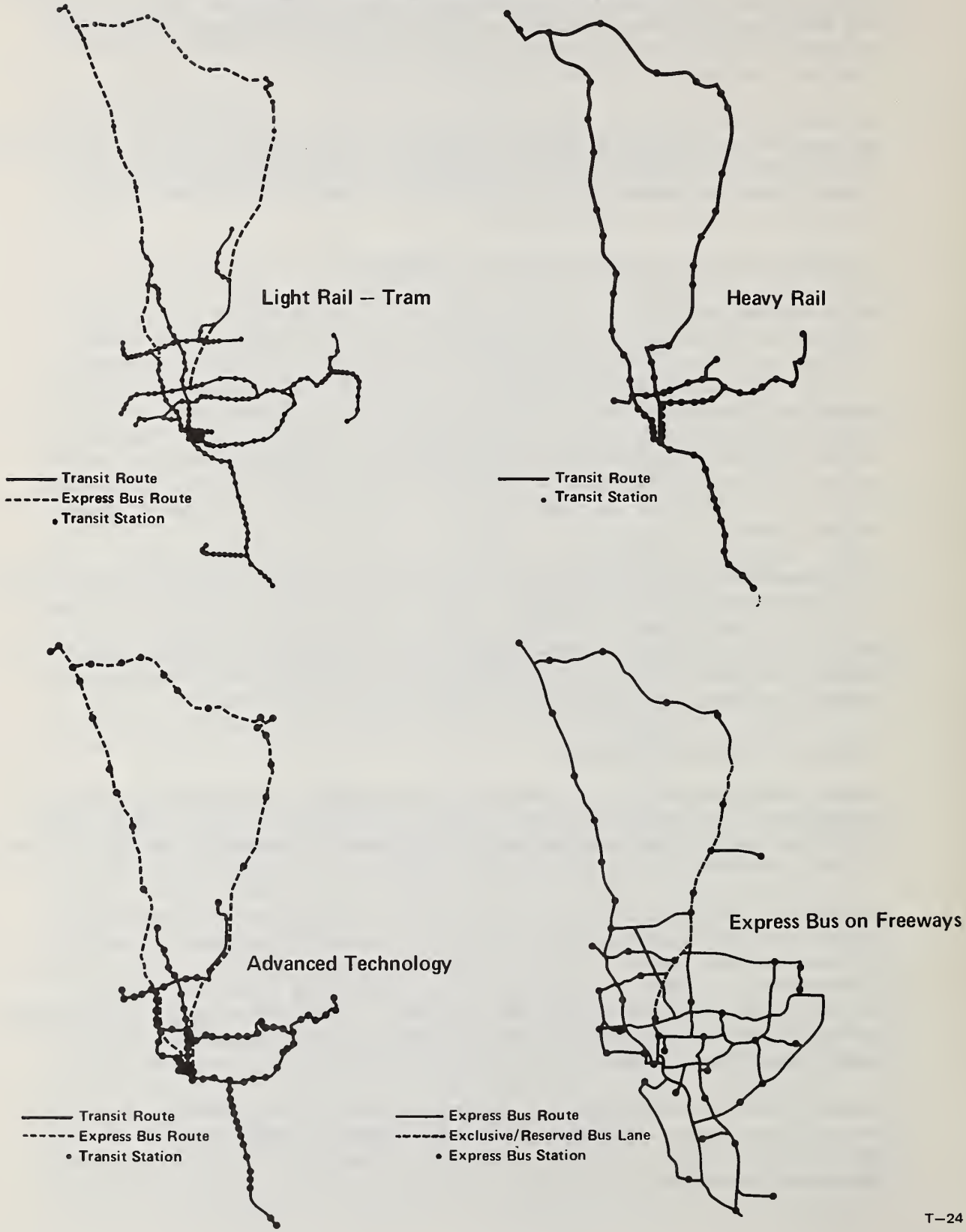

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TABLE 2

TRANSIT ALTERNATIVES EVALUATED
REGIONAL COMPREHENSIVE PLAN STUDIES

Land Use Assumption	Heavy Rail Radial Corridors	Light Rail Controlled Trends	Advanced Technology (G.R.T.) Controlled Trends	Express Bus Controlled Trends	Local Bus Existing Trends	Benchmark Guideway Regional Plan
Patronage/day (000)	790	812	806	503	230	620
Population Served (%)	90%	90%	88%	N/A	N/A	N/A
Capital Cost (000,000)	1,901	1,273	1,177	330	48	1,700
Annual Operation Cost (000,000)	96	102	93	93	50	97.6
Guideway:						
Miles	134	118	77	N/A	N/A	59
Stations	74	180	83	N/A	N/A	60
Vehicles	430	405	1,920	N/A	N/A	348
Average Speed	45	28	36	N/A	N/A	32
Bus:						
Express Vehicles	0	[820	[800	830	190	[748
Local Vehicles	610			750	790	
Average Speed	12	N/A	N/A	20	14	N/A

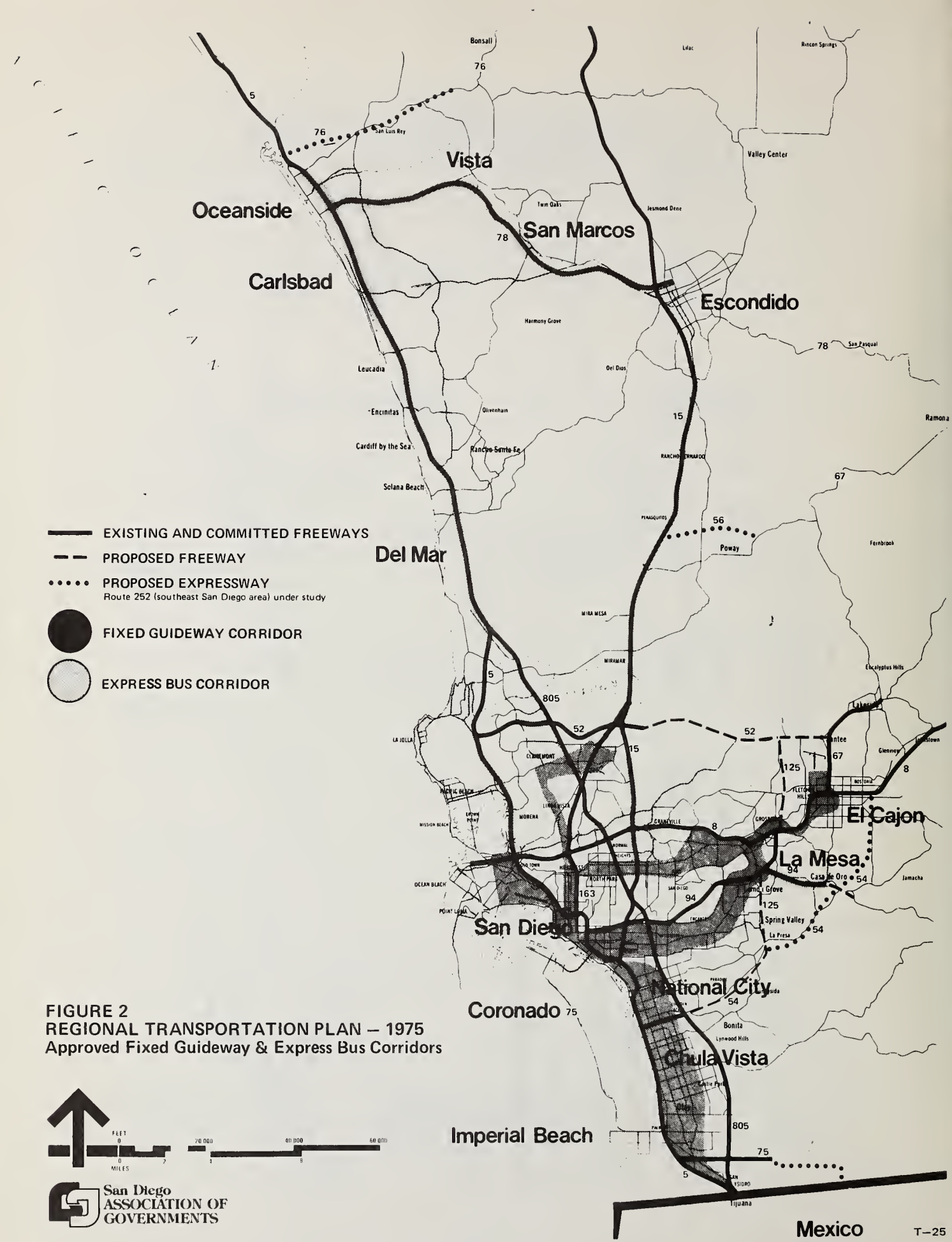

FIGURE 2
REGIONAL TRANSPORTATION PLAN – 1975
Approved Fixed Guideway & Express Bus Corridors

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A major part of the project addressed system phasing from two perspectives. The first dealt with which portions of the guideway should be implemented initially. Based on several evaluation criteria, the phasing shown on Figure 3 was recommended. The second phasing issue was when, in the 20-year planning period, should guideway construction begin. Because of the potential land forming effects and high anticipated inflation rates, early implementation was selected.

A series of environmental analyses and a cost-benefit evaluation were also produced. Environmental impacts were generally positive, except for temporary disruption due to construction. The cost-benefit evaluation concluded that the 59-mile guideway system had a positive effect over the long run. The summary results of this evaluation are shown in Figure 4.

A financial plan for system implementation was also developed. This plan, which is summarized in Figure 5, assumed 50% federal capital assistance, existing state sales tax support and an additional local sales tax of up to 1%, or its equivalent.

Local Agency Technical Task Force

After the adoption of the Regional Transportation Plan, refinement of the transit element continued through the formation of the Local Agency Technical Task Force (LATTF). The LATTF, composed of planners and engineers from all jurisdictions in the region, was seen as the advisory group for the alternatives analysis process and the further refinement of the adopted system. Activities of the LATTF revolved around the various transit hardware options. With the formation of MTDB, the Task Force became inactive; however, the LATTF representatives from the metropolitan area became the nucleus of the MTDB Technical Advisory Committee.

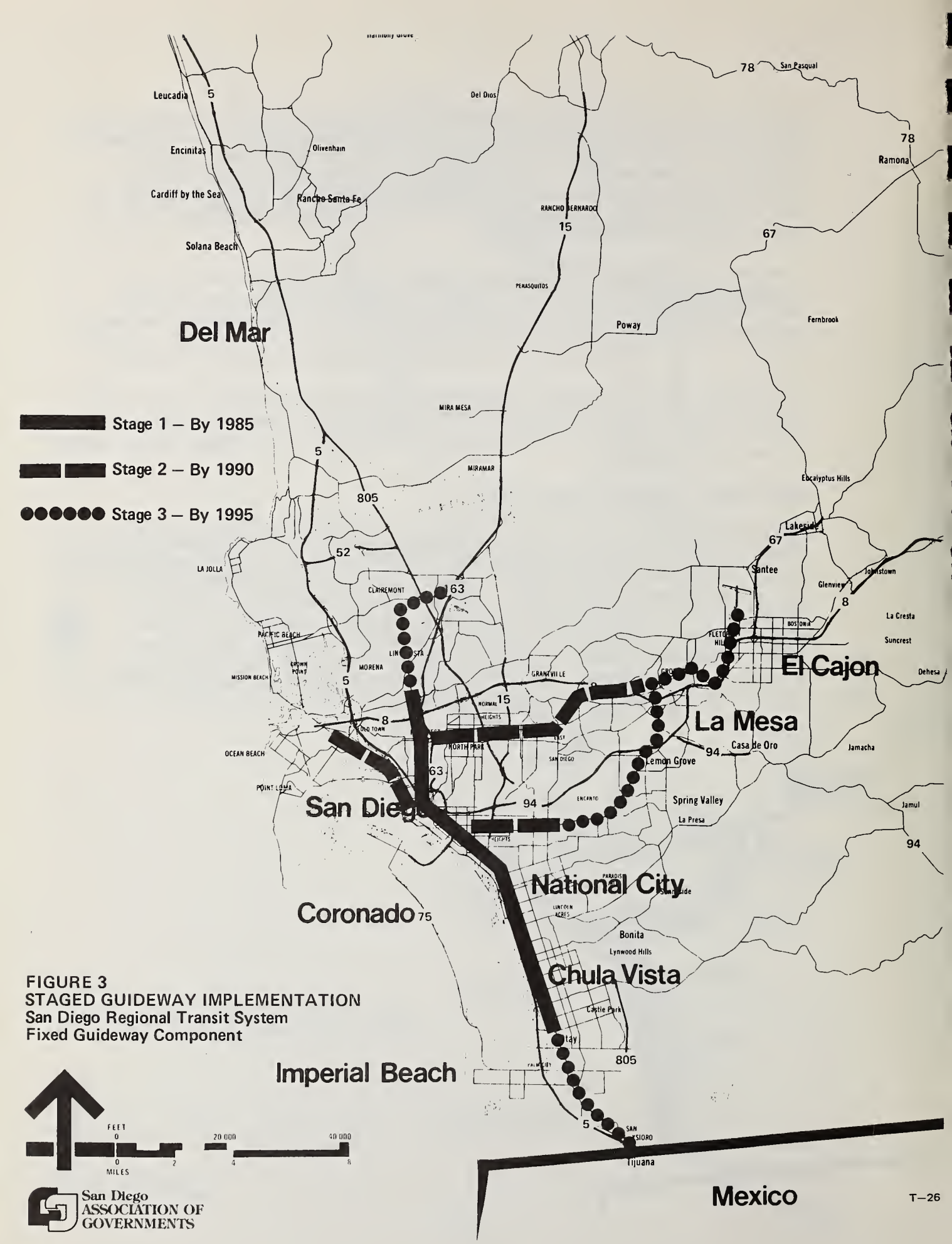

FIGURE 3
STAGED GUIDEWAY IMPLEMENTATION
San Diego Regional Transit System
Fixed Guideway Component

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FIGURE 4
GUIDEWAY BENEFIT/COST RATIOS

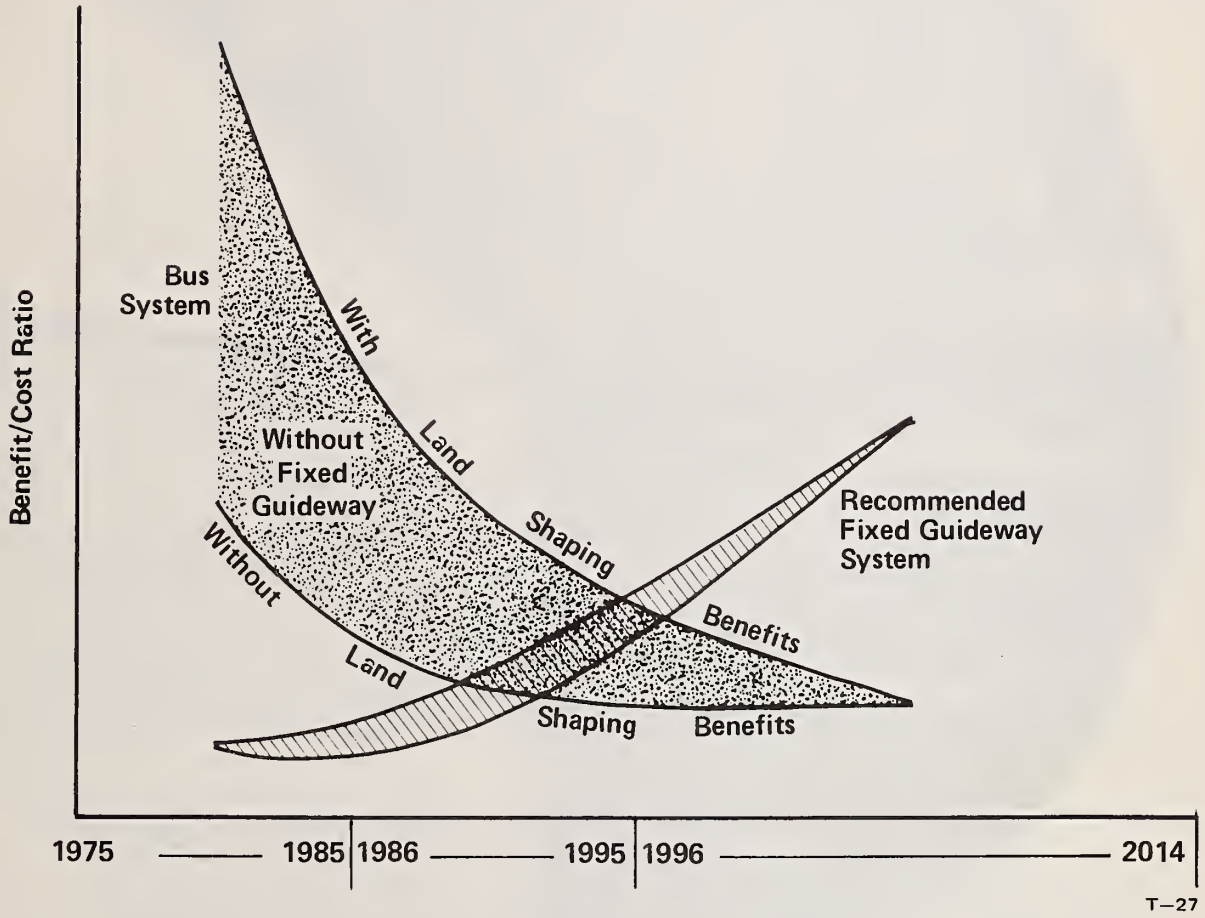
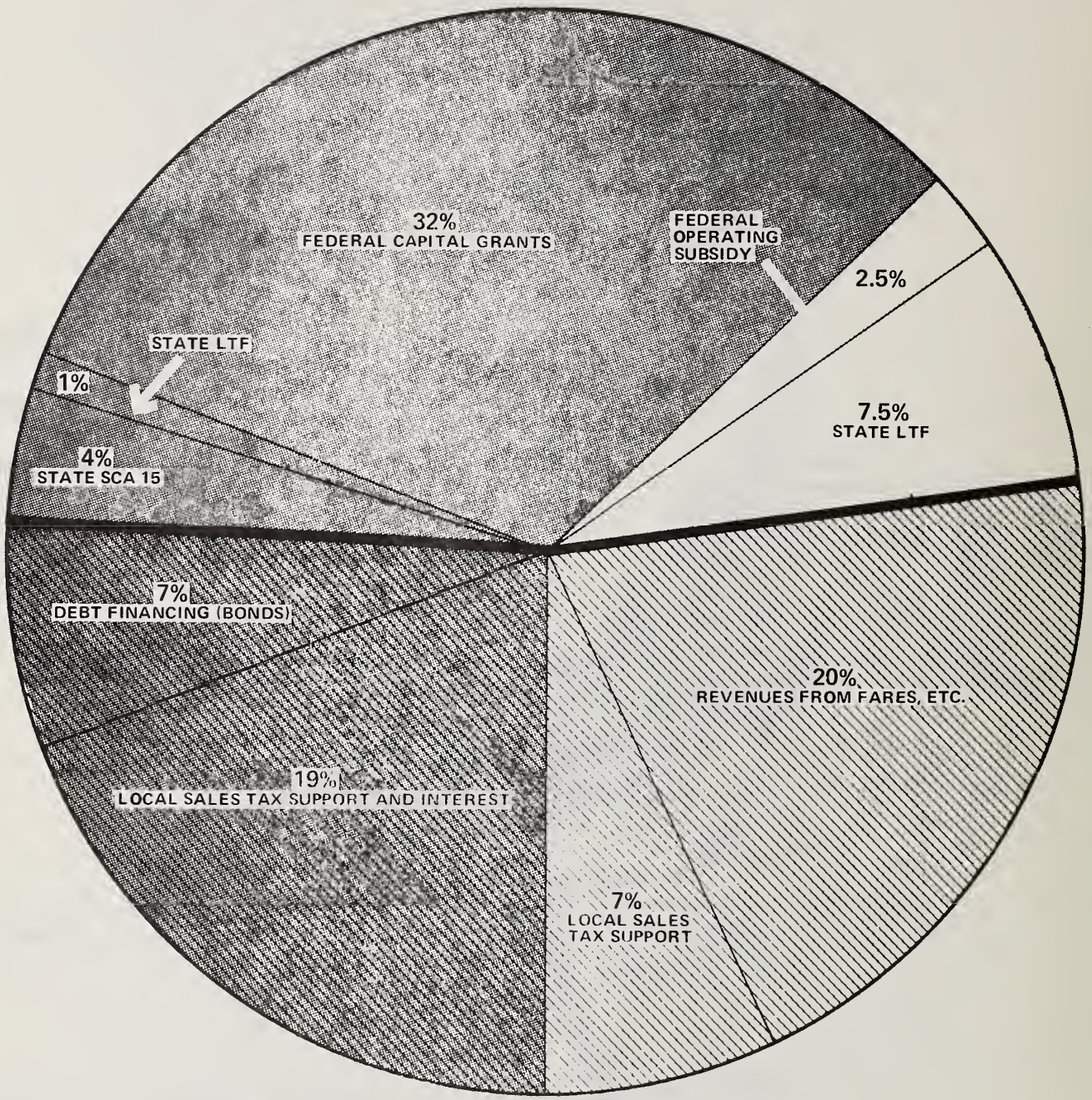


FIGURE 5
RECOMMENDED PROGRAM SOURCES OF FUNDING
$1.7 Million, 1974 Dollar Program
1975 – 1994



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III. OTHER PROPOSALS AND TRANSIT EVALUATIONS

Centre City Transit Studies

Beginning in 1973, the City of San Diego evaluated a major activity center (MAC) transit system as part of the development of a general plan for Centre City. Initially, this system was envisioned as a distribution network for both the regional transit system and proposed peripheral parking structures. Several hardware types were considered, including bus and light rail, but the study recommended an advanced technology type system. The final proposal, released in draft form in 1975 (after the adoption of the RTP) and adopted in 1976 shows the MAC system as the first segment of the Regional Transit Guideway, as shown in Figure 6.

County of San Diego, Light Rail Alternatives

In December of 1974, the County of San Diego released an evaluation of Light Rail Transit on four alignments in the South Bay Corridor. This study, which was encouraged by the State Legislature, was a reaction to the high costs of the proposed CPO transit alternatives, and was a search for a lower cost option. The conclusion was that, although the CPO system provided a superior level of service, an acceptable level of service could be achieved through the use of light rail technology at one-quarter of the capital cost. Subsequently the County evaluated other corridors in the regional system with a similar conclusion.

Evaluation of Alternative Proposals

During 1975 and early 1976, the State Legislative Analyst and a Citizens Transit Committee, composed of prominent San Diego citizens, reviewed the transit proposals of the City and County and CPO. Both evaluations concluded that none of the studies conclusively showed the need for a transit guideway system in San Diego. Both recommendations pointed towards the need for further alternatives analysis, with an emphasis on the financial feasibility of a guideway transit system in the San Diego region.

Commuter Rail Studies

During the gasoline shortage of 1973-1974, CPO evaluated the feasibility of implementing commuter rail service on the existing railroads serving the region. The study concluded that high costs and low patronage made such a proposal impractical in the near term. In January 1978, the County published a similar evaluation on the feasibility of commuter rail service on the South Bay and east suburban lines of the San Diego and Arizona Eastern (SD&AE) Railroad, which had been proposed for abandonment. This report encouraged the use of the SD&AE alignments for Light Rail Transit operations, but deferred to the evaluation then underway by MTDB.

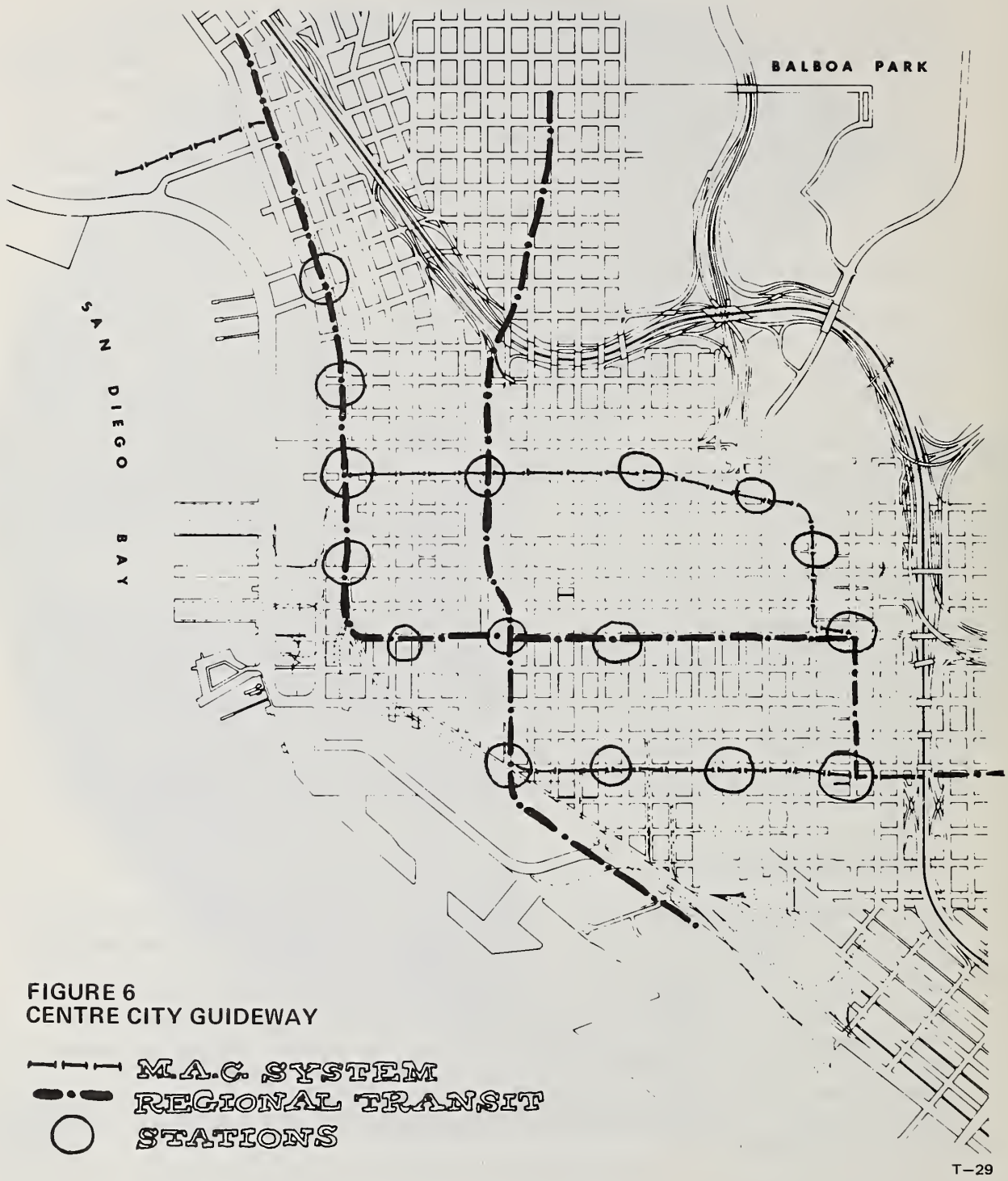

FIGURE 6
CENTRE CITY GUIDEWAY

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