

# Critical History of Transit Planning and Decisionmaking

This section provides an assessment of selected major aspects of the history of Bay Area Rapid Transit (BART), rather than attempting to narrate the entire history of transit in San Francisco. Numerous excellent descriptions of the history of transit planning in the area already exist.<sup>4</sup> More importantly, a long and complex historical narrative of Bay Area transit planning would distract the reader from those elements of BART's history most relevant to an evaluation from a national perspective. The key events in the history of transit planning in San Francisco are summarized in the chronology that accompanies this history (see page 29).

An assessment of transit planning in the San Francisco region naturally focuses on BART. More UMTA support has been provided to BART than to any other new transit system in the Nation. The Bay Area probably has committed more of its resources to BART than any other U.S. metropolitan region has committed to a single public project in any field.

In its original concept, BART was viewed as a completely comprehensive regional transportation system. However, in operation BART is a regional system that is largely supplementary to the region's existing transit systems.<sup>5</sup> It did not replace most of

the existing services nor is it primarily meant to provide new local transit service within the many communities of the region where a sore need for local service is perceived.

Thus, BART is now but one part of a diverse regional transportation system that has developed over a long period to serve a multicentered urban region.

The Bay Area probably was better suited to a regional rail transit system than any other U.S. metropolitan area that did not already have regional transit service. The high density of the city of San Francisco and the geography of the region—in addition to the city's well established transit tradition—created favorable preconditions for a regional transit system.

San Francisco's transit orientation stems from an early decision by the city to operate transit. San Francisco's city charter of 1900 authorized public ownership of utilities, including transportation, and in 1911 the San Francisco Municipal Railroad (Muni) was established. It is believed to be the first publicly owned transit system in the country. San Francisco offered high quality, frequent local public transit service, with complete citywide coverage, long after transit ceased to be a profitable private enterprise.

San Francisco's dense pattern of development resulted in large part because unlike most other western cities, it grew to maturity in the preautomobile era.

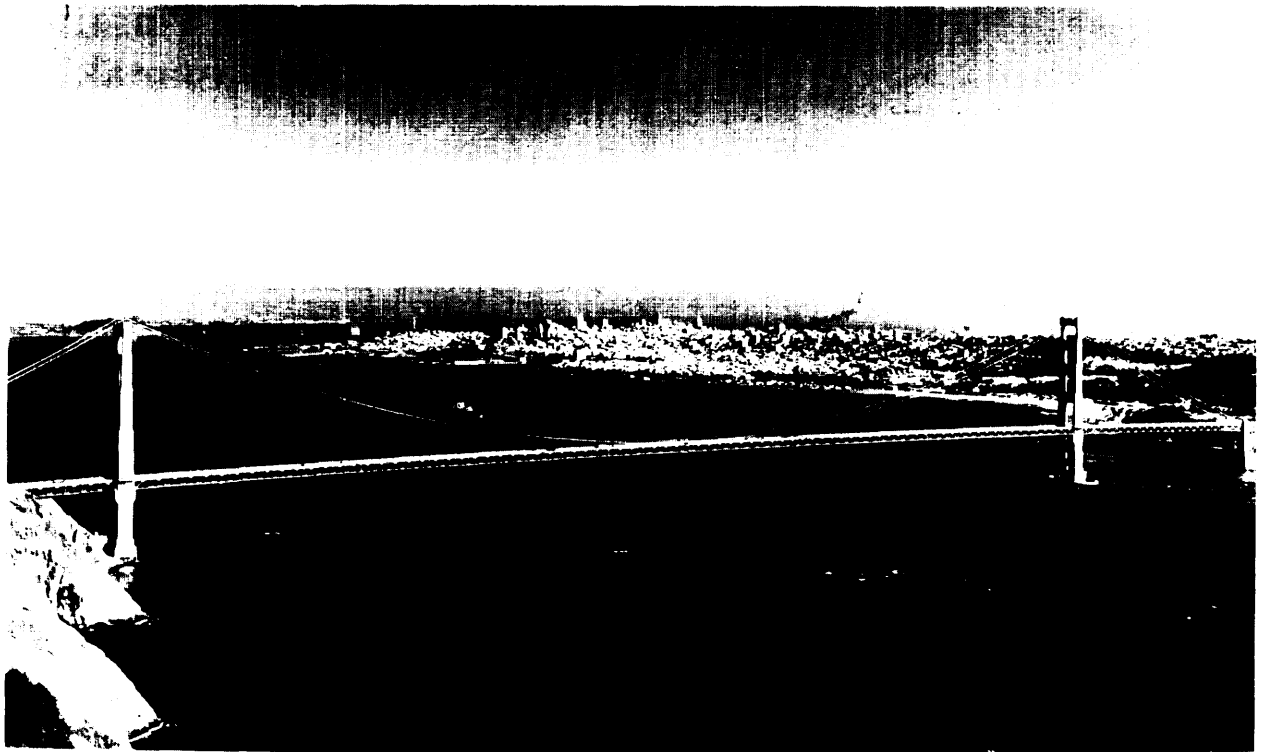
Finally, the Bay Area's water barriers encouraged development of relatively independent cities in the region with significant commercial centers of their own. By fortuitous geographic happenstance, these several centers developed generally in linear patterns around the shores of the Bay. The mountain barriers and the great cost of constructing regional transportation links across the wide, deep Bay and the Golden Gate reinforced the tendency for development to concentrate in San Francisco and the region's other cities,

On the other hand, the opening of the two major bridges (Golden Gate and Bay Bridge) in the mid-1930's and the construction of major regional

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<sup>4</sup> Three of the more complete histories are: (1) Frank C. Colcord, *Urban Transportation Decisionmaking. 3: San Francisco: A Case Study*, M. I. T., Cambridge, Mass., May, 1971; (2) Norman Kennedy, *San Francisco Bay Area Rapid Transit: Promises, Problems, Prospects*, a paper presented at the 1971 Convention, Society of Automotive Engineers, Melbourne, Australia, October 1971; and (3) Stephen Zwerling, *Mass Transit and the Politics of Technology, A Study of BART and the San Francisco Bay Area*, Praeger Publishers, N. Y., 1974. A fourth and most complete history became available as final editing of this report was being prepared: McDonald & Smart, Inc., *A History of the Key Decisions in the Development of Bay Area Rapid Transit*, prepared for the Metropolitan Transportation Commission, September, 1975.

<sup>5</sup> It is important to recognize that, as explained in the Metropolitan Setting section, BART is not the only transit operator in the San Francisco region. It is not even the largest; it is the third largest of the region's five major publicly owned transit operators in terms of ridership. In addition to BART and three major regional operators (AC Transit, Golden Gate, and Southern Pacific), there are literally dozens of other local operators including one (Muni) which dwarfs BART in ridership and which operates an extensive light rail system and is completing a major subway construction effort.



Geography was a major factor in San Francisco's linear pattern of development, well suited to a regional rail system

highways linking the region's cities tended to encourage a pattern of more sprawling and scattered development. These effects were limited, however, in comparison to other metropolitan areas. Tolls and long travel distance over these gateways were restraints on auto commuting while relatively good public transportation service linked the major centers. " Topography continued to constrain development significantly. Meanwhile, affected relatively little by the Depression and aided by the improved access, San Francisco's CBD grew as the regional financial and institutional headquarters.

The following narrative focuses on three periods in the history of BART decisionmaking: (1) the

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° Electric rail on the Bay Bridge connected with a series of routes serving all major East Bay centers. The Southern Pacific provided commuter rail service on the peninsula, and Muni provided streetcar service to northern San Mateo County. In addition, express bus routes crossed the bridges. (The bridges put ferries out of business until recently when ferry service was restored between San Francisco and Marin County.)

period leading to the decision to build BART, (2) the period of BART construction, and (3) the recent evolution of the planning process. The discussion is organized under headings corresponding to these decisionmaking periods.

## TOWARD A DECISION TO BUILD BART

By World War II, there was a consensus that the growth of San Francisco and its CBD would be seriously constrained unless major new transportation facilities were provided. There were—and still are—only six arterials entering the city, and traffic volumes on these routes rapidly had begun to approach capacity. Manufacturing and distribution industries were beginning to locate outside the city, and constraints on office growth and other CBD activity threatened serious economic consequences. This context gave rise to the decision to build BART.

Two apparently conflicting views have been articulated to explain the origins of this decision. The “conspiracy theory” holds that BART was masterminded by a self-interested business elite. The “rational planning theory” views BART as a logical answer to the region’s transportation and growth needs. The findings of this assessment indicate that both explanations are essentially correct.

The “conspiracy theory” perhaps has best been expounded through a series of articles that appeared in the *San Francisco Bay Guardian*, in publications of the Pacific Studies Center, and in the book *The Ultimate Highrise*.<sup>7</sup> The thesis is that a very small group of the top San Francisco industrialists and bankers conceived of BART as a key element in a grand plan to shape San Francisco into the “imperial headquarters” of a vast Pacific business empire. BART would make possible the growth of a concentrated headquarters center, which would be like Manhattan in both form and role. This type of regional structure, with a highly centralized nerve center directly linked with all parts of the region by rapid transit, was understood to be essential to the functioning of a major international business capital. Although BART was to be conceived and brought into being as part of this grand plan by, and in the interests of, these giants of San Francisco banking and industry, it was to be financed primarily through regressive taxes on all Bay Area residents.

In contrast, the “rational planning theory” is that BART was an optimal solution for the transportation and land development problems which faced the Bay Area in the 1940’s and 1950’s. BART and its supporters contend that it evolved as a result of enlightened and courageous leadership through a planning process that should be seen as a model for other metropolitan areas.

<sup>7</sup> Bruce Brugmann and Greggar Sletteland, editors, *The Ultimate Highrise. San Francisco’s Mad Rush Toward the Sky*. San Francisco Bay Guardian Books, 1971.

Susan Thistle, Vicki Smith, and William Ristow, “BART: Forcing the Mission Underground,” *San Francisco Bay Guardian*, November 15-28, 1973.

Burton H. Wolfe, “BART: Steve Bechtel’s \$2 Million Toy: A Special Guardian Probe,” *San Francisco Bay Guardian*, February 14, 1972.

“Regionalism and the Bay Area,” special issue of the *Pacific Research II/World Telegram*, published by Pacific Studies Center, East Palo Alto, Calif., Vol. IX, No. I, November-December, 1972.

“Vietnam, Allen de, and Big Bad BART: Rapid Transit as a Tool of Foreign Policy,” Gene Marine, (publisher and date unknown).

This view holds that BART planning illustrates well how a transportation plan should relate to the desired urban form of a region. Its exponents argue that the BART process demonstrates how to develop a consensus through the involvement of elected officials at all levels of government in a very complex institutional-political setting. Finally, they suggest BART was the product of a model planning process in that the technological system selected grew out of local planning, arrived at quite independently—and indeed in spite of—any biasing influences of State or Federal financial incentives, regulations, or political pressures.

The conspiracy theory is on target in many respects. There is no doubt that early business leaders were involved, nor that they stood to benefit from BART through increases in land values, through involvement in the construction of BART, and through increased efficiency in conducting their Bay Area business. Nor is there any doubt that they were prime movers in persuading legislators, supervisors, and others to act at key decision points, nor that they (along with other private interests who joined them over the first decade of planning) were the principal financial backers of the campaign to sell BART to the voters (see Table 3).

TABLE 3.—Key Figures in BART’s History

**Steve Bechtel**—President of the worldwide engineering firm, Bechtel Corporation, a founder of Bay Area Council (BAC); member of Board of the Stanford Research Institute, *Fortune Magazine’s* ninth richest man in the U.S. in 1957, responsible for getting his firm into the BARTD top management role in 1959; and major property owner in the Bay Area. The *San Francisco Bay Guardian* credits him with conceiving of the BART system as a cornerstone of “imperial headquarters” of a vast Pacific business empire.

**William E. Waste**—Vice President of Bechtel, became Chairman of BAC in 1950.

**Adrien Falk**—President of S&W Foods, President of California Chamber of Commerce, member of BAC Board, first BARTD President, a key organizer of the public relations campaign that preceded the 1962 referendum.

**John M. Pierce**—An executive of the Western Oil and Gas Association, State Director of Finance for 5 years before becoming BARTD’s first General Manager in 1957.

**James D. Zellerbach**—Chairman of the Board of Crown-Zellerbach Corporation, former U.S. Ambassador to Italy, member of finance committee of Citizen’s Committee for BART campaign, and a major supporter of rapid transit in pre-BART period.

**Carl F. Wente**—Chief Executive officer of Bank of America, member of BAC's Rapid Transit Committee, chairman of fund raising effort for BART campaign.

**Henry Alexander**—Public relations consultant, full-time manager of BART election campaign; later he was advertising consultant to BARTD.

**B. R. (Bill) Stokes**—Oakland Tribune journalist and supporter of BART in the BARTC period, Director of Information in early BARTD period and first BARTD employee; General Manager of BARTD from 1963 to 1974.

**Marvin E. Lewis**—San Francisco Supervisor and corporate lawyer, chairman of BAC's rapid transit committee and BART Commission Chairman.

**Edgar Kaiser**—President of Kaiser Industries, a major BART supplier; member of Board of Stanford Research Institute; member of BAC Board and a principal contributor to the BART campaign; supporter of stronger regional organization (Golden Gate Authority).

**Mortimer Fleishhacker, Jr.**—A director of the Clocker Citizens Bank, member of BAC's rapid transit committee.

**Kendric Morrish**—Vice President of American Trust (a major East Bay Bank); President of the Oakland Chamber of Commerce, later Vice President of Wells Fargo Bank; member of BAC's rapid transit committee, and later member of BART election campaign committee.

**Kenneth M. Hoover**—Consultant to PBHM during initial system planning; later Chief Engineer for BARTD overseeing PBTB work.

**Walter S. Douglas**—Partner of PBHM, key person in getting lead role for his firm in the 1954-56 planmaking process.

**John Charles Houlihan**—Mayor of Oakland, 1961-62, key political supporter of BART in lining up East Bay businessmen and local elected officials.

**George Christopher**—Mayor of San Francisco during the BART election campaign and a key supporter of BART, closely linked with BAC.

**Tom Clawson**—President of Bank of America; President of BAC; key BART supporter.

**Tom Mellon**—City Administrator of San Francisco and close associate of Governor Earl Warren; principal supporter of early legislative efforts.

**Cyril Magnin**—San Francisco business leader, member of BAC and prime promoter of BART.

**Alan K. Browne**—Bank of America top executive, a principal BAC expert on finance and political aspects of the formation of BARTD.

**Nils Eklund**—Vice President of Kaiser, Chairman of Bay Area Transportation Study Commission, worked for BART support in East Bay.

**Jack Beckett**—Governmental Relations executive with Hewlett-Packard Corporation; member of initial BART Commission and committee to select BART system planning consultant in 1953; present Chairman of Metropolitan Transportation Commission and generally identified as a

supporter of BART extensions, particularly in San Mateo and Santa Clara Counties.

**Stanley McCaffrey**—Executive Director of BAC during creation of BART, now President of University of the Pacific.

From numerous quotes it is clear that these men had a vision of the future of San Francisco that was modeled after Manhattan: a vision of high-rise offices (many of them their headquarters offices) served directly by a regional rapid transit system. The business elite was convinced of the importance of this pattern to the proper functioning of a business center for shipping, banking, and investment in industry throughout the Pacific's rim,

However, it is equally clear that a large number of planners, other professionals, and community leaders came to essentially the same conclusion about the desirable regional urban form and transportation system. And most of them came to this conclusion, it seems clear, quite independently—without undue influence from those who stood to gain most—through participation in a planning process that was a model for its time in almost all aspects, and a model even today in at least two ways: (1) the participation of local planners in the metropolitan transit planning process and (2) the conscious use of transit to produce a given urban form.

### **Need for a Coalition of Interests**

Considering the obstacles that had to be overcome and the number of times the plan was nearly killed, one must conclude that under the circumstances that prevailed during the 1945 to 1962 period, the BART system could not have been built without a surprising identity between the small group of business elite and the larger body politic that came to express itself through the recognized transit planning process.

When the Bay Area Rapid Transit Commission was created in 1951, there were massive amounts of Federal and State funding available for highways—and none for transit. No Federal funds would be forthcoming for over a decade, and there was a constitutional prohibition on the use of State highway funds for transit. In addition, the State legislature was unwilling to finance even a major portion of the transit planning, except through a loan matched by local funds. Thus, no State money could be counted on to help pay for the cost of

construction, which was bound to be many hundreds of times the cost of planning.

In addition, the State put constraints on the regional bonding capacity. A general State requirement called for 66-2/3 percent voter approval of any regional tax-supported bond issue. Attempts to lower the percentage met strong resistance from Senator Randolph Collier, a powerful chairman of the California Senate Transportation Committee who also was father of the State's freeway program. Legislatively imposed limits on bonded indebtedness meant that additional revenues would be needed to construct a regional system.

Raising funds for BART necessitated direct confrontation with highway interests. In order to get legislative approval for using Bay Bridge toll funds for transit construction, BART backers had to muster support for a bond issue of at least \$500 million by November 1962. In addition, as part of the agreement to get the legislation, BART supporters were forced to accept the removal of rail tracks from the bridge to make room for more motor vehicle traffic. (This agreement in effect made it more difficult for BART to attract trans-Bay patronage, the heart of its market.)

The financing problems were in part a reflection of the fact that the region had no preexisting institutional framework for transit initiatives. There was no established transit lobby and no significant support for transit from outside the Bay Area, which constituted only about a quarter of the State's population and representation in 'the legislature.

In addition, there was still no regional transportation planning organization, and there were major obstacles to the creation of one. A long-established rivalry assured that any proposals originating in San Francisco were greeted with great suspicion in the East Bay. Major retail business interests with investments outside San Francisco (in Oakland and San Mateo counties particularly) tended to oppose the proposed system because they were afraid that their customers would be drawn to the city.

Due to the way BARTD's legislation was written, there was difficulty gaining support from counties with large populations in rural areas and outlying towns. The legislation provided that a county had to be taxed as a unit, if at all, even though BART could offer rail service only to the higher-density areas. Rural areas and outlying towns could be counted on to vote against BART taxes because

they did not stand to benefit from the transit system directly. In particular, Contra Costa County was split **about evenly between** urban and rural, for and against. It required special wooing and the promise of special favors. s

Other problems undermined BART support in San Mateo and Marin counties. g BART was rejected by San Mateo County in part because of opposition from conservative taxpayers who considered the plan fiscally irresponsible, in part because of opposition of politically powerful real estate interests, and in part because the county was already served by the Southern Pacific commuter system,

This withdrawal had further repercussions because transit planners had counted on San Mateo County's hefty tax base to balance out the weak tax base in Marin County. Once San Mateo withdrew, there was no feasible way to finance the remaining four-county system because of the high cost of the Marin portion of the system relative to its tax base,

In addition, the Golden Gate Bridge Board of Directors had rejected the use of BART on the bridge to serve Marin County. The announced

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\*Joseph S. Silva from the outlying area of Brentwood held the swing ballot on the July 1962 Board of Supervisors vote to take the BART bond issue to referendum the following November. Silva was hosted at breakfast the morning of the vote by San Francisco Mayor George Christopher and Oakland Mayor John Houlihan. Houlihan, in an interview, said that Silva was primarily influenced by the personal appeal of the mayors, but he acknowledged that Silva's later appointment to the BARTD Board may have been his reward for the favorable vote. Houlihan denies that the mayors also promised Silva that Contra Costa County would get the first BART extension. Several others interviewed, however, believe that such a promise was made, although no direct witness to the promise has been identified.

<sup>9</sup> Of the original nine counties included in the 1956 long-range master plan, three counties (Napa, Solano, and Sonoma) were not to be served by the first stage system because of their remoteness and low population. No real effort was made to include them in the 1957 BART District legislation. Santa Clara County's omission, however, was a more complex matter and one that still may be seen as a decision of long-lasting consequence to the Bay area. The decision to stay out of the District was made during the legislative process in 1957 largely because PBHM's first-phase plan provided service only to the edge of the county rather than to its core in San Jose's CBD. The selection of the terminus for this line was based on technical criteria. However, this made it politically infeasible to convince Santa Clara County's elected leaders to accept inclusion if it meant countywide taxation on the same basis as other counties more fully served by the system. Efforts to work out a special taxation district for the area served proved politically infeasible as well.

opposition was based on technical engineering grounds, but in the view of many observers it was motivated by concern over the affect of BART on toll revenues,

These two events, coupled with approaching deadlines to get a plan on the November ballot, caused BARTD to force Marin County out of the District.

BART never would have succeeded in overcoming these and many obstacles if there had not been a common interest uniting the business elite and the larger public in support for BART.

### Evidence of Consensus

This assessment has found no direct evidence for the claim made by the Bay Guardian writers and others that business leaders originated the BART concept. For a while after they formed the Bay Area Council (BAC) in 1945<sup>10</sup> the business leaders appeared to support regional highways and bridges as their main transportation goal—in particular by urging the construction of a second San Francisco-Oakland Bay crossing. Business leaders began to push for a regional approach to rapid transit only when they became convinced that a regional transit system was the best way to achieve the goal they shared with many Bay Area planners: to improve regional access to San Francisco's CBD. BAC, to achieve its goals, picked up the lead in promoting regional rapid transit only after the concept had been developed out of a planning process that focused on technical considerations.

During the Second World War military considerations gave rise to increased concerns over congestion and lack of regional access. The 1947 Army-Navy Board Report is believed to be the first serious proposal for an integrated regional rapid transit system with a tube under the Bay directly connecting transit systems on both sides. The Congressional resolution that initiated the study was introduced by San Francisco Congressman

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<sup>10</sup>The Bay Area Council, which is governed by a board composed overwhelmingly of representatives of the region's major industries, has been the prime mover since 1945 for most efforts to organize regional government, regional planning, and public works projects which support regional integration. It has consistently played a powerful role in shaping new regional institutions; half of the original BART commissioners came from the BAC in 1951. See "Bay Area Council: Regional Powerhouse," by Les Shipnuck and Dan Feshbach, in *Regionalism and the Bay Area*, Pacific Studies Center, op. cit.

Richard J. Welch. The motivation, for the request apparently involved technical military concerns—partly a concern over the vulnerability of the bridges and the city to attack and partly a realization that the constraints on regional transportation access throughout the Bay Area had proven to be a handicap to the development of wartime industries. <sup>11</sup>

By the time BAC people joined with key political leaders to setup a special rapid transit committee in 1949, concerns over the role of transit in regional development began to predominate over wartime concerns, From 1949 on, BAC and the interests it represented were the nucleus of support for BART. These interests seem to have played the lead role in initiating legislation, obtaining regional political backing, and raising funds to support the 1962 BART bond issue campaign. Marvin E. Lewis, a corporate lawyer, San Francisco Supervisor, and chairman of the Bay Area Rapid Transit Committee, is given credit for much of the hard work in getting support for the formal legislative establishment of the BART Commission (BARTC) in the 1949-51 period. Despite later allegations that he sought to "Manhattanize" San Francisco, Lewis, who was later chairman of BARTC, has been quoted as saying that his goal was to alleviate congestion and provide regional access among Bay Area cities.

The charge that business interests were masterminding BART in a covert manner behind the scenes is an exaggeration. In fact, there was little need for covert activity. The business community did not try to hide its efforts, for it considered that it was acting in the public interest. It used the media to draw attention to what it considered to be goals it shared with elected leaders and the public.

It has been alleged that BAC dominated the choosing of the consultants and the content of their reports. No supporting evidence for this allegation can be found during the early period when the basic BART system concept was being developed. DeLeuw, Cather & Company, the first consultant hired in 1952, was a local firm that had done

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<sup>11</sup>In 1943, warproduction had become so hampered by constraints in the regional transportation system that a subcommittee of the House Naval Affairs Committee recommended that, due to the lack of regional planning, defense work should not be allowed to expand any further in the area. See "BART: Rapid Transit and Regional Control" by Greg De Freitas, in *Regionalism and the Bay Area*, Pacific Studies Center, op. cit.

previous transit studies for the city—no special-interest relationship has been identified between it and BAC. That study resulted in the BART Commission's conclusion that a regional rapid transit system was needed, and it laid out the formal planning process which was to follow.

DeLeuw, Cather lost out in the 1953 competition for the major system planning contract but again no special-interest relationship has been identified between BAC and the new consultant, Parsons, Brinckerhoff, Hall and MacDonald (PBHM). This team was chosen because it had extensive rapid transit experience in Manhattan and the advantage of not being associated with one specific part of the region. The work of this consultant team resulted in the basic master plan for the BART system.

The Stanford Research Institute (SRI), which was hired under a separate contract to prepare recommendations on the organizational and financial aspects of the proposed system, was the first transit consultant whose personnel were directly involved with BAC. Several BAC people were on the SRI board at the time, including Kaiser and Bechtel and several San Francisco bankers. The recommendations on taxes were similar to those eventually used: property and sales taxes and bridge tolls. Less regressive taxes on business or income were apparently not considered; gasoline taxes were considered and rejected.<sup>12</sup>

It was not until after PBHM and its associated planning team had prepared the original nine-county master plan and the permanent BART District (BARTD) had been established that local firms with strong BAC ties began to play major roles in technical aspects of transit system planning and engineering. In 1959, BARTD signed a contract (the first of several) for \$600,000 with the three-firm joint venture of "PB-T-B": Parsons, Brinckerhoff, Quade and Douglas (the new name of PBHM), the Tudor Engineering Company, and the Bechtel Corporation. The latter two both were based in San Francisco. The contract was negotiated without competition. Steve Bechtel used his long-standing BAC relationship to advantage in obtaining a major role for his firm for the remainder of the system planning work and the

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<sup>12</sup>Norman Kennedy, "San Francisco Bay Area Rapid Transit: Promises Problems, Prospects," paper presented at the 1971 Convention, Society of Automotive Engineers, Australia, October 1971; and San Francisco Bay Guardian, op. cit.

dominant management role for all engineering work after 1962.<sup>13</sup>

Steve Bechtel does not, however, appear to have had a dominant role in shaping the basic rail plan. By 1959, when his firm first became involved, the basic system plan had been well established (although it was to shrink in 1962 from a 123-mile, five-county, system to a 75-mile, three-county system). The process of developing the basic plan during the 1954-56 period had been shaped to a great extent by a team of urban designers and planners working with PBHM in a fairly independent capacity. This mechanism had been established at the insistence of BAC's Bay Area Planning Committee, which was composed of planning directors of cities and counties of the region. The planning team, headed by Norma Westra of the Connecticut firm of Adams, Howard and Creeley, worked closely with planning directors of the region to develop the regional land use plan upon which the rail plan was based.<sup>14</sup>

At that time there was widespread agreement among area planners and the planning profession generally on the concept of how a large urban region should develop. Urban renewal was needed to save the dying heart of cities; the good urban life could only be achieved through high density development of the city cores and well-defined and well-linked system of modes with clear identity. When these and related concepts were applied to

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<sup>13</sup>According to Burton Wolfe's article in the February 4, 1973, *Bay Guardian*, Bechtel received 90 percent of the eventual \$150 million management fee paid PBTB. McDonald & Smart (op. cit.), however, report that Bechtel received 25 percent of the Joint Venture's fee in the 1959-62 period and 45 percent after 1962. The total fee was \$142 million through July 1, 1972. All agree that Bechtel exerted his personal power to achieve the role for his firm.

<sup>14</sup>Somewhat surprisingly, the importance of the role of local planners and the BARTD urban planning team in shaping the plan is completely missed in most of the histories. In particular Zwerling (op. cit.) and McDonald & Smart (op. cit.) both take the engineers to task for presuming a regional land use plan of their own in the absence of any officially recognized plan. One might reach this conclusion by talking only to the engineers and by reading only the final 1956 report. However, numerous interviews with those involved, both in and out of the team, and members of various professions confirm that the urban planners working with PBQD in the 1954-56 period did prepare a very thorough regional land development plan in close coordination with local planning staffs, and that this plan did form the primary rationale for the BART system in terms of its basic regional configuration.

existing Bay Area conditions a plan emerged with a high degree of consensus, fairly precisely defining the BART system and even its station locations.<sup>15</sup>

It seems clear that BART was the result of both a rational planning process and the promotional efforts of businessmen. BART was achieved because almost all interests involved shared the initial goals of relieving congestion and preserving and rejuvenating the older city centers. However, each aspired to these goals for different reasons: the businessmen wanted to develop a regional economic headquarters center and to integrate the labor markets and productive centers of the Bay Area; whereas most elected officials and much of the public were concerned about congestion and the negative impacts of freeways. Most urban planners coupled these concerns with a strong vision of the role of transit as a catalyst in the city renewal process.

Local planners and major local officials were involved in the formal process of developing the plan, but lesser officials and the general public were not. Instead, an attempt was made to enlist their support for an already fully formulated plan through a public relations campaign that was financed by BAC members (although they did not in this case work through BAC) and by the consulting firms and other firms, including several who expected to sell their products to BARTD. The campaign itself did involve some substantial efforts on the part of other political leaders who were not identified with BAC, notably Oakland Mayor John Houlihan. But it is commonly accepted that BAC people were the principal force behind a well-run campaign that enlisted most of the newspapers, radio, and television stations.

The pre-election campaign followed 6 years of extensive press coverage that began after publication of the master plan. However, despite the fact that the approach to the public by BARTD and its supporters was entirely promotional, the public in general seems to have had a good comprehension of the plan and of its financial impacts (insofar as they were known at the time of the election).

<sup>15</sup> Even though this view is generally accepted, one critic, Martin Wohl, has pointed out several instances where the overriding consideration was to maximize overall speed in order to serve outlying areas well and compete with the auto.

The results of the election of November 1962, when the bond issue for financing BART was presented to the voters for approval, testified to the degree of consensus in San Francisco. The 61.2 percent favorable vote was one of the highest metropolitanwide votes ever obtained (before or since) for a major transportation bond issue and was probably the largest local bond issue of any kind ever passed. The vote was a tribute to the durability of the political alliance that had helped the BART plan obtain an amazingly high level of support.

Support for the bond issue was predictably high in San Francisco and in the most urban parts of the East Bay where high-quality service was to be provided. The vote breakdown by county was as follows:

County	Percent
San Francisco .....	66.90
Alameda .....	60.04
Contra Costa .....	54.48
Average .....	61.22

The bond issue passed, as was required in the original BARTD legislation, in the three-county District as a whole rather than on a county-by-county basis.

In only 17 of San Francisco's 1322 precincts was the favorable vote under 50 percent. The vote was very high even in the northern parts of the city that would not be served by BART. Voting appears to have been influenced strongly by home ownership—there was general awareness of the impact the bond issue would have on property tax. In the East Bay, there was opposition to BART in Albany and El Cerrito because of anticipated negative impacts of elevated line and opposition of local officials. Opposition also occurred in rural areas removed from the routes. There was little or no correlation of the vote with income or



socioeconomic status apart from what could be explained by home ownership.<sup>16</sup>

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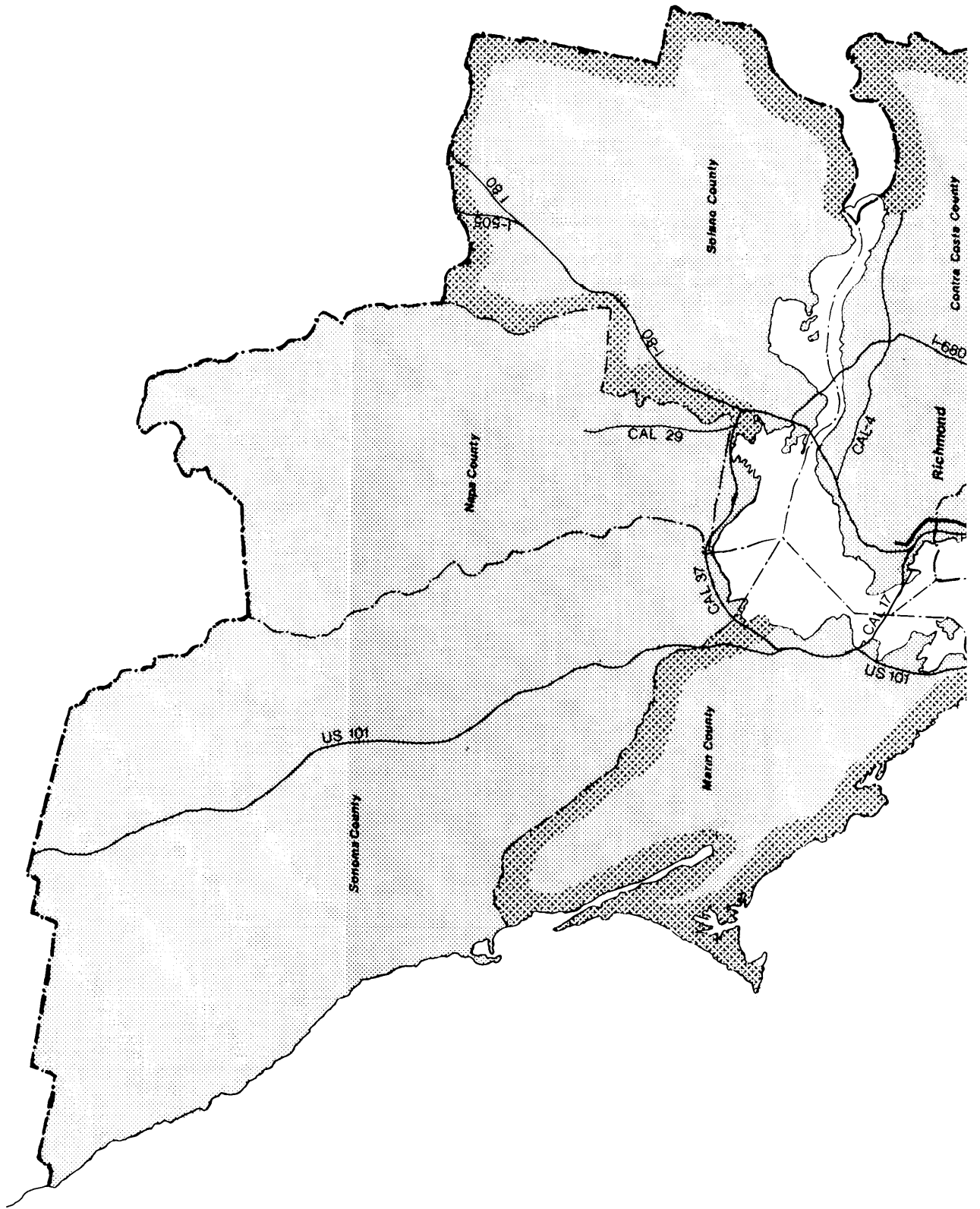
<sup>16</sup> Wolfgang Homburger, "An Analysis of the Vote on Rapid Transit Bonds in the San Francisco Bay Area," *ITTE Research Report No. 36*, University of California, Berkeley, June 1963. Voting results reported above differ slightly from those reported in several other sources, which show results before absentee ballots were counted. Homburger notes that in Alameda County the absentee vote was substantially more favorable (by 12 percent) than the vote cast at the polls, putting the county over the 60 percent mark. He attributes this to the last-minute anti-BART campaign. Absentee ballots had to be cast at least 3 days before election day. Two days before election day about two million people reported to local schools for Sabin polio vaccine. Homburger says that BART opponents were handing out literature at a number of schools in the East Bay.

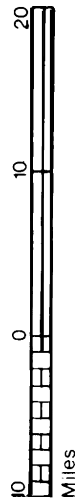
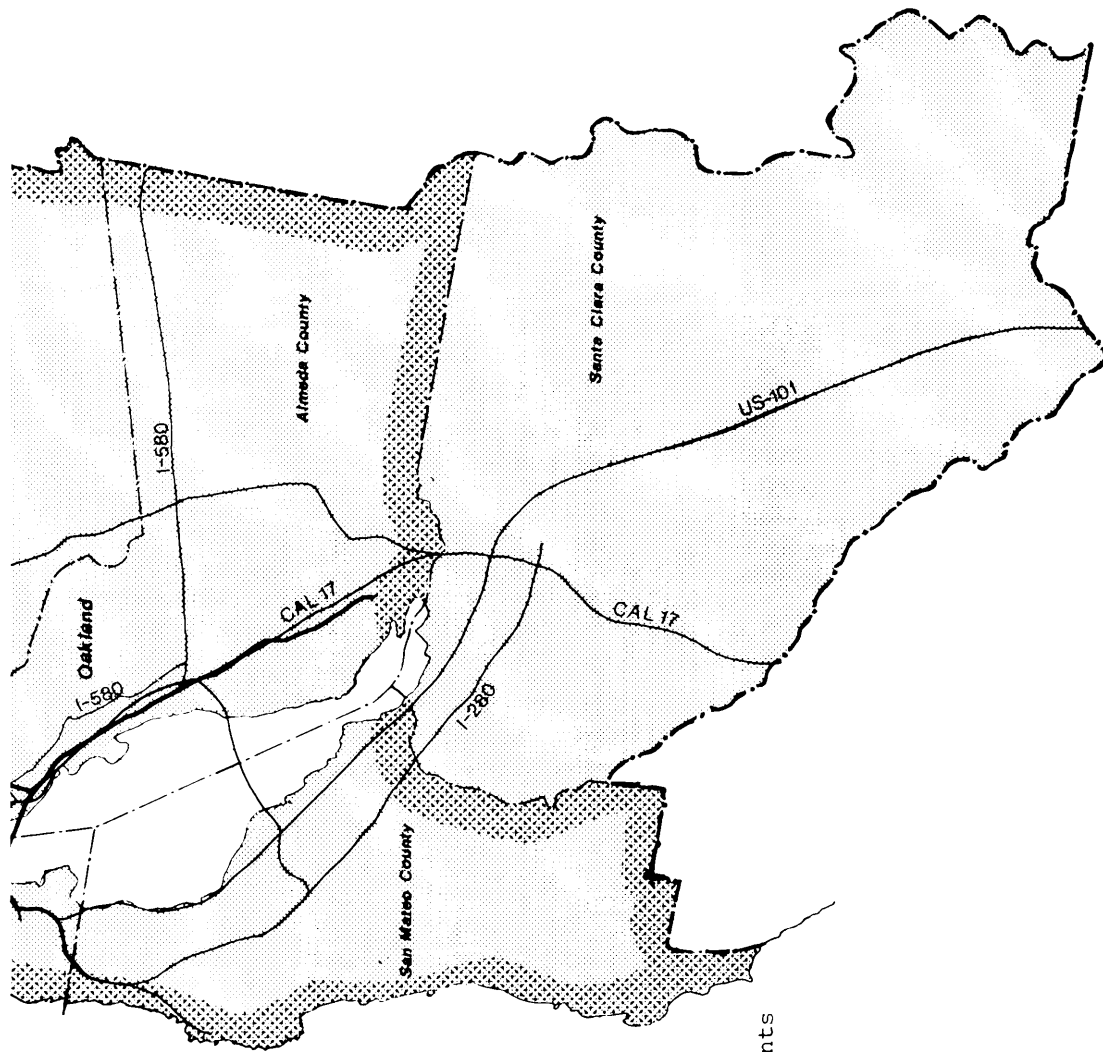
## THE BUILDING OF BART

The building of BART has spanned 13 years, 1962-75, almost as long as it took to make the final decision to build it, from about 1945 to 1962. It is likely that it will have taken a total of 32 years to conceive, plan, and build BART by the time the final station at the Embarcadero is opened and the full system is in operation with planned frequency of service under the guidance of its ultimate automatic control system.

In contrast to the first period, whose history focuses on a single overwhelmingly important decision (i.e., the decision to build BART), the implementation period has several elements that







- Association of Bay Area Municipalities
- Metropolitan Transit Commission
- SMSA Boundary
- Major Highways
- Bay Area Rapid Transit
- County Boundary

**FIGURE 1: SAN FRANCISCO METROPOLITAN AREA**

A Standard Metropolitan Statistical Area (SMSA) includes a center city (or cities), usually with a population of at least 50,000, plus adjacent counties or other political divisions that are economically and socially integrated with the central area.

are of significant interest to other metropolitan areas. These include:

- . The taxpayers' suit against BARTD and PB-T-B;
- . BARTD's battles with communities over elements of system design;
- . Financing problems and relationships with the legislature.

There was a dramatic contrast in BARTD's relationship with the Bay Area community before and after the referendum, BART's honeymoon with the voters was over within weeks of the election. With few exceptions, the media, political leadership, and most organized groups supported BART before the election, but not afterward. After the election, BARTD seems to many to have become a well-funded, powerful, independent organization with relatively little accountability.

This change in public attitude was primarily due to a change in the nature of BARTD. After the election, BARTD changed from a public relations-oriented organization seeking voter approval to an organization that was financially independent. As a result, it became less interested in the voters' wishes and more concerned with the technical and financial problems of building a large and complex transportation system. As this happened, the control of BARTD shifted from the prerferendum leadership, which had consisted of the business community, elected officials, and public relations experts, to PB-T-B, the engineering consultants, who had little accountability or experience in community relations. This basic change in the nature of BARTD and in its relationship to the public set a new context for the second stage of BART's development.

#### **The Taxpayer's Suit Against BARTD and PB-T-B**

One week after the election, a BARTD committee recommended approval of a new PB-T-B contract for \$47 million. The full board approved it 2 weeks later, at which time it was confronted with the threat of a court suit by a group of engineers who objected to the "giveaway program." The engineers' efforts were frustrated when a Contra Costa judge ruled against a temporary restraining order for the entire BART project,

Shortly after this a second group of four East Bay residents and elected officials filed a suit involving seven charges. This suit was successful in halting

BART almost completely for more than half a year, at a cost to BARTD of \$12 to \$15 million, primarily due to inflation, but also to staff costs. Four of the charges were dismissed early; the three that were heard in court during the first half of 1963 included:

- A challenge to the validity of the November 1962 election on the grounds that public funds had been used to influence the vote.
- A challenge to the PB-T-B contract and to the mechanism established for determining fees.
- Challenges to BARTD staff salary payments.

Although the court eventually absolved both BARTD and PB-T-B of all of the charges, the case publicized significant facts about the management structure of BARTD/PB-T-B that were at the root of later problems.

BARTD's board, and in particular its Engineering Committee, had no real ability to evaluate or oversee the work of the consultant team. BARTD had only 16 employees at the time, and only one, Keneth Hoover, with engineering background. Hoover previously had been a consultant to Parsons, Brinckerhoff, Quade and *Douglas (PBQD)* for about a year and a half and had been recommended for the chief engineer's position by Walter Douglas, a partner of PB-T-B.

There apparently was no competition for the consultant contract. The contract provided for fee payment as a percentage of costs, rather than stating a fixed fee, thus providing no incentive to economize—to the contrary it provided an incentive to permit costs to increase. Several informed observers have commented on the fact that the terms of the contract were exceptionally favorable to PB-T-B and that the BARTD board had no inclination to negotiate more stringent terms. The consultants were given unusually broad powers by the terms of the contract to represent BARTD in dealings with the public and local governments and to negotiate subcontracts.

The board's lack of control of the consultant's work can be attributed in part to the close personal relationships that had continued to exist between the business leaders on the board, the top staff, and the consultant team. Walter S. Douglas admitted in an interview with *San Francisco Chronicle* reporter Michael Harris that there was greater delegation of

authority over basic financial matters than was traditional in this field. 17 Harris notes that Douglas was primarily responsible for getting Ken Hoover the position as BARTD chief engineer, and that Hoover in turn helped PB-T-B get its management contract. Likewise two BARTD directors, Adrien Falk and Thomas Gray, separately testified in the 1963 trial that they did not feel it was their responsibility to be concerned over how much profit the consultants made.

During most of the system implementation it was difficult to distinguish between BARTD and PB-T-B staffs. Even General Manager Stokes has admitted it was difficult to know, in those days, who worked for whom. 18 This lack of clear identification of decision responsibilities was one of the issues of the taxpayers suit.

Stephen Zwerling reflected a widespread feeling when he asked, “. . . who really was running BARTD—its management, its board of directors, or the consulting engineers? The small size of the board, the nontechnical background of its members, and the highly technical nature of the task to be performed suggest that the engineers would have a great deal of autonomy, influence, and authority with little responsibility.” 19

Unfortunately, BARTD did little to correct the problems that were raised by the taxpayers’ suit, and there was no formal external review or oversight of BARTD for several years afterward. Three years later when BARTD’s financial problems first came to the attention of the public and the legislature, BARTD was trying to manage a billion-dollar construction program at the peak of its activity with only 19 employees trained in technical fields. It was not until after serious delays and cost overruns had occurred that BARTD began to greatly increase its in-house technical competence. By then many of the mistakes which were to cost BARTD greatly in credibility had already been made.

### **BARTD’s Battles With Communities Over Elements of System Design**

The history of BART’s construction is one of almost continual battles with communities over the

17 Michael Harris, *San Francisco Chronicle*, February 4, 1966.

18 McDonald & Smart, *A History of the Key Decisions*, op. cit., p. 116.

19 Stephen Zwerling, *Mass Transit and the Politics of Technology: A Study of BART and the San Francisco Bay Area*, Praeger Publishers, New York, 1974, pp. 43-44.

design of the system. 20 It is perhaps inevitable in any construction activity of this magnitude that conflict will occur between communities and those responsible for carrying out the regional mandate to build the system. However, the intensity of the conflict was raised to an unnecessary level that in some instances resulted in excessive delays and costs. Several factors were at work:

- The entire system had been specified in considerable detail in the 1962 *Composite Report*. The bond issue approval was a commitment to this plan with very little provision for changes in station location, alignment, or elevation.
- Elements of system design were often unknown to the public until after the election because copies of the *Composite Report*, or details from it, were not readily available. Only public relations material was available and this contained very general information.
- Financing limitations and political considerations had forced the engineers to prepare a system plan that contained some design elements that were unsatisfactory to the communities involved. BARTD had had to get acceptable geographic coverage within a legislatively fixed upper bonding limit determined by assessed value of all property in the district; thus BART planners were forced to economize on elements of the system design to the detriment of several communities,

20 One of the most thorough histories of BART (McDonald & Smart, op. cit., pp. 89-113) stresses the sensitivity of the staff to the wishes of the communities and goes into considerable detail to explain how cost increases occurred in ways that were beyond PB-T-B’s control. This part of that history seems particularly out of balance. Much of the text appears to come straight from the consultants and none from any of the many available sources involved on the other side of the various issues. Sources referenced in this document as a whole appear overwhelmingly, biased toward the official view of BARTD’s history: more than two thirds of the sources referenced are to BARTD/PB-T-B or closely related persons or firms and the majority of the remainder are to government documents or neutral observers. Well under 10 percent of the references are to sources that might be considered critical commentators and none are to any of the several sources that might be characterized as propounding or even supporting the conspiratorial view of BART’s history. Nonetheless, despite the difference in tone of treatment of this subject, McDonald & Smart arrive at essentially the same conclusions regarding the need for community interaction and financing requirements.

- The fixed amount of funding for a fixed system left no room for increases in the cost of system elements during the design and construction process. This severely limited design flexibility.
- BARTD/PB-T-B staff working procedures did not provide for the development and evaluation of alternatives on most important decisions; single recommendations were almost always prepared for BARTD staff or board action, thus tending to bury potential problems within PB-T-B staff.
- The engineers' style in dealing with the public, with local governments, and with other professionals often tended to intensify the conflict. The leadership role within the Joint Venture shifted from PBQD to Bechtel, which had far less experience in community relations.
- Eventually, increased inflation rates (and other factors) exacerbated the cost squeeze.

All of these factors combined to cause spiraling conflict, delays, cost increases, inflexibility, and polarization between BARTD and many of those it was dealing with.

Some conflict arose even before the bond election. Albany and El Cerrito both objected to the elevated design through their cities and fought BARTD unsuccessfully. Berkeley managed to get early agreement on putting some of its downtown section in subway. Berkeley supported the bond issue, although that city went on record as not being satisfied with the changes that had been made.

In Richmond, BARTD fought against the original plan for the central station location because of property acquisition costs. Richmond CBD interests and others struggled to retain the original location as a catalyst for redevelopment and to better serve much of the city including lower-income areas. BARTD supported an alternative location for the terminus of the line on the route of the existing railroad right-of-way, arguing that it would cause less disruption, would provide greater access from the North where additional potential riders were located, and would be better located for possible future extensions of the route. BARTD got out of this fight relatively easily when the City Council eventually took a position supporting BARTD's preference.

BARTD's biggest fight with a city was over the remaining 2¾ miles of planned elevated line in Berkeley. The City Council had resolved to request BARTD to place the entire line underground in 1960, and the Council reopened the issue in July 1963, asking for comparative cost estimates of subway versus elevated construction. The issue raged on for over 3 years, involving an acrimonious hearing forced on BARTD by Berkeley, national publicity unfavorable to BARTD, and wildly varying cost estimates—Berkeley's as low as \$6 million, BARTD's as high as \$24.6 to \$32.3 million. At one point BARTD issued an ultimatum: if Berkeley did not put up the funds that would be needed to finance BARTD's high estimate within 30 days, BARTD would proceed toward construction of the elevated design.

Berkeley, led by Mayor Wallace Johnson, eventually succeeded in its struggle by achieving landslide support of 82 percent for a bond referendum in 1966, which allowed up to \$20 million to be committed for the extra costs of subway construction. BARTD lost heavily in terms of delays (almost 3 years) and resulting costs, and perhaps even more heavily in terms of credibility, because of the poor manner in which it handled the issue, in terms of both technical competence and community relations. The eventual extra construction cost to Berkeley was \$12.4 million, not far from its 1964 estimate of \$11 million and well below any of BARTD's estimates.

A subsequent fight between BARTD and Berkeley over the design of the Ashby station occurred in late 1967. It was settled in Berkeley's favor in May 1968 in a court suit after an injunction stopped BARTD from going ahead with construction.

The city of San Francisco and BARTD had a series of conflicts over subway design on Market Street and handling of Muni streetcars. Finding itself in a cost squeeze, BARTD sought to save between \$500,000 and \$1 million per station by eliminating a columnless vaulted ceiling and adding columns.

Another issue involved the "skylight plan." San Francisco wanted frequent skylights to open up the mezzanine level to the outside. The plan required raising the level of the ceilings and increasing utility relocation costs. BARTD fought the plan, saying it might cause delays of as much as 2 years. But after public hearings, critical newspaper editorials, and



**BART's elevated structures created controversy in Berkeley and other parts of the Bay Area**

pressure from civic groups, BARTD had its architects come up with a compromise plan that included the skylights. The irony of this episode is that after construction had begun in 1968, the city belatedly adopted a Market Street beautification plan that eliminated some of the skylights.

Construction on Market Street actually involved three major projects—BART, the Muni Metro subway on the level above BART, and the Market Street beautification project. Because of problems and the timing of efforts that were financed from different sources, there were considerable inefficiencies in the overall construction effort. Perhaps of equal significance, Market Street was torn up for almost twice as long as it might have been, with a resulting doubling of the social and economic disruption to the heart of the city. Allan Jacobs, San Francisco's Director of Planning, says this has had a major impact on public attitudes and the chances of implementing other subway projects in the city. He

says, only half facetiously, "You can build only once every third generation."

Certainly that is an important lesson for other metropolitan areas considering the prospect of staged decisions on fixed-guideway transit networks.

A final conflict representative of BART's rocky history is the much-publicized conflict between BARTD/PB-T-B and its design consultants, Lawrence Halprin and Don Emmons, over design of the system. The two men, widely respected in landscape architecture and urban design, had been retained to advise on design of stations and other system elements. They were continually frustrated in efforts because of the constraints placed on their design concepts by PB-T-B. Eventually in September 1966, Halprin and Emmons denounced the engineer's dominance over the work of other professionals and handed in their resignations in a

highly charged and highly publicized episode. These events brought on a sharp attack from the press and others that caused BARTD to take back some of the power it had given the engineers, at least to the extent of providing the remaining architectural staff and other design consultants with more direct access to the general manager.

Despite the attention that this fight received, Larry Dahms, BARTD's acting director in 1974, claimed, probably accurately, that quality of design is one of the BART system's outstanding achievements.

However, the importance of this clash is that it brought into the open one important **aspect** of the financial squeeze that BARTD was having to cope with at that time. It gave the community a grasp of the basic conflict between the engineering construction goal under a fixed budget and the goals of communities as they relate to urban design.

### **Financing Problems and BART's Relationship with the Legislature**

In retrospect, it is highly unlikely that BART could have completed the system within its original budget, for the planners made little allowance for contingencies other than the usual percentages allowed for engineering projects. To have kept to the original budget and schedule would have required no significant delays in construction, no prolonged court fights or strikes, no major changes in design, no major unforeseen obstacles in technological development (although BART had to develop much of its own technology as it went along because it chose to push beyond available rail technology in so many areas), no external events to significantly increase inflation over the relatively low rates experienced in the 1950's, and no major localized effect on inflation resulting from the introduction of a billion dollars of new construction in one metropolitan area,

The original BARTD estimates were essentially accurate in their estimates of construction costs in terms of prevailing prices. However, they failed to account for contingencies beyond the level typically encountered in conventional engineering construction (10 percent), and they assumed an unrealistic construction schedule that did not recognize the need for interaction with communities and the design changes that would result. By far the most important of the cost escalations were the 3-year delay and Vietnam-fueled inflation.

Initial inflation estimates were about 3 percent, but the actual inflation in San Francisco was 6.5 percent, slightly above the U.S. rate for 20 cities, due in part to the effects of BART construction.

Delays were the other major factor in the cost escalations. For BARTD to have kept to its original schedule (and therefore budget), BARTD would have had to operate with total insensitivity to community pressures, exempt from legislative review and judicial restraint. As it was, BARTD frequently has been criticized for being insensitive—for trying to push through its program as rapidly as possible, even if it meant running roughshod over community preferences.

BART was caught between conflicting demands. Local communities wanted an ongoing involvement with a flexible planning and design process. From the standpoint of fiscal economy, however, the best way to build a transit system is to do it as quickly as possible. Community participation takes time and therefore costs money.

This, in fact, was a major conclusion of a 1968 review of BART's finances on behalf of the California Senate. Because delays were a primary cause of BARTD's financial problems, the review recommended that the legislature do away with the public hearing requirement—the only participatory mechanism required by BARTD's legislation.

All things considered, BART construction came in reasonably close to the original cost estimates. In November 1971, by which time most of the cost escalation had already occurred, costs had risen only about 40 percent since the 1962 *Composite Report*. An article in a prominent economic journal noted that "by comparison with other public projects, this cost overrun is not very bad."<sup>21</sup> It cited a study of weapons systems which found that, on the average, actual cost was 3.25 times the estimated cost; a study of Bureau of Reclamation projects in which actual costs were 2.63 times estimated costs; and Corps of Engineers projects prior to 1951 with a 2.24 to 1 ratio (improved to 1.36 by 1964). Finally, a study of ad hoc projects (one-of-a-kind projects not part of a program of similar projects under development by the same agency) found that the average cost overrun for such projects was 73 percent.

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<sup>21</sup>Leonard Merewitz, "Public Transportation: Wish Fulfillment and Reality in the San Francisco Bay Area," *Journal of the American Economic Association*, November 1971.



BART's construction costs actually remained below estimates on a project-by-project basis for the first 20 months of construction (through December 1965). However, BARTD became aware of the cumulative effects of delays by May 1965, and the *San Francisco Chronicle* broke news of the money crisis in February 1966.

By July 1966, BARTD had projected a \$200 million shortfall. In early 1967, BARTD General Manager B.R. Stokes projected a complete depletion of available funds by 1968 and began encouraging a new bond issue for the November 1967 ballot. This trial balloon was immediately shot down by the San Francisco supervisors, who, probably accurately, read the mood of the voters to be negative.

The debate moved to the State Legislature, with San Francisco representatives supporting use of funds from Bay Area toll bridges, and others supporting use of a local sales tax. San Francisco legislators attempted to pass a refinancing scheme based on Bay Bridge tolls throughout the 1967 legislative session, but the plan died in the Assembly after passing the Senate. Stokes began announcing plans for halting construction after only 57 miles of the 75-mile system had been completed. The legislature continued into a special fall session called by Governor Reagan, who had threatened to veto toll financing because he favored using the toll money to build a second bridge for motor traffic between San Francisco and Oakland. A one-half cent sales tax finally passed in spring 1969.

A final important element in BART financing was that UMTA did not play any substantive role during the basic decisionmaking phase nor in the first half of the construction period. A \$13 million capital grant received in August 1966 was the first substantive Federal assistance BARTD received. Subsequently—and especially as BART ran further and further over its original estimates—UMTA funds came to the rescue.

As BARTD ran into financial difficulties, it became clear that its original plan to finance the rolling stock through revenue bonds would not be feasible, because no realistic appraisal of expected revenues and operating costs would provide potential investors with the required security for bonds. Rolling stock finally was acquired largely by means of UMTA grants that eventually totaled \$304 million, about 19 percent of the total cost of

the system and about half of BART's total cost overrun.

As BARTD ran into financial difficulties, there was a realization that not only would revenues be insufficient to secure revenue bonds, but they also would not come close to covering operating cost. Deficits were running about \$27 million per year and were expected to increase.<sup>22</sup> This inability to cover operating costs with revenues was a national trend. In San Francisco, however, the operating losses were drastically increased by the delays in beginning full-scale revenue operations caused by extremely poor reliability of the rolling stock, other maintenance and operations difficulties, and problems with the automated control system.

BARTD had no basis for financing continuing operating deficits and would have been forced to cease operations by late 1974 or early 1975 unless additional funds had been provided. This financial crisis precipitated generalized criticism of BARTD that was focused on BART Director B.R. Stokes, who was beginning to be blamed for all BART's technical difficulties with its rolling stock and control system as well as for the financial problems. Stokes resigned in May 1974.<sup>23</sup> The financial crisis was solved some 6 months later when the legislature extended the one-half cent sales tax and permitted its use for BART's operating costs.

## RECENT EVOLUTION OF THE PLANNING PROCESS

In September 1970, the first permanent regional transportation planning agency for the Bay Area, the Metropolitan Transportation Commission, was created by the legislature.

Prior to this, there had been two temporary agencies involved in BART system planning. The Bay Area Transportation Study Commission (1963-69) had been set up to satisfy the 3-C planning requirements of the 1962 Federal-Aid Highway Act and to prepare the report that was submitted to the legislature and the Governor in May 1969. The Transportation Study's principal

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<sup>22</sup> Metropolitan Transportation Commission, *Special Report on Transit Finance*, April 1974.

<sup>23</sup> The fact that Stokes landed the top job at the newly created American Public Transportation Association in Washington, D. C., is indicative of the respect he had within the industry and in national circles despite his problems at BARTD.

product was a typical 3-C planning document, containing the most comprehensive set of data ever collected on the Bay Area, and a plan that included almost all the projects that had been proposed for the area. The plan, though certainly unimplementable in full, was a good reference document on regional highways, bridges, and transit facilities, and on present and projected demographic and economic conditions and land development patterns for the entire Bay Area. The second temporary agency was the Regional Transportation Committee, set up in 1969 by a cooperative mutual agreement of the Association of Bay Area Governments and the California Department of Transportation.

Quite in contrast to its two immediate predecessors, the Metropolitan Transportation Commission (MTC) is unique among regional agencies in the power it possesses. In addition to the usual A-95 review authority and responsibility for Federal transportation planning requirements, MTC was essentially given veto power over all regional transportation projects. Furthermore, in 1971 it was given authority to allocate about \$35 million per year from the Transportation Development Act funds (.25 percent of all local sales taxes) among the several competing transit operators in the nine-county region. MTC has the authority to determine whether the funds are to be used immediately or kept in reserve to be used for future needs, and to determine how the funds are to be used: for planning, operation, or construction, and, in the more rural counties, for either highway or transit.

MTC adopted a plan in June 1973 as required by the original legislation. MTC's plan contrasts strikingly with the earlier Bay Area Transportation Study plan. Instead of concentrating on long-range forecasts and plans, MTC's plan stresses policy directions. Apart from the positive treatment of new policy directions for the region, however, much of the MTC plan is reactive. It contains no serious effort to identify new opportunities or to create program initiatives to achieve regional objectives. The plan's critics have concluded that the MTC planning process is the type that might stop some bad projects but it would never result in getting a BART built, even if that was clearly what the region needed.

On the positive side, the plan has several interesting features:

- Twelve major corridors are defined in such a way that the principal issues, functions, and options in each can be examined relatively independently in subsequent subregional studies.
- The basic physical plan is composed of elements that are formally assigned "status." The categories of status are (1) projects recommended for implementation, (2) those recommended for planning evaluation, (3) areas in which an issue is recognized, and (4) projects not included in the plan at this time. This treatment is a technical contribution to the state-of-the-art of the type of planning process that is evolving around the country.
- The plan devotes substantial attention to non facility programs, such as transit system coordination, low-cost transit and highway improvements, transportation management programs, and incentive programs.
- The financial plan developed is in keeping with MTC's legislative mandate to provide a financial plan that is not constrained by existing financing mechanisms or program restrictions. An interesting attempt is made to forecast the Bay Area's ability to attract Federal aid, and a wide variety of different types of regional taxes and bonding mechanisms are examined.
- The plan is unusual among metropolitan area transportation plans in that its treatment of costs gives balanced consideration to capital and operating costs. It includes analysis of the impact of capital improvements on overall transit system operating costs.
- In keeping with the mandate of the MTC enabling legislation, the financial plan analyzes the potential of a wide variety of different types of regional taxes and bonding mechanisms. Part of this effort involved an interesting attempt to forecast the Bay Area's ability to attract Federal aid.
- The Metropolitan Transit Federation and a Traffic Management Council are recommended to accomplish needed coordination among transit operators and to achieve more efficient use of streets and highways.

MTC appears to be an appropriate structure for improving coordination among transit operators, particularly through the bargaining power it has in the allocation of the Transportation Development Act funds. It has made some efforts to set standards and to link funding to these standards.

MTC has substantial powers but has been reticent to use them for fear of legislative reprisal. It did take some initiative in exercising its powers to influence highway programming and the use of highway funds for transit (about \$20 million per year are being shifted). In general, however, MTC has chosen the route of friendly persuasion, rather than risk loss of its powers by using them in conflict situations.

The mandate of MTC, the tenor of the times and the reaction to past programs and their style of management have all combined to push MTC in the direction of crisis intervention at the expense of more thorough and deliberate planning. MTC staff deliberately has sought to involve operating and implementing agencies in its planning process to give them a stake in plan implementation.

Assemblyman John Foran of San Francisco, author of the MTC legislation, sees it as a half step in the evolution of Bay Area government and a major step away from the single-mode, single-function approach at the State level.

Since 1970, BART extension studies have been conducted in several corridors:

- Geary Street in San Francisco
- San Francisco Airport
- BART-type technology versus Southern Pacific upgrading for the Peninsula (outside BARTD's jurisdiction)
- Oakland Airport
- Livermore
- Pittsburg-Antioch

In contrast to earlier BART system planning, these studies generally have been conducted in an open manner with study direction typically coming from local government, MTC and BARTD, with substantial opportunity for citizen participation.

Outcomes of these studies vary widely. If all of the extensions for which BARTD is responsible were to be constructed (i. e., excluding the full

peninsula route), it would double the current 75 miles of system at an estimated cost of another \$1.5 billion.<sup>24</sup> Based on past experience, even this probably is an optimistic price estimate. The full length of a San Mateo County extension was estimated to cost \$807 million from Daly City to Redwood City near the Santa Clara County line.<sup>25</sup> Cost estimates for the extension of this line to its more logical terminus in San Jose are not available, but it is likely that this project would add roughly another half billion dollars to the cost for this 16-mile length. When financing costs and more realistic inflation costs are included, it is likely that the full cost of all the above extensions would be in the \$3.5 to \$4 billion range.<sup>26</sup>

How many, if any, of these extensions are likely to be built is a matter of conjecture. Forecasts vary among those interviewed from no future extensions to almost all of them.

The San Francisco airport extension is strongly supported in San Francisco and is one of the easiest to justify in a benefit-cost sense. However, a decision on it is intimately linked to the consideration of an extension down the Peninsula. This proposal raises one of the more difficult transportation issues that the Bay Area will face because of its high cost, the existence of the S.P. commuter service, the fact that three counties and many cities are directly involved, and many other ramifications.

The Geary Street line in San Francisco would almost certainly be built as a Muni route rather than a BART extension if any fixed-guideway transit were to be built—which appears doubtful as a result of the study.

The Oakland Airport extension has substantial support in the East Bay even though it would attract far less patronage than other extensions, particularly in the short term. The San Francisco airport extension may not be politically feasible within the regional decision making process unless

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<sup>24</sup> Testimony of B. R. Stokes in hearings before the Subcommittee on Transportation of the Committee on Public Works, United States Senate, May 24, 1974, in San Francisco.

<sup>25</sup> PB-T-B-Wilbur Smith-Kirker, Chapman, *San Mateo County Transit Development Project. Airport-Menlo Park*, final draft report, April, 1974, pp. 5-14 and xvi-2.

<sup>26</sup> Interview with Lawrence Dahms, Acting General Manager of BART, September 1974.

it is coupled with the Oakland Airport extension, as MTC found when its staff attempted to set such a priority during the process of making its 1973 plan.

The Pittsburg-Antioch extension has a great deal of local support, apparently much greater than the Livermore extension. The former has the potential for becoming the catalyst for renewal of two older deteriorating cities and would provide service to

substantial concentrations of population and industrial employment. The costs of a BART-type system are very high, however, for the levels of ridership anticipated. The Livermore extension has a considerable amount of opposition from opponents of growth in that area. This, plus poorer economic justification for the route, make it unlikely that this route will get built in the near to medium-range future, if at all.