ART: IN BART

# ART IN BART

**Civic Center Station:** Located on the train wall of the BART level of the station is a porcelain enamel photo mural. This mural depicts the carved heads on the top of San Francisco's City Hall designed by Arthur Brown the architect. Also located on the concourse level is a photo mural of the architectural drawings of City Hall by Arthur Brown.

**Coliseum Station:** Designed by artist John Wastlhuber, a series of bright and bold graphics on the station walls and entry way create a festive atmosphere.

**El Cerrito Plaza**
**El Cerrito Del Norte** Both stations were selected for national design honors by the U. S. Department of Housing and Urban Development. Alfonso Pardinas created and executed longitudinal glass wall mosaics which cover the stairwells and entry walls to the stations.

**Embarcadero Station:** This station has three works of art. One is a granite relief of the late Tallie Maule, Chief Architect for the consulting engineers to BART. The donor and artist for this memorial piece is architect William Cullen.

"Wall Canyon" by Berkeley artist Steven de Staebler is attached to the west end wall of the station and rises piece-by-piece from the train platform through three levels of open space to the concourse level. The 37-foot sculpture has a multitude of shadings and color graduations which are accented by a special lighting arrangement.

The third piece of art at the station is a woven rope sculpture made of a special non-burning plastic called Nomex. The sculpture designed and executed by Berkeley artist Barbara Shawcroft extends the full length of the station from the concourse level to the platform level.

**Fremont Station** Super graphics by the late Tallie Maule, chief architect for the consulting engineers to BART, decorate the entire wall opposite the main entry.

**Lafayette Station** Designed by Berkeley artist Helen Webber, the station has three multi-colored glass mosaic columns. The mosaic work was executed by Alfonso Pardinas. The columns depict trees, birds and animals.

**Lake Merritt Administration Bldg.** On the plaza level of BART's administration building hangs four large tapestry collages designed and executed by Helen Webber of Berkeley.

| | |
|---|---|
| Lake Merritt Station | Located on the concourse level surrounding an open fountain area is a sculptured plaster wall designed and executed by British artist, William Mitchell. The design suggests the water fowl of nearby Lake Merritt. |
| MacArthur Station | Another mosaic executed by Alfonso Partinas and designed by the bay area's Mark Adams is the focal point on the concourse stairway. The mosaic depicts colorful balloon-like shapes. |
| Orinda Station | San Francisco artist Win Ng designed and executed a 100-ft. long, 16 foot high mural in paint and plaster. The mural stretches along one wall of the concourse level and is an abstract geometric design done in gray and yellow ochre. |
| Richmond Station | Located on the concourse level is a deep relief sculpture of fiberglass and natural material. Its contrasting orange and earth colors with intricate geometric shapes imparts an Aztec accent to the station. It was designed by William Mitchell of England. |
| San Leandro Station | Architect Joseph Escherick covers one concourse wall of this station with super graphics in warm tones. |
| Union City Station | From designs by local artist Jean Varda, Alfonso Pardinas created two large glass mosaics on the inside walls of the station. |
| 12th Street-City Center Station | Located in the City Center Plaza area of the station is a sculpture created by artist Harold Paris. This work was commissioned through a grant from the National Endowment for the Arts. |
| 16th & 24th Street Stations | Both stations have cast concrete wall sculptures by British artist William Mitchell lining the entrances which lead from the street level plazas down to the concourse level. |

E-5

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ARTICLES: "AFTER
SHAKY START..."

# Los Angeles Times

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Bay Area Rapid Transit District
800 Madison Street
Oakland, California 94607
Attn: Sy Mouber
Manager, Public Information

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After Shaky Start, BART Is Now Purring, Growing
By Philip Hager
Published February 16, 1982

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For the Los Angeles Times

Cheryl Preston

Cheryl Preston
Permissions Coordinator

Date July 1, 1982

ARTICLES: "BART AT AGE 10"

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

# BACKGROUND INFORMATION

## THE TRANSBAY TUBE

BART's Transbay Tube has been acknowledged the world over as one of history's outstanding civil engineering achievements.

Stretching 3.6 miles along the floor of the bay between Oakland and San Francisco, the tube represents the vital link in the nation's newest regional rail transit system. It is both the longest and--at its maximum of 135 feet below the surface--the deepest vehicular tube in the world.

Beginning in 1959, six years before the start of construction, seismic studies were conducted, and soils data obtained to aid in design and alignment decisions. Although the tube would not cross any active geologic fault, special provisions were made in the design to make the tube flexible to absorb earthquake shocks. One such provision was to cushion the tube, shore to shore, in a trench of soft soil, gravel and mud. Another was to attach the tube to its terminal buildings at either end with flexible connections, akin to giant universal joints, which allow for movement of several inches up or down, in or out, and sideways.

### Design and Construction

Parsons Brinckerhoff-Tudor-Bechtel, BART's general engineering consultants, were charged with design and construction management of the total project. The plan was to build the tube in sections, 57 in all, each averaging 330 feet in length. These were to be fabricated on dry-land shipways, from which they would be launched, towed into the bay, and sunk in their proper position.

The tube sections, each the approximate size and weight of an ocean-going freighter, would resemble huge binoculars in cross-section. Twenty-four feet high and 48 feet wide, they would contain two circular trackways, to carry trains in each direction, separated by an enclosed central corridor for pedestrian access, ventilation and utilities.

By the mid-1960's construction was ready to begin. A joint venture of four large contractors--Peter Kiewit Sons' Co.; Raymond International, Inc.; Tidewater Construction Corp.; and Healy-Tibbitts Construction Co.--won the big job under the name Trans-Bay Constructors. Their low bid was $90 million for the tube's basic structure. With an additional $90 million for ventilation structures at either end, 2.8 miles of aerial and subway approaches in Oakland and San Francisco, trackage, final finish work and electrification, the full cost of the project was $180 million.

The contract called for a demanding two-and-a-half-year schedule for completion of the basic structure. This meant maintaining a pace of building and placing two tube sections per month. Sub-contracts were let and soon an army of welders set to work fabricating the steel skin of the sections at the Bethlehem shipyards in San Francisco.

First came the tube shell, constructed from 3/8-inch steel plate and reinforced with steel T-beams set six feet apart. The inside of the completed shell was then laced with steel reinforcing bars for concrete. After a section was completed and water-tight bulkheads placed at each end, it was launched from the shipways and towed to a nearby dock. Here, about 70,000 square feet, or 4,200

cubic yards, of concrete was poured to form the 2.3 foot thick interior walls, and track-bed.

The first of the 57 sections was launched in February of 1967. Barely buoyant after the addition of the concrete, it was towed gingerly out to its assigned position. There it was weighted with 500 tons of gravel ballast placed in bins on top of the section, and slowly lowered into place. Final weight of each section is approximately 10,000 tons.

Meanwhile, excavation of the trench was progressing. For this job, the contractors had assembled a small navy of specialized vessels and clamshell dredges to cut a ditch in the bay floor 70 to 100 feet deep, sloping to a 60-foot-wide bottom. In all, the contractor removed about 5.6 million cubic yards of material, a considerable earth-moving job even on land, much less 135 feet beneath the water's surface.

At the same time, surveyors worked around the clock with construction crews to keep the trench precisely aligned through two horizontal and six vertical direction changes. Using lasers from shore positions, engineers were able to pin-point the exact position required for the dredge-barges.

To permit leveling of the tube to exacting specifications, the engineers specified that a two-foot layer of gravel bedding be placed along the entire length of the trench. This required some special ingenuity. To place and level the gravel, the contractor specially designed a large "screed barge" 85 feet wide, 240 feet long,

and floating 44 feet high on pontoons. Installed on top was a travelling bridge which carried the machinery for funnelling gravel to the floor, and for moving a box-like leveling device called a "screed".

## Tube Placement

Once the trench was ready, another specially designed rig had to be built to lower the heavy tube sections into place. It consisted of two barges, connected by means of overhead "bridges", separated just enough to nestle a floating tube section between them.

Lowering a tube section in zero-visibility deep water compounded the challenge. Engineers met this challenge by devising a sensitive system of hydraulic controls and strain gauges, permitting operators to monitor the weight on all four corner connections at once and thus keep the giant sections level during descent. This equipment was so sensitive the contractor could control the longitudinal and transverse position of the sections to within an inch.

From shore positions, surveyors were able to get an exact fix on each tube's required alignment before lowering. This was done through the use of theodolites and a specially devised optical plumbline centered from a temporary lookout tower on the tube section itself. Divers were used to help guide the tubes into position for coupling to the preceding section. The 366-foot-long barge was furnished with two decompression chambers into which the divers could move promptly upon surfacing.

Once in place, each new section was snugged tightly against the previous one by means of four 50-ton railroad-type couplers, hydraulically operated. The procedure was to lower the new section

into line about two feet away from the existing tube, engage the couplers, then activate the hydraulic rams to draw the new section tightly against the old section. Once this linkup was completed, a barge-mounted crane packed gravel and stone against the sides of the section to lock it in place. An additional five-foot layer of sand and gravel provides a top protective blanket.

Once the sections were joined and sealed by a neoprene rubber gasket around the rim, water trapped between the end bulkheads was bled off. Hydrostatic pressure then exerted enough force to keep the seal tight. Later the bulkheads were removed from inside the structure, and permanent steel connections welded into place. Concrete was added to complete the joint construction.

## Ventilation Buildings

Ventilation structures on both sides of the bay act as the terminal points for the tube. Through them, air is sucked into the tube and expelled as trains pass to and fro. Also, four huge fans, each nine feet in diameter, clear the air in the tube in case of an emergency. Portions of these ventilation buildings also serve as substations to feed traction power into the tube from both ends, and house train control equipment. On the San Francisco side of the bay, the massive ventilation structure is a caisson located approximately 450 feet offshore and protruding 25 feet above the surface. At this point, the Market Street subway joins the tube at a depth of about 80 feet.

## Cathodic Protection System

To prevent corrosion of its steel skin from salt-water electrolysis, the tube employs a cathodic protection system. This system consists of a series of positively charged anodes placed about 250 feet off both sides of the tube. Each anode is connected to the

tube by armored cable. The steel surface of the tube, being negatively charged, attracts the positive ions, thereby preventing corrosion. Calcareous deposits buildup on the tube skin, over an estimated 15-year period, will offer a protective coating and lessen the cathodic protection current requirements.

## Completed and Operating

The last tube section was launched and placed just east of Yerba Buena Island in April, 1969, meeting the required schedule. Track laying, electrification and installation of train-control equipment and ventilation were completed by early 1973.

On August 10, 1973, the first powered, automatically controlled train round-trip was made through the tube. Since November, 1973, the tube has, of course, been in regular use as a testing ground and for shuttling trains back and forth for BART's San Francisco service, although passengers have not been permitted pending authorization by the California Public Utilities Commission. Now, with passage of the first transbay commuter trains on the morning of September 16, 1974, BART's underwater engineering marvel is at last complete.

* * *

November, 1976

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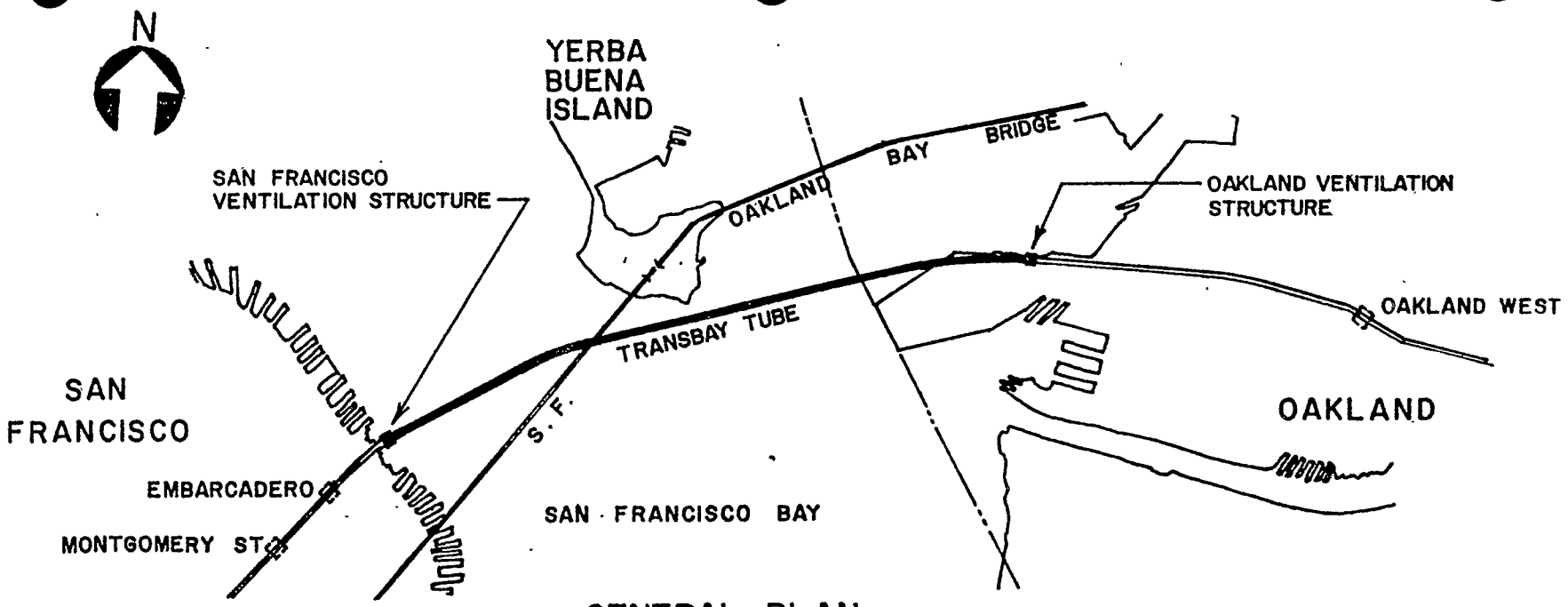
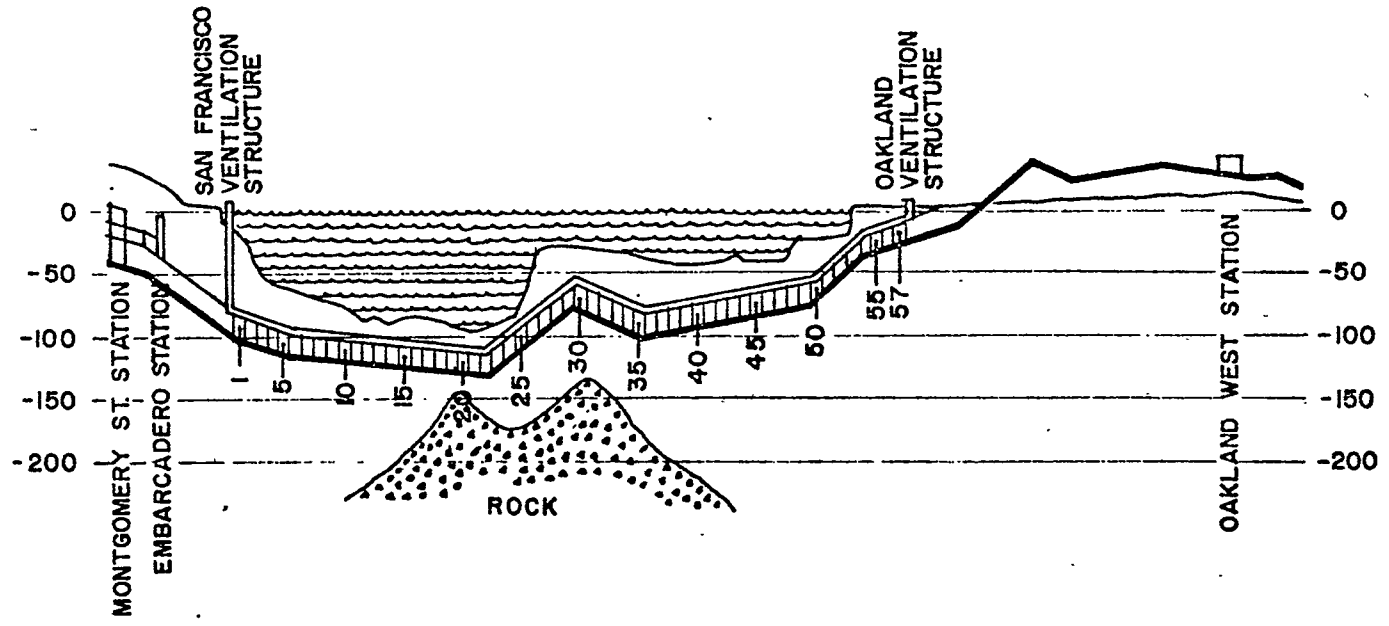
* * *

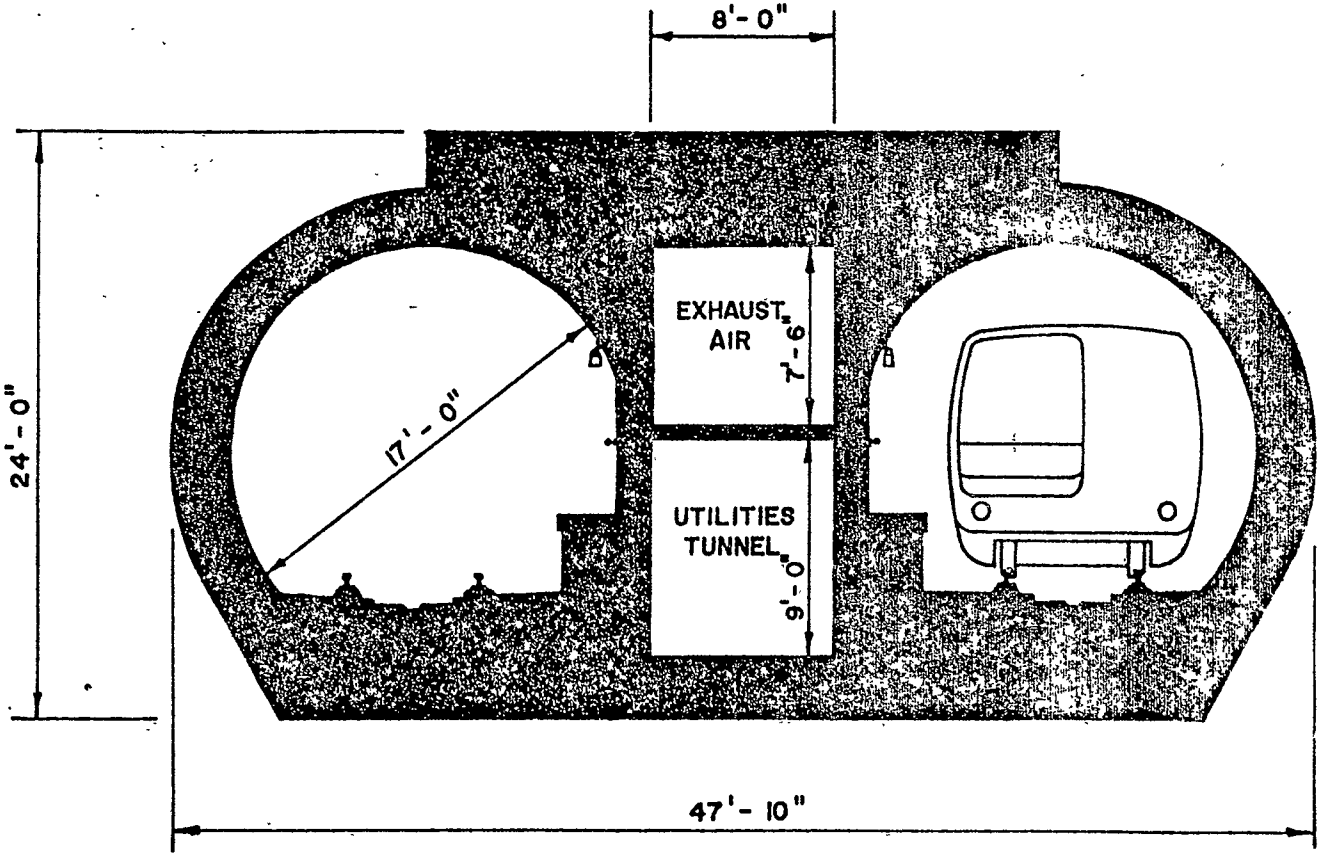
November, 1976



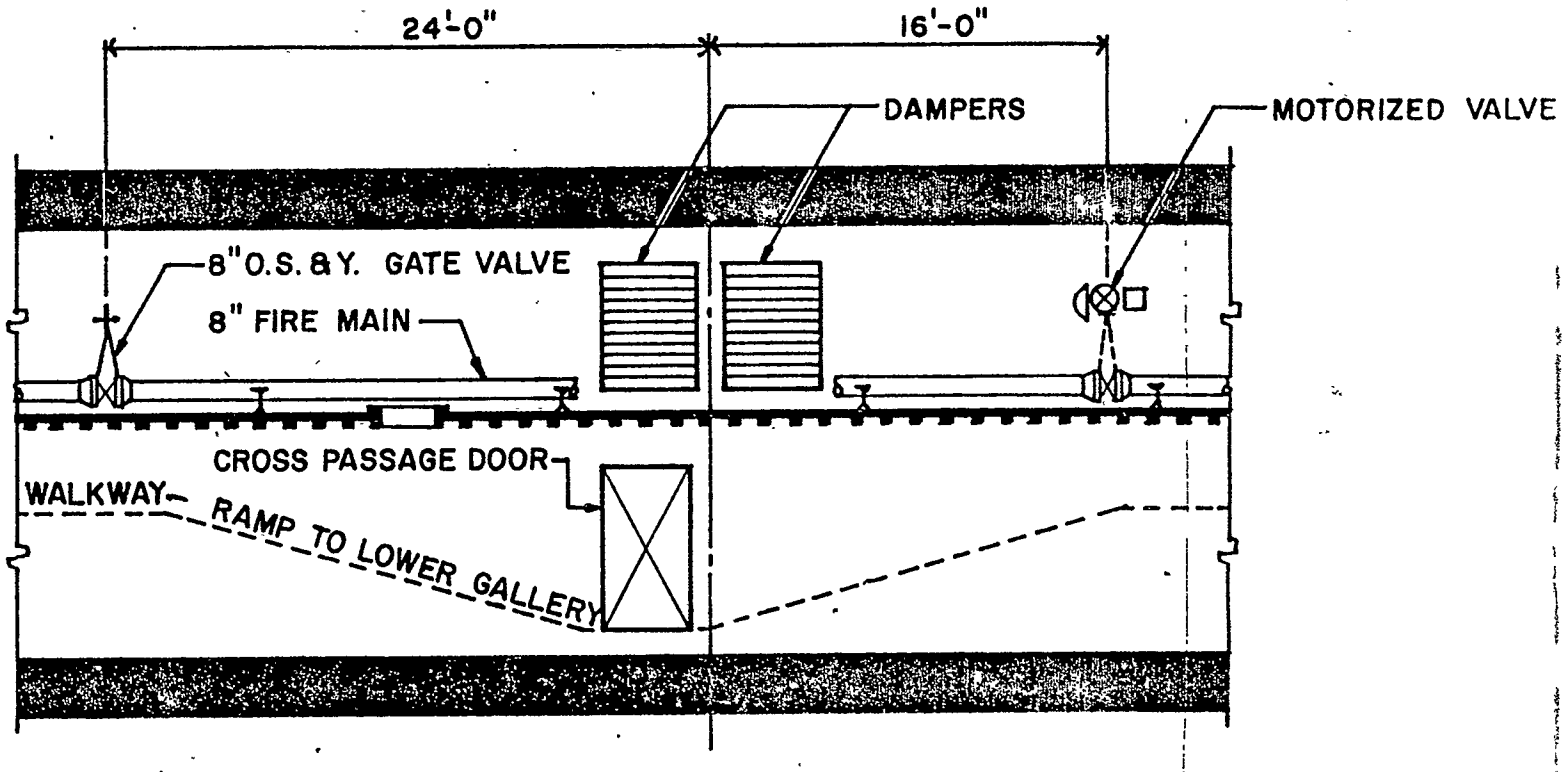

GENERAL PLAN




GENERAL PROFILE




BART TRANSBAY TUBE CROSS SECTION




TYPICAL LONGITUDINAL TUBE SECTION

TRANS. VEHICLE:
BART CAR

# THE BART CAR

## CAR TYPES

| | |
|---|---|
| A-Car | Equipped with fiberglass operator's cab, automatic train operation sensors and two-way communications system. Length is 75 feet, and weight is 59,000 pounds (without passengers). Also referred to as "Lead Car." |
| | Intermediate car (without cab) Length: 70' Weight: 56,000 lbs. |

## CAR SPECIFICATIONS

| | |
|---|---|
| Width | 10 feet, 6 inches |
| Height | 10 feet, 6 inches |
| Ceiling Height | 6 feet, 9 inches |
| Exterior | Brushed aluminum finish with blue striping and BART insignia |
| Floors | Wall-to-wall rust colored, 100% wool carpeting |
| Aisles | 30 inches wide |
| Seats | Woven upholstery, fire safe foam padding. Transverse seats (56 per car) are black in color, 34 inches apart. Longitudinal seats (16 per car) are located next to side doors and are rust in color. Seats are cantilevered to offer maximum leg and luggage space, and provides easy maintenance. |
| Seating Capacity | 72 persons per car |
| Lighting | Recessed overhead fixtures provide both diffuse overall lighting and high intensity seat lighting for reading. |
| Windows | Tinted and heat reflecting glass. The passenger seats offer panoramic view. Operator's cab windshield is high impact glass, similar to the glass used in commercial aircrafts. |
| Air conditioning | 12-ton multi-zone temperature/humidity control to maintain 68-72°F. and keeps humidity below 60 percent. |
| Propulsion | Four 150-HP, air-cooled, electric traction motors (one per axle) 1,000-V direct current power derived from third rail. |
| Communication | VHF two-way radio telephone in cab. PA announcements to passengers in car can be originated by Central Control or Operator. A Passenger Intercom labeled, "Attendant Call" is located in each car, which enables passengers to contact Train Operator. |
| Speed | 80 MPH maximum. 45 MPH average, including station stops (average stop is 20 seconds). Acceleration is 3.0 MPH per second. |
| Fleet Size | Full system operations requires 450 cars (176 "A"-Cars; 274 "B"-Cars). |
| Consists | Minimum Train - 2 "A"-Cars (144 seated passengers)<br>Maximum Train - 2 "A"-Cars-8 "B"-Cars (720 seated passengers)<br>Intermediate consists formed by varying number of "B"-Cars per train. |

Public Information Office
October, 1981

Table 1 Vehicle Dimensions

| | A-Car | B-Car |
|---|---|---|
| Carbody Width | 10'6" | 10'6" |
| Carbody Length | 75'0" | 70'0" |
| Car Height, Top of rail to top of car, less antennas | 10'6" | 10'6" |
| Ceiling Height, center of aisle | 6'9" | 6'9" |
| Floor Height, Top of rail to top of floor | 39'0" | 39'0" |
| Maximum Dimension, Top of floor to bottom, all undercar equipment | 33-1/4" | 33-1/4" |
| Height of all door openings | 6'4" | 6'4" |
| Width of side door | 4'6" | 4'6" |
| Width of end door | 46-3/4" | 46-3/4" |
| Width of cab door | 30" | " |
| Wheel diameter - New | 30" | 30" |
| Wheel diameter - Worn condemning | 28" | 28" |
| Truck spacing, center to center of trucks | 50'0" | 50'0" |
| Wheel Gauge, between gauging points ± 1/16" | 5'5-1/4" | 5'5-1/4" |
| Track gauge, tangent and curved ± 1/8" | 5'6" | 5'6" |
| Station platform height, from top of rail | 39" | 39" |
| Running clearance | 2" | 2" |

Sy, Will this suffice for your contest?

Jane

# THE BART CAR

## R TYPES

A-Car: Equipped with fiberglass operator's cab, automatic train operation sensors and two-way communications system. Length is 75' - Weight, 59,000 lbs. (without passengers).

B-Car Intermediate car (without cab). Length is 70' - Weight, 56,000 lbs.

## CAR SPECIFICATIONS

| | |
|---|---|
| Width: | 10 feet, 6 inches |
| Height: | 10 feet, 6 inches |
| Ceiling Height: | 6 feet, 9 inches |
| Exterior: | Brushed aluminum finish with blue striping and BART insignia. |
| Floors: | Wall-to-wall rust colored, 100% wool carpeting. Wide (30") aisles. |
| Seats: | Smooth vinyl and woven upholstery - foam padded. Transverse seats (56 per car) are black in color, 34 inches apart. Longitudinal seats (16 per car) are located next to side doors and are rust in color. Seats are cantilevered to offer maximum leg and luggage space, and to provide for ease of maintenance. |
| Lighting: | Recessed overhead fixtures provide both difused overall lighting and high intensity seat lighting for reading. |
| Windows: | Panoramic view. Tinted and heat reflecting. Operator cab windshield is high impact glass, similar to commercial aircraft. |
| Air Conditioning: | 12-ton multi-zone temperature/humidity control to maintain 68-72°F and keep humidity below 60%. |
| Propulsion: | Four 150-HP, air-cooled, electric traction motors (one per axle). 1000-V direct current power derived from third rail. |
| Communication: | VHF two-way radio telephone in cab. PA announcements to car can be originated by Central Control or operator. Passenger intercom to operator located in each car and labeled "attendant call." |
| Speed: | 80 mph maximum. 45 mph average, including station stops (average stop is 20 seconds). Acceleration is 3.0 mph per second. |
| Fleet Size: | Total number of cars on order for full system operations is 450 (176 A-Cars, 274-B-Cars). |
| Consists: | Minimum Train - 2 A-Cars (144 seated passengers).<br>Maximum Train - 2 A-Cars and 8 B-Cars (720 seated passengers)<br>Intermediate consists formed by varying number of B-cars per train. |

Public Information Office
November, 1976

TRANSIT VEHICLE:
C-CAR

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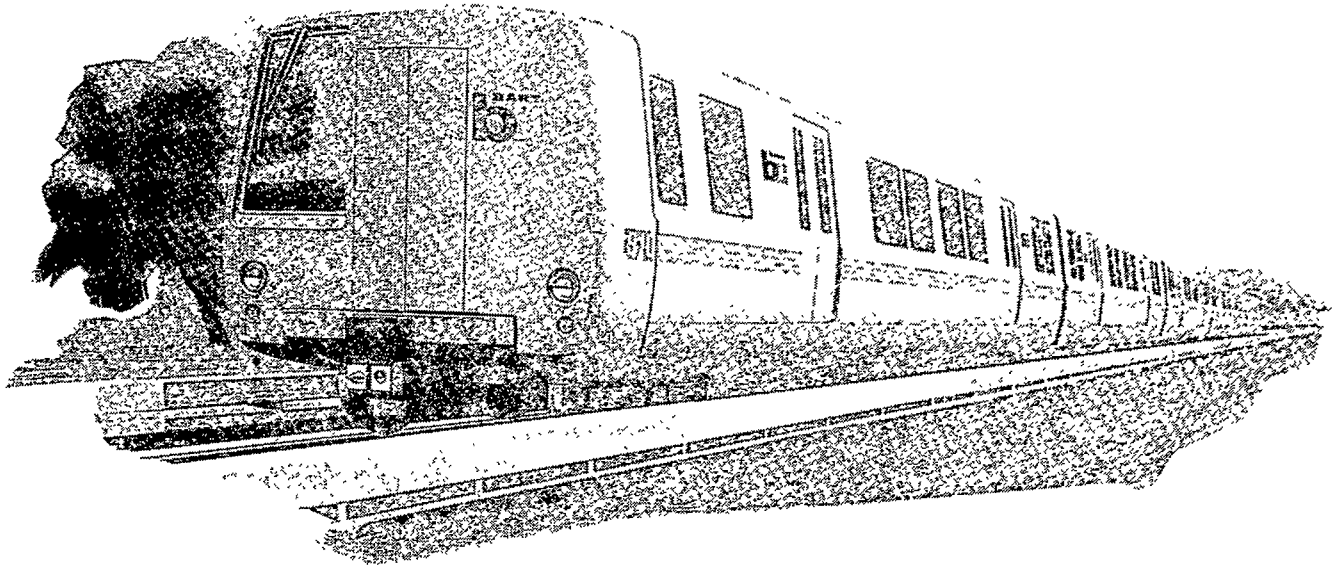
**SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT**
800 Madison Street–Oakland, CA 94607
(415) 465-4100

BART

# A NEW DESIGN FOR BART CARS



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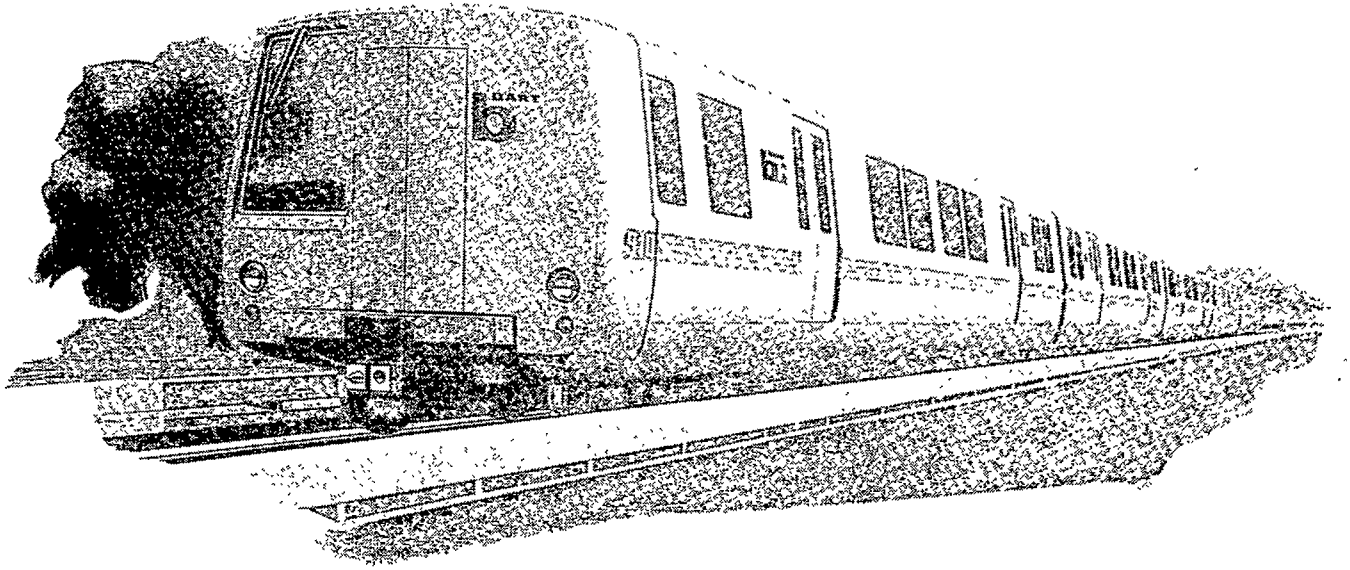


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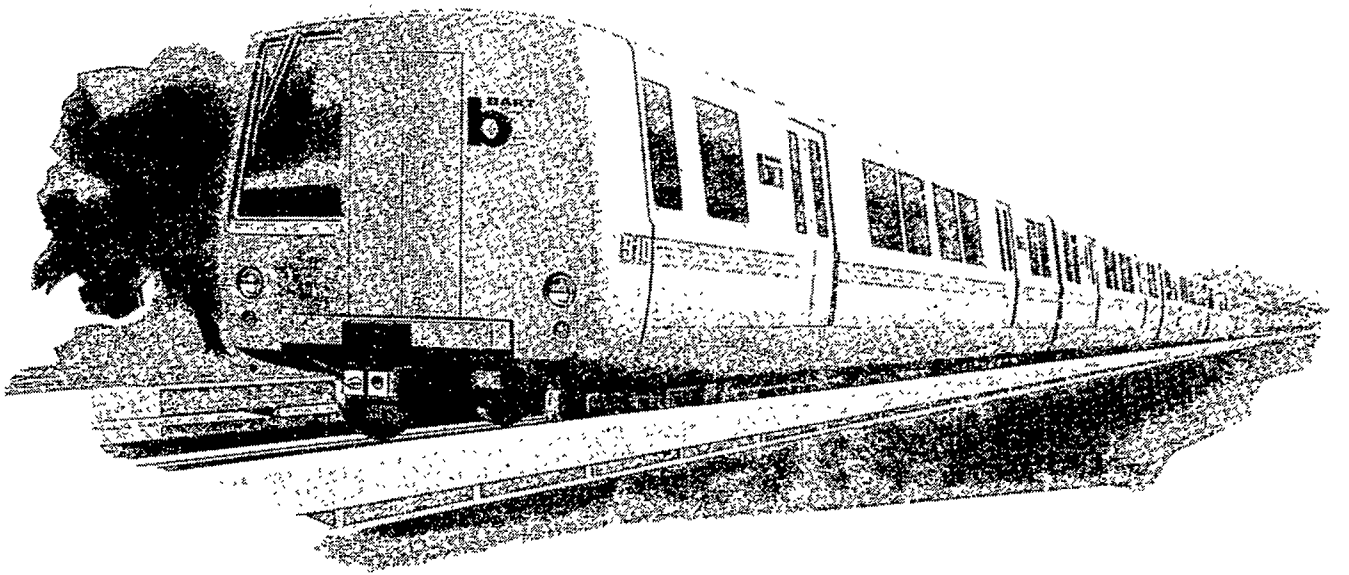


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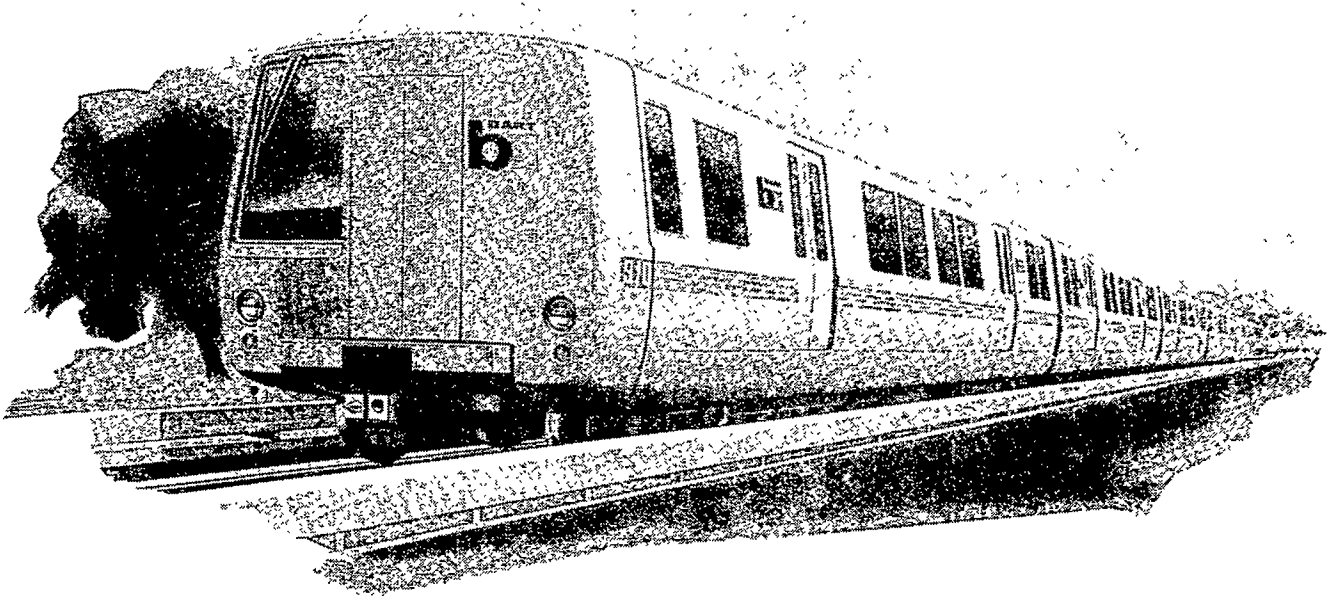

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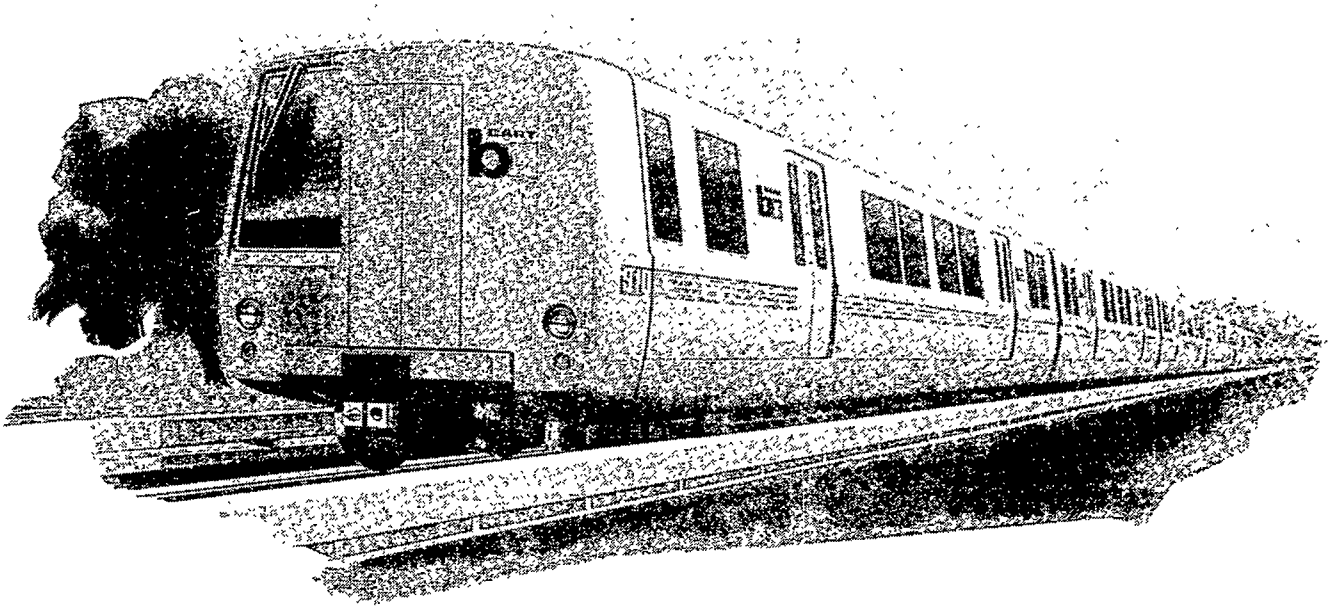


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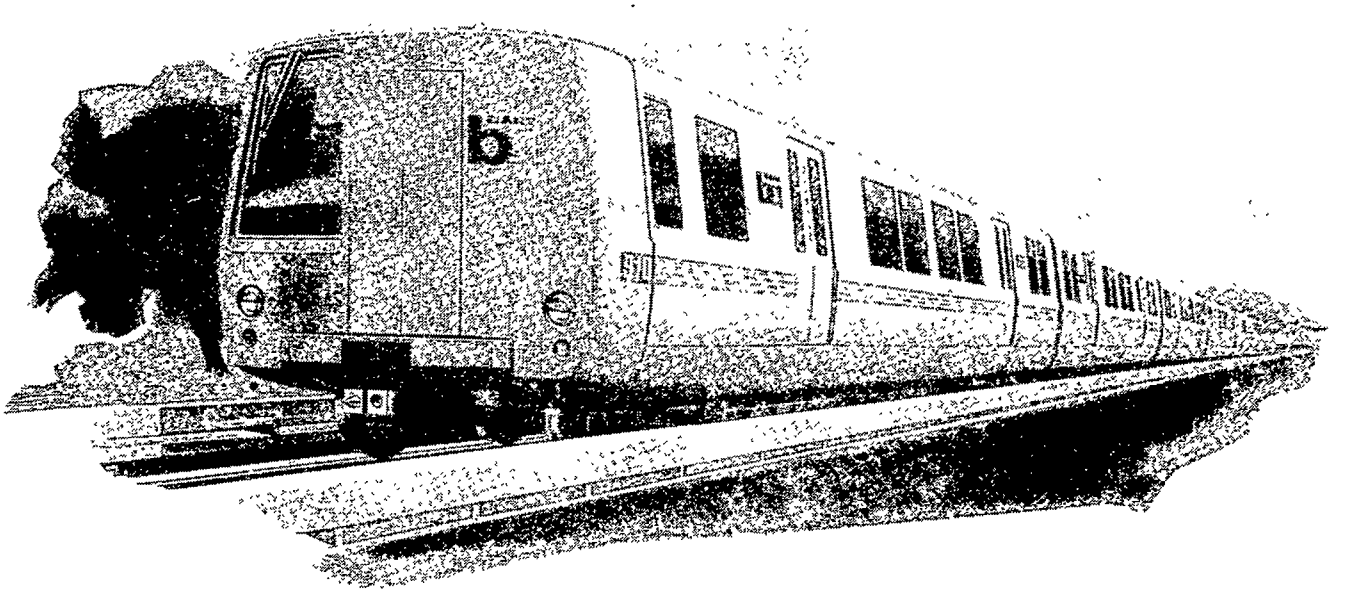

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# TRAIN SCHEDULES

Monday - Friday
Day Service: From 6 a.m. to 6 p.m. trains operate on all four lines -- Concord/Daly City, Richmond/Daly City, Fremont/Daly City and Richmond/Fremont.

During morning (6 a.m. to 8 a.m.) and afternoon (4 p.m. to 6 p.m.) commute hours, trains operate at 7-minute intervals except in the downtown portions of the system, where trains operate at 4-minute intervals. At all other hours during "Monday - Friday Day Service" trains operate at 12-minute intervals.

Monday - Friday
Night Service: From 6 p.m. to midnight, trains operate on two lines -- Richmond/Fremont and Concord/Daly City (this is called "X" Service). Trains operate at 20-minute intervals during night service.

Saturday
Day Service: From 6 a.m. to 6 p.m. trains operate at 20-minute intervals on all four lines.

Saturday
Night Service: From 6 p.m. to midnight trains operate at 20-minute intervals on two lines ("X" Service).

Sunday
All-Day Service: From 9 a.m. to midnight trains operate at 20-minute intervals on two lines ("X" Service).

Printed schedules for BART weekend and evening train service are available at all BART stations.

Bay Area Rapid Transit District
Public Information Office
April 1982

# BART FACT SHEET

(1982 annual data or as noted)

## **FIXED FACILITIES**

**Mainline Track:** Revenue service is provided over 71.5 miles of double mainline track, of which approximately 20 miles are in subway, 24 elevated, and 27 at grade.

**Stations:** There are 34 stations including 14 in subway, 13 elevated, and 7 at grade. Average station spacing is between 1/2 to 1 mile within and adjacent to San Francisco, Oakland, and Berkeley downtown areas, and 2 to 4 miles apart in suburban areas. Automatic fare collection equipment is located in each station to vend and process patron tickets. BART provides approximately 22,200 free parking spaces at 22 stations.

**Maintenance Facilities:** Equipment maintenance is performed at three Eastbay yards located in Hayward, Concord, and Richmond. A special track geometric vehicle is used to analyze the running rails and electrical third rail. Maintenance of right-of-way is routinely performed during off-revenue hours.

**Administrative/Central Control Center:** Trains are automatically controlled by wayside equipment and supervised by the central computer at BART headquarters located above the Lake Merritt Station in Oakland. Operators on board the leading A-car of each train have full voice communication with central control personnel and passengers on board, and can override automatic controls should the need arise.

## **ROLLING STOCK**

**Fleet Inventory:** BART's maintenance fleet consists of 136 control-equipped A-cars and 300 trail B-cars. Each vehicle contains 72 seats and is approximately 70 feet long by 10.5 feet wide.

**Trains:** Train lengths range from 3 to 10 cars and consist of 2 A-cars (one at each end) and between 1 and 8 B-cars. Corresponding seating capacity is between 216 and 720 passengers. Top speed is 80 mph with a systemwide average of 33 mph, including station stops. Trains stop at each station along a designated route.

## **SERVICE HOURS**

**Rail:** Rail service is operated between the hours of 6 a.m. and 12 midnight Monday through Saturday and 9 a.m. to 12 midnight on Sundays and major holidays. Average waiting times (in minutes) for individual routes and line segments are as follows:

| | TRANSBAY ROUTES | | | EASTBAY | CBD LINE SEGMENT | |
|---|---|---|---|---|---|---|
| | Concord-Daly City | Fremont-Daly City | Richmond-Daly City | Richmond-Fremont | San Francisco | Downtown Oakland |
| WEEKDAY | | | | | | |
| Peak Hour | 7.5 | 14.3 | 15 | 12 | 3.8 | 3.8 |
| Midday | 15 | 15 | 15 | 15 | 5 | 5 |
| Night | 20 | * | * | 20 | 20 | 10 |
| SATURDAY | | | | | | |
| Daytime | 20 | 20 | 20 | 20 | 6.7 | 6.7 |
| Night | 20 | * | * | 20 | 20 | 10 |
| SUNDAY/HOLIDAY | | | | | | |
| All Day | 20 | * | * | 20 | 20 | 10 |

*Requires transfer between Concord/Daly City and Richmond/Fremont routes

**Express Bus:** The District also provides express bus service within major travel corridors not served by rail in both Alameda and Contra Costa counties in the Eastbay. Bus service frequencies (in minutes) are as follows:

| | Eastern Contra Costa | Western Contra Costa | Central Contra Costa-Alameda | Eastern Alameda |
|---|---|---|---|---|
| WEEKDAY | | | | |
| Peak Hour | 30 | 30 | 30 | 30 |
| Midday | 30 | 30 | 30 | 30 |
| Night | 60 | * | 60 | 60 |
| SATURDAY | | | | |
| Daytime | 60 | 60 | 60 | 60 |
| Night | 60 | 60 | 60 | 60 |
| SUNDAY/HOLIDAY | | | | |
| All day | 60 | * | 60 | 60 |

*No service during this time period.

## **FARES**

**Regular Adult:** Rail fares are largely based on a distance formula ranging from 60¢ to $2.15. The average weekday rail fare is currently $1.26. Regular express bus fares are 60¢ and 90¢ for one and two zone rides, respectively; rail patrons transferring to an express bus may obtain a free transfer worth 60¢.

**Discounts:** A 4.8% rail fare discount is provided through the sale of $21 tickets for $20. Rail fares for handicapped persons, students 5-12 years of age, and persons 65 years of age and older are 10% of the regular adult fares. Children under 5 can ride free. Discount bus fares are 10¢ for one zone and 20¢ for two zones for the groups listed above.

**Transfers:** Free transfers can be made between all BART trains. Special agreements between BART and most other Bay Area operators permit up to a 50% discount for connecting transit service (on a round-trip basis).

## **PATRONAGE**

**Average Weekday:** BART patronage averaged 187,386 trips per weekday during 1982. Of these trips, 94,649 (50.5%) occurred within the 4-hour peak travel period (2 morning hours plus 2 afternoon hours). Transbay trips constitute 51.5% of weekday travel with 26.5% Eastbay and 22.0% Westbay.

**Weekends:** Saturday ridership averaged 75,068 trips during 1982 with 48.0% Transbay, 33.0% Eastbay, and 19.0% Westbay. Ridership for Sunday averaged 43,998 with market shares of 47.6% Transbay, 35.9% Eastbay, and 16.5% Westbay.

**Annual Ridership:** Total ridership during 1982 was 54,076,603 rail trips versus a forecast of 51,998,300 for the same period (4.0% above forecast and 7.7% above total ridership for 1981).

## **CAPACITY**

**On-Line Requirements:** BART currently operates a maximum of 42 on-line trains which require 84 A-cars and 226 B-cars. In addition to these, 9 trains are held as ready spares requiring 18 A-cars and 29 B-cars.

**Maximum Service Delivery:** As of December 1982, scheduled peak hour capacity for the three Transbay routes serving downtown San Francisco and Oakland stations is 16 trains consisting of 149 cars (or 10,728 seats). For the Eastbay route, which serves downtown Oakland stations, maximum peak hour capacity is 5 trains consisting of 25 cars (or 1,800 seats).

## **KEY PERFORMANCE INDICATORS**

**On-Time Performance:** Daily on-time performance has consistently been above 90% since October 1980 and averaged 93.4% during 1982.

**Scheduled Train Dispatches Completed:** Performance has consistently been above 98% since January 1981 and averaged 98.9% during 1982.

**Load Factors:** Continued patronage increases, given current capacity limitations, have resulted in peak hour load factors averaging 1.41 for Transbay service during 1982 and 1.13 for the Eastbay route. Load factors for the shoulder period (approximately 45 minutes before and after the peak hour) averaged 1.17 Transbay and 0.96 for the Eastbay route.

**Peak Period Transbay Throughput:** The percentage of scheduled Transbay capacity actually provided during 1982 is 98.3% for trains and 97.4% for cars.

## **OTHER PERFORMANCE INFORMATION FOR 1982**

| PERFORMANCE DATA (in thousands) | |
|---|---|
| Passenger-miles | 731,634.7 |
| Car-miles | 28,866.7 |
| Car-hours | 1,064.8 |
| Rail operating cost | $117,294.8 |
| Express bus cost | $7,426.0 |
| Total operating cost | $124,720.8 |
| Passenger revenue | $57,741.8 |
| Other revenue | $6,024.1 |
| Total revenue | $63,765.9 |
| Operating deficit | $60,954.9 |

| PERFORMANCE INDICATORS | |
|---|---|
| Farebox ratio | 46.77% |
| Operating ratio | 51.65% |
| Operating cost/passenger | $2.31 |
| Rail operating cost/passenger-mile | 16.03¢ |
| Rail operating cost/car-mile | $4.06 |
| Rail operating cost/car-hour | $110.16 |
| Passengers/car-mile | 1.87 |
| Passenger-miles/seat-mile | 0.35 |
| Passenger-miles/car-hour | 687.11 |
| Operating revenue/passenger | $1.18 |
| Operating deficit/passenger | $1.13 |

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BACKGROUND INFORMATION

# BART SYSTEM FACT SHEET

## BOARD OF DIRECTORS

9 elected members representing 9 election districts in the three BART counties:

Alameda, Contra Costa, and San Francisco

## MILEAGE

71.5 total - approximately 19 subway and tunnel; 23 aerial; 25 surface; 4 of transbay tube. (4 additional miles of S. F. Municipal Railway were included in original 1962 plan.)

## BART STATIONS

14 subway, 13 aerial and 7 surface stations comprise the 34 stations of the BART system. Four of these are combination BART trains and Muni Metro stations in downtown San Francisco. BART is building four additional stations for the Muni's outer Market line.

## PARKING

Parking is free of charge at all except Lake Merritt (25¢) stations, 23 stations have parking lots ranging from 240 to 1400 car stalls. (No parking lots within San Francisco City and County limits.) Total capacity of all lots is 20,253. Special stalls for mid-day parking are available from 9 a.m. to 4 p.m.

## STATION FEATURES

Special elevators, ramps and other aids enable handicapped persons -- even those in wheelchairs -- to travel the entire system. Parking lots have stalls reserved for handicapped patrons' cars.

Bicycle and motorcycle racks, plus special bicycle lockers for super security, are available at all stations except downtown Oakland, Berkeley and San Francisco stations.

## TRANSBAY TUBE

3.6 miles, twin-section, concrete and steel.
24' H x 48' W, buried in trench 75' - 135' underwater.
High earthquake tolerance.

TRAINS

Third rail propulsion power is 1000-volt DC electricity.
Propulsion - one 150-HP motor peer axle, four motors per car.
Features - aluminum body, 72 seats, carpeted, air-conditioned, tinted windows.
Car - 70' long, 10'6" high, 10'6" wide, headroom 6'9".
Track gauge - 5'6" wide for stability. (standard: 4'8")
Number of cars - 450 vehicles for initial full operation; built by Rohr Industries.
Speed - 80 MPH maximum, 39 MPH average, including 20-second station stops.
Acceleration and deceleration - 3 MPH per second maximum.

AUTOMATIC TRAIN CONTROL

Twin train control computers (one for backup) - at Lake Merritt Station, Oakland; built by Westinghouse.
Car-borne equipment - console monitored by attendant who can override automatic control in emergencies to stop train, or run at 25 MPH in manual mode.
Stations and wayside - network of control devices and track circuits controlling train speeds, stops, and safe spacing.
Backup Train protection system - Sequential Occupany Release System (SORS) - 52 mini computers located in 26 stations.

AUTOMATIC FARE COLLECTION

Station equipment - IBM change and ticket vending machines and gates - new Cubic equipment at Embarcadero Station only.
Entry gate - records time, date, station; returns ticket.
Exit gate- computes required fare, takes exact-fare ticket, instructs if additional payment needed, or deducts proper amount from multi-ride ticket.
Ticket - credit-card size, magnetically encoded or "stored" with up to $20 of fares. Machines automatically deduct trip fares from stored fare value on ticket.

BASIC FARE

Minimum 50¢/Maximum $1.75 for longest one-way trip.

SPECIAL FARES

All discounted tickets must be purchased at participating local bank branches only, not at BART stations.

Children 4 and under ride free. Children 5 through 12 can purchase a red ticket worth $9.00 for 90¢. Handicapped persons can purchase a red ticket worth $9.00 for 90¢. Senior citizens 65 and over can purchase a green ticket worth $6.00 for just 60¢.

BART
BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

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BACKGROUND INFORMATION

## THE TRANSBAY TUBE

BART's Transbay Tube has been acknowledged the world over as one of history's outstanding civil engineering achievements.

Stretching 3.6 miles along the floor of the bay between Oakland and San Francisco, the tube represents the vital link in the nation's newest regional rail transit system. It is both the longest and...at its maximum of 135 feet below the surface...the deepest vehicular tube in the world.

Beginning in 1959, six years before the start of construction, seismic studies were conducted, and soils data obtained to aid in design and alignment decisions. Although the tube would not cross any active geologic fault, special provisions were made in the design to make the tube flexible to absorb earthquake shocks. One such provision was to cushion the tube, shore to shore, in a trench of soft soil, gravel and mud. Another was to attach the tube to its terminal buildings at either end with flexible connections, akin to giant uniersal joints, which allow for movement of several inches up or down, in or out, and sideways.

### Design and Construction

Parsons Brinckerhoff-Tudor-Bechtel, BART's general engineering consultants, were charged with design and construction management of the total project. The plan was to build the tube in sections, 57 in all, each averaging 330 feet in length. These were to be fabricated on dry-land shipways, from which they would be launched, towed into the bay, and sunk in their proper position.

The tube sections, each the approximate size and weight of an ocean-going freighter, would resemble huge binoculars in cross-section. Twenty-four feet high and 48 feet wide, they would contain two circular trackways, to carry trains in each direction, separated by an enclosed central corridor for pedestrian access, ventilation and utilities.

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BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

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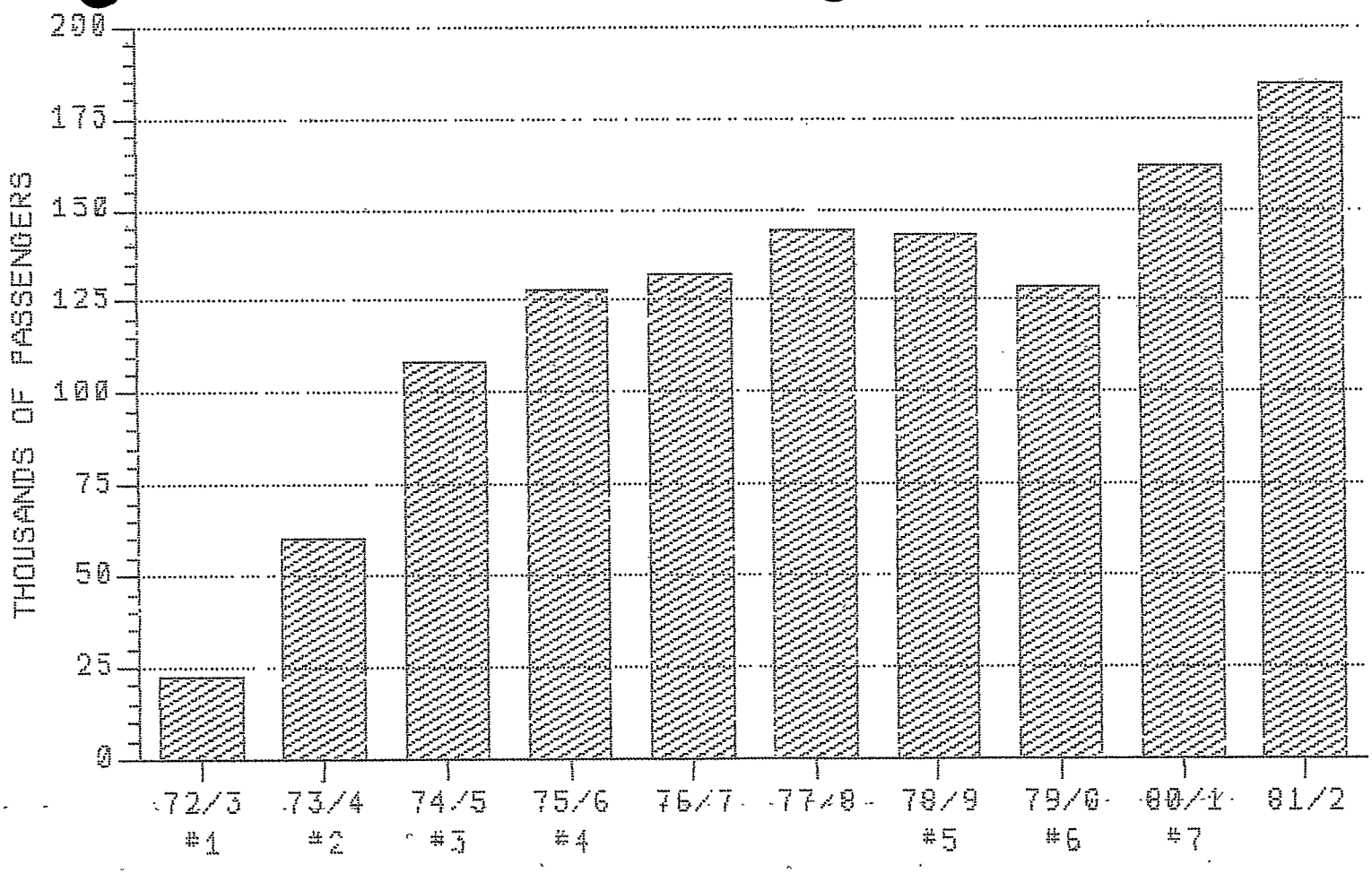


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#4--FY 75/76. Embarcadero Station opened May 27, 1976.
#5--FY 78/79. Transbay Tube Fire January 17, 1979, limited service East- and Westbay. Transbay service resumed April 5, 1979.
#6--FY 79/80. 3-month labor contract dispute. Limited service between September 1, 1979 and November 25, 1979.
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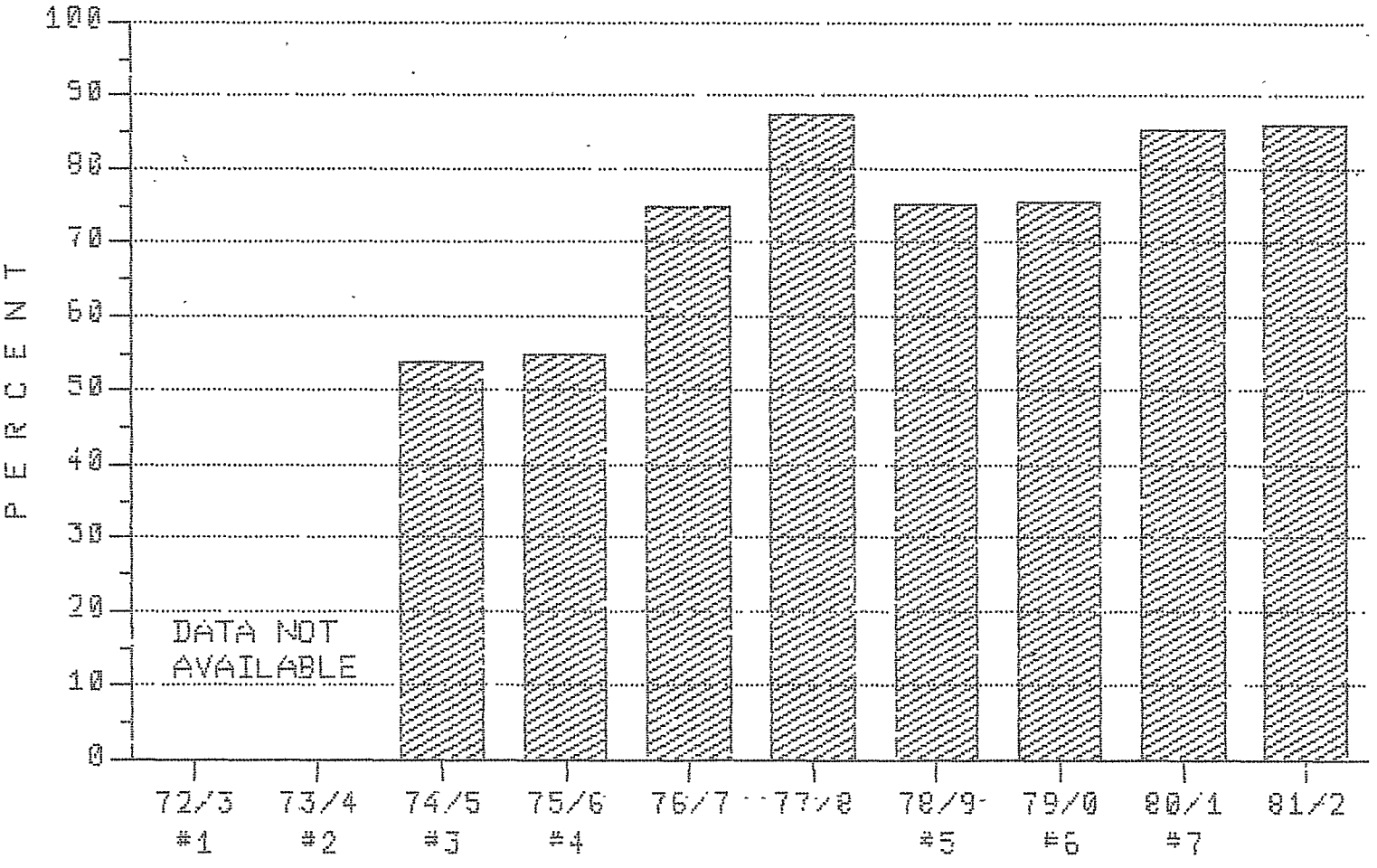
# 8 AM CAR AVAILABILITY

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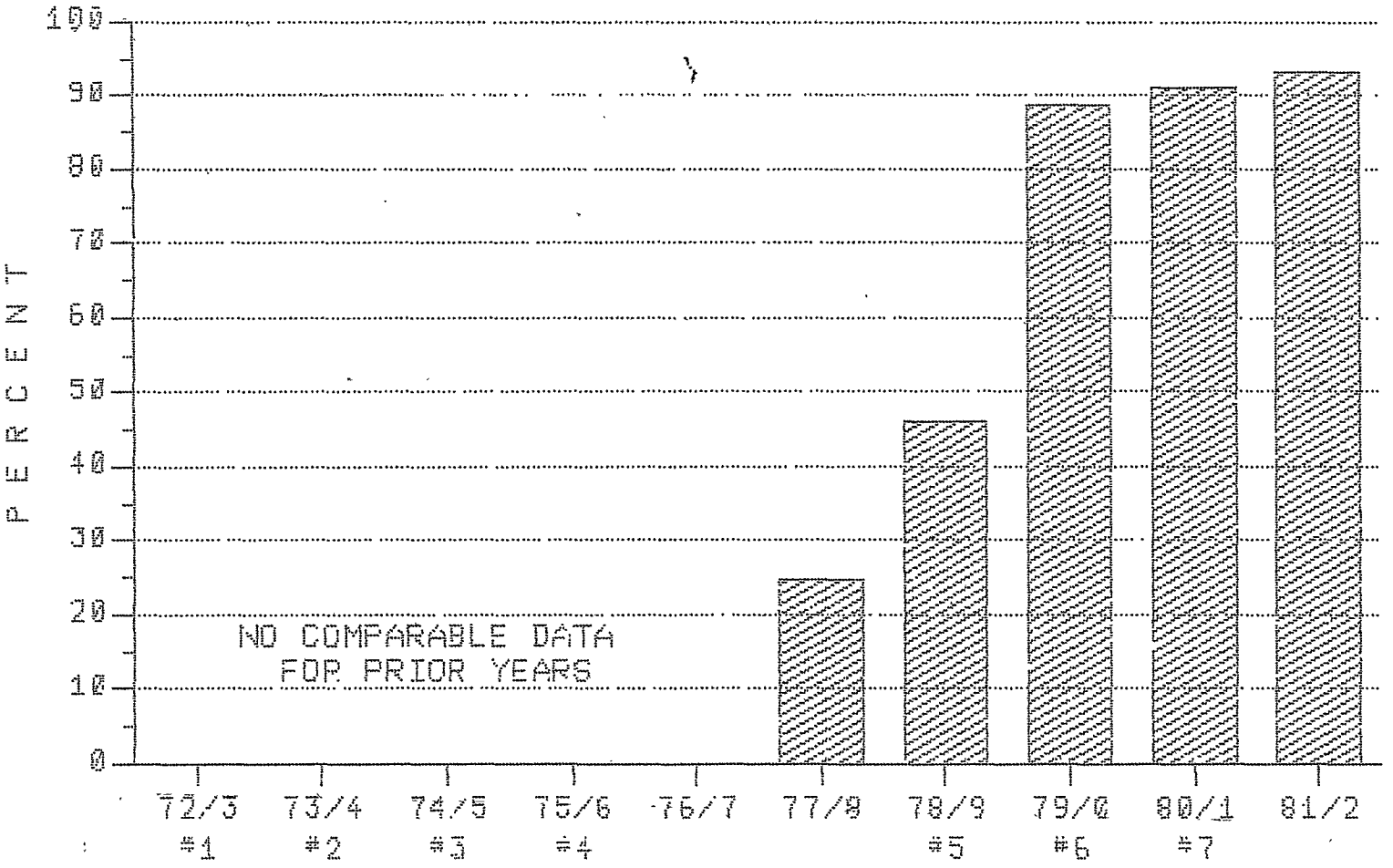


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BART FACTS

TRAIN ON-TIME PERFORMANCE

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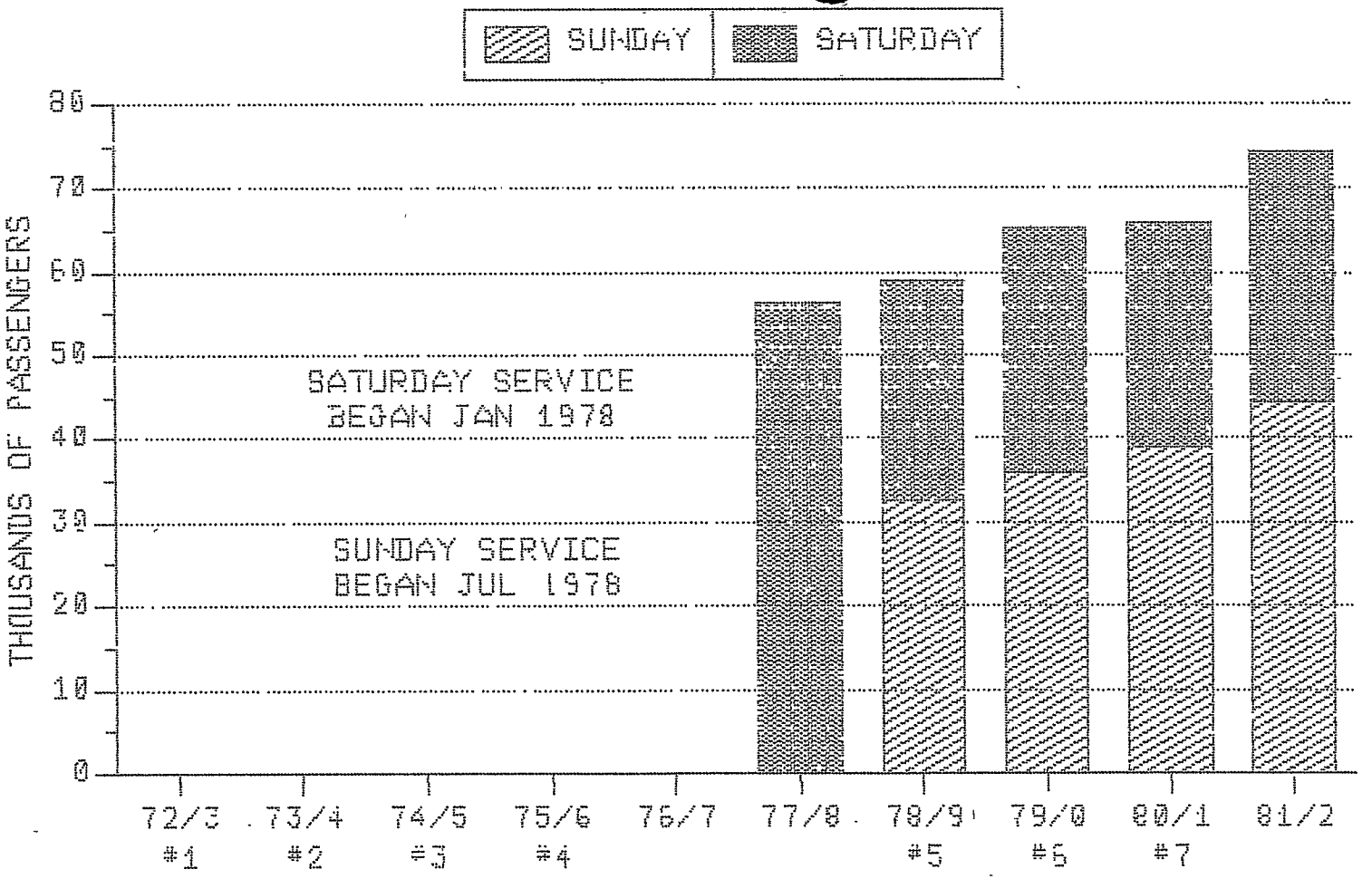


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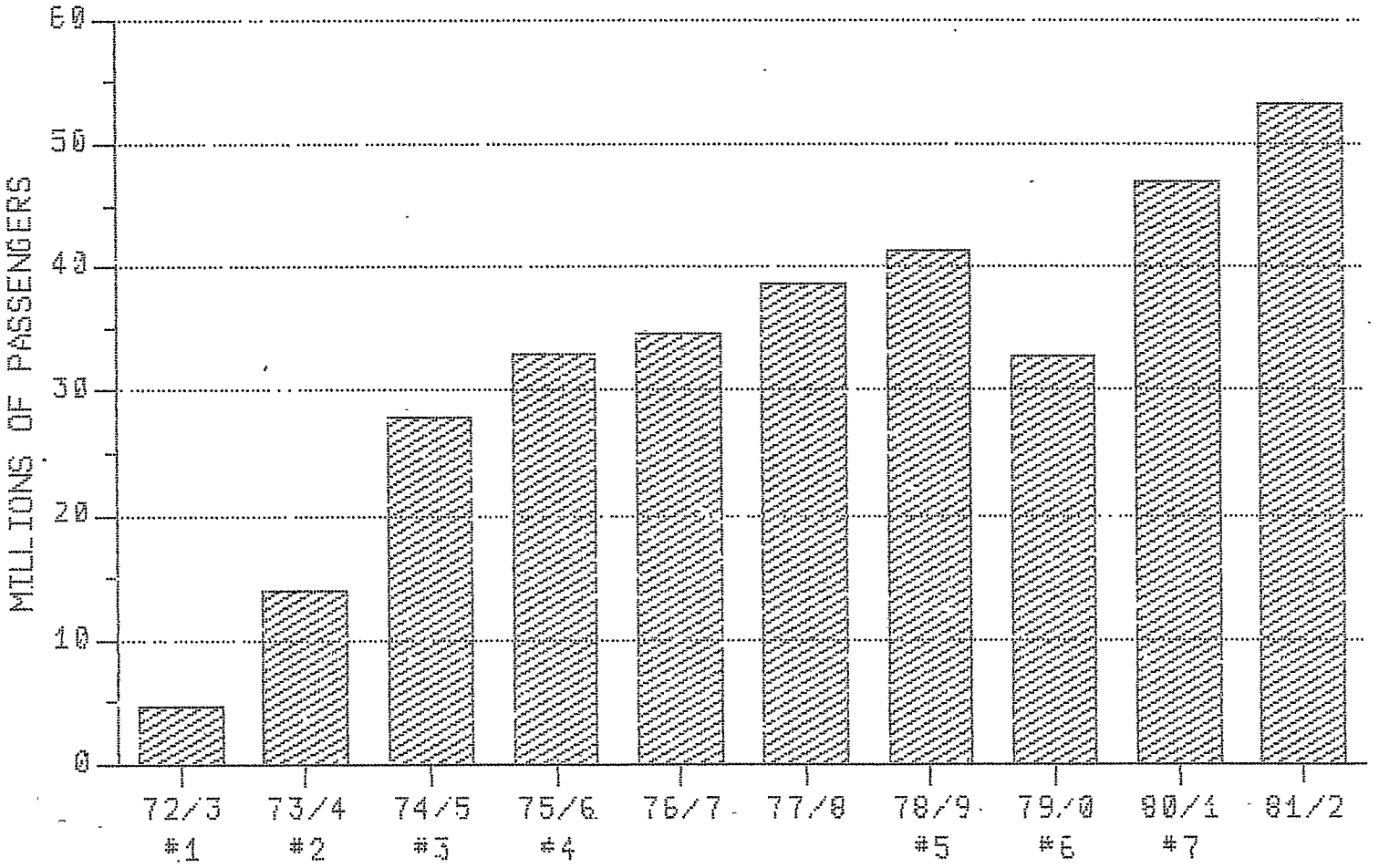


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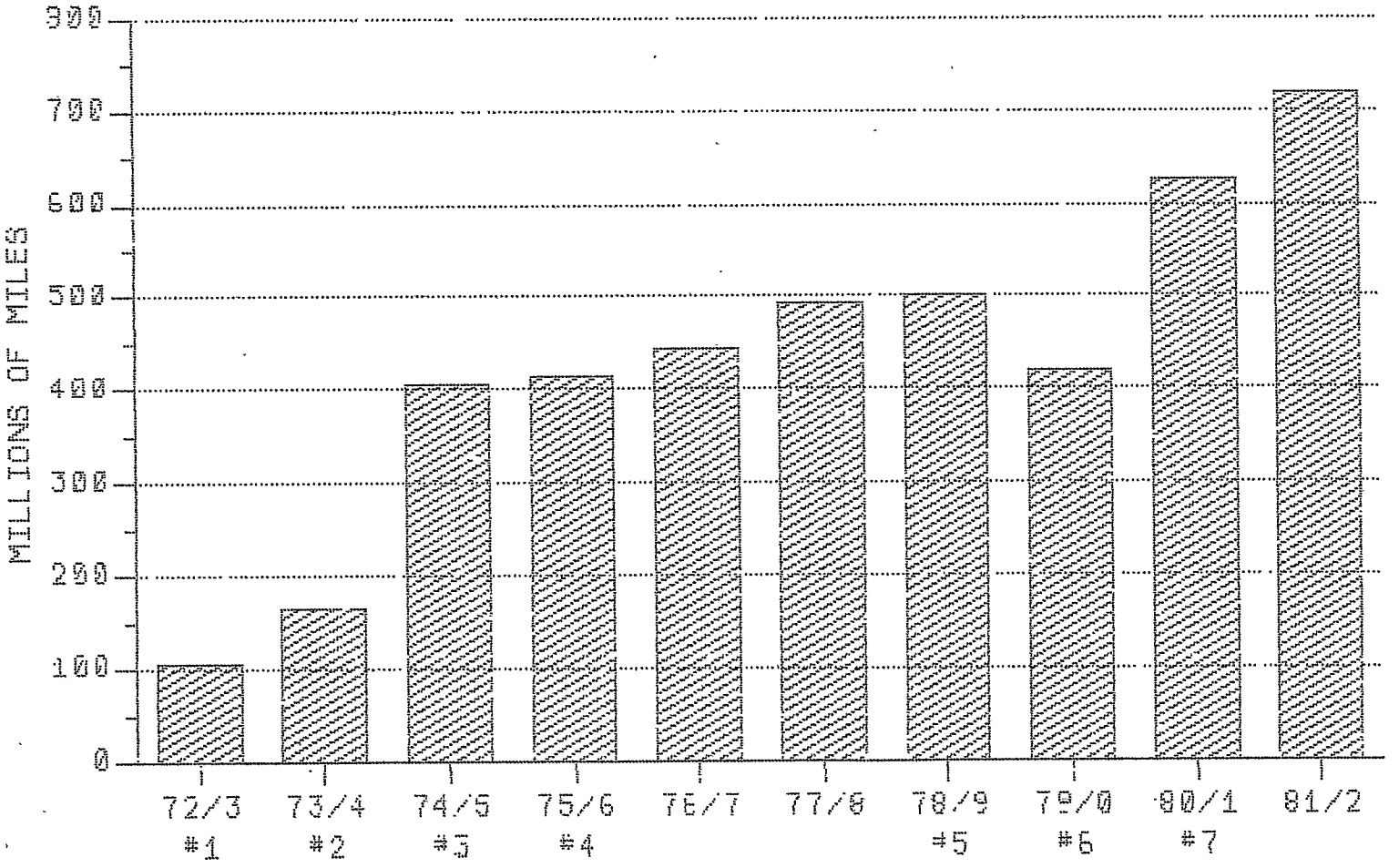


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# BART SYSTEM PERFORMANCE INDICATORS

| TDA INDICATORS | FY 1975/76 | FY 1976/77 | FY 1977/78 | FY 1978/79 | FY 1979/80* | FY 1980/81 | JUL-DEC 1981 |
|---|---|---|---|---|---|---|---|
| Rail operating cost/passenger | $ 1.61 | $ 1.87 | $ 1.97 | $ 2.02 | $ 2.05 | $ 2.09 | $ 2.03 |
| Rail operating cost/car-hour | $78.69 | $89.79 | $87.72 | $83.59 | $96.39 | $95.45 | $101.19 |
| Annual passengers/car-mile | 1.47 | 1.51 | 1.61 | 1.54 | 1.74 | 1.69 | 1.83 |
| Annual passengers/car-hour | 48.87 | 48.00 | 44.47 | 41.49 | 47.08 | 45.94 | 49.97 |
| Car-hours/equivalent employee | N/A | 465.76 | 448.73 | 510.00 | 493.97 | 580.27 | 550.50** |
| **OTHER INDICATORS** | | | | | | | |
| Farebox ratio | 39.39% | 36.96% | 36.08% | 33.19% | 34.35% | 44.75% | 44.97% |
| Operating ratio | 42.12% | 39.15% | 38.23% | 36.40% | 38.59% | 51.16% | 50.39% |
| Rail operating cost/passenger-mile | 12.78¢ | 14.57¢ | 15.47¢ | 16.59¢ | 15.95¢ | 15.54¢ | 15.39¢ |
| Rail operating cost/car-mile | $ 2.36 | $ 2.83 | $ 3.17 | $ 3.10 | $ 3.57 | $ 3.52 | $ 3.70 |
| Passenger-miles/car-hour | 615.82 | 616.47 | 566.87 | 503.84 | 604.41 | 614.14 | 657.54 |
| Passenger-miles/seat-mile | 25.65% | 27.00% | 28.47% | 25.92% | 31.09% | 31.41% | 33.41% |

*Excludes work stoppage period, September 1 - November 25, 1979.

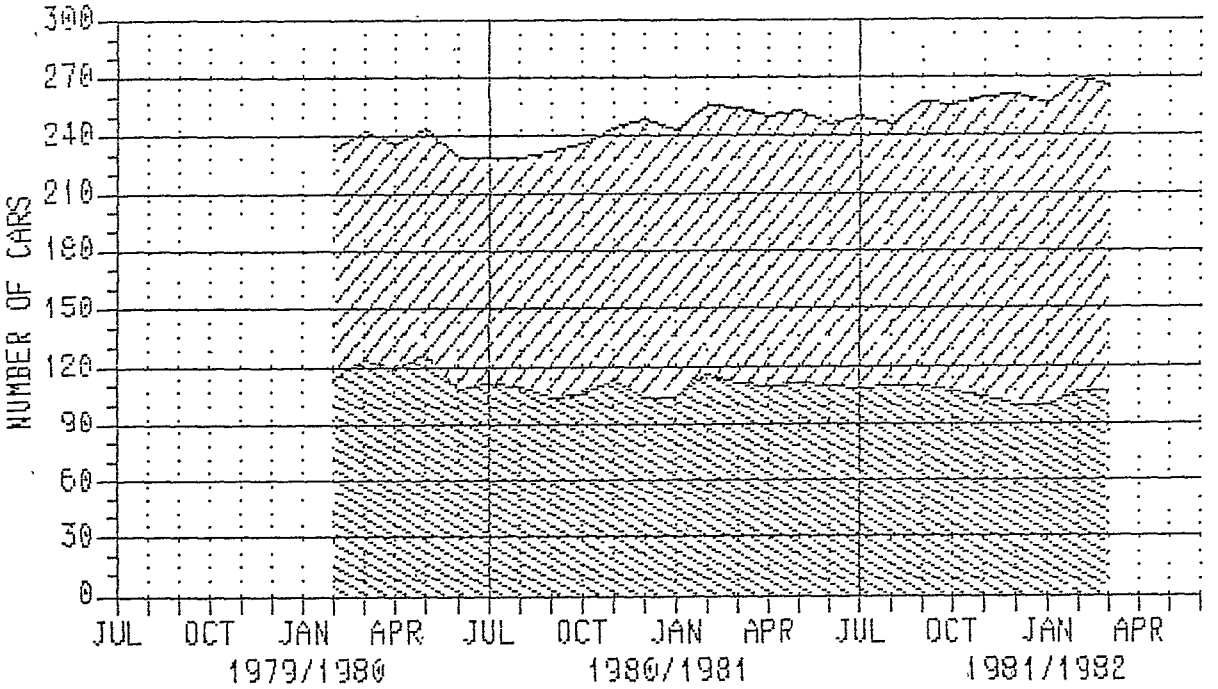
**Includes data for July - November 1981 only.

# BART SYSTEM PERFORMANCE DATA (1000's)

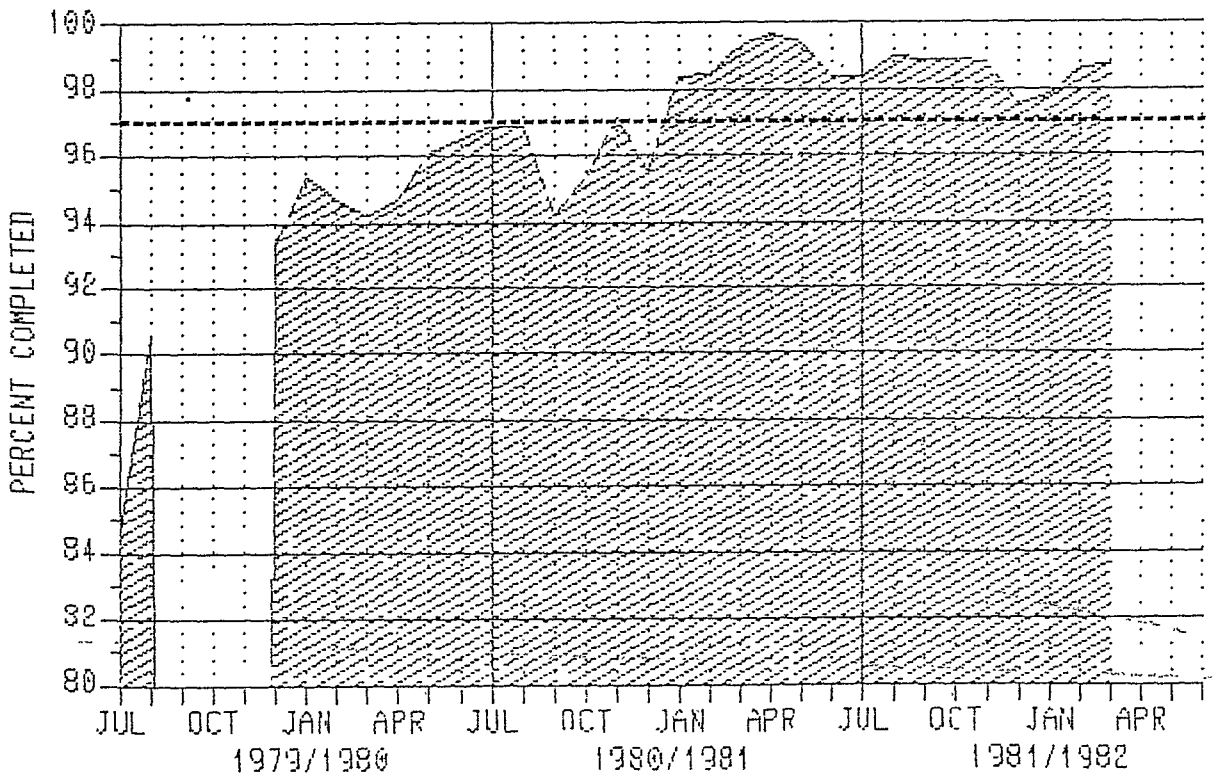
| RAIL RIDERSHIP | FY 1975/76 | FY 1976/77 | FY 1977/78 | FY 1978/79 | FY 1979/80* | FY 1980/81 | JUL-DEC 1981 |
|---|---|---|---|---|---|---|---|
| Annual passenger trips | 32,897.4 | 34,599.1 | 38,665.2 | 41,191.6 | 32,800.1 | 46,879.3 | 26,100.8 |
| Average weekday trips | 127.5 | 133.5 | 146.8 | 151.7 | 148.7 | 162.0 | 178.5 |
| Passenger-miles | 414,507.6 | 444,401.2 | 492,901.0 | 500,221.0 | 421,077.8 | 626,662.0 | 343,457.5 |
| OPERATIONS | | | | | | | |
| Car-hours | 673.1 | 720.9 | 869.5 | 992.8 | 696.7 | 1,020.4 | 522.3 |
| Car-miles | 22,446.4 | 22,863.0 | 24,046.9 | 26,806.0 | 18,809.8 | 27,707.0 | 14,280.0 |
| Seat-miles | 1,616,137.6 | 1,646,133.8 | 1,731,376.7 | 1,930,032.0 | 1,354,304.0 | 1,994,904.0 | 1,028,160.0 |
| FINANCIAL | | | | | | | |
| Net passenger revenues | $21,713.0 | $24,692.5 | $28,219.2 | $28,727.3 | $24,134.3 | $46,207.2 | $25,201.5 |
| Other operating revenues | 1,507.6 | 1,465.7 | 1,678.7 | 2,777.6 | 2,011.4 | 6,614.7 | 3,040.2 |
| Total operating revenues | 23,221.3 | 26,158.1 | 29,897.9 | 31,504.9 | 27,110.6 | 52,821.9 | 28,241.7 |
| Rail operating expenses | 52,964.8 | 64,727.7 | 76,269.5 | 82,992.0 | 67,154.0 | 97,398.3 | 52,857.8 |
| Express bus operating expenses | 2,161.2 | 2,086.3 | 1,934.1 | 3,556.3 | 3,104.5 | 5,858.3 | 3,186.0 |
| Total operating expenses | 55,126.0 | 66,814.0 | 78,203.6 | 86,548.3 | 70,258.5 | 103,256.6 | 56,043.8 |

*Excludes work stoppage period, September 1 - November 25, 1979.

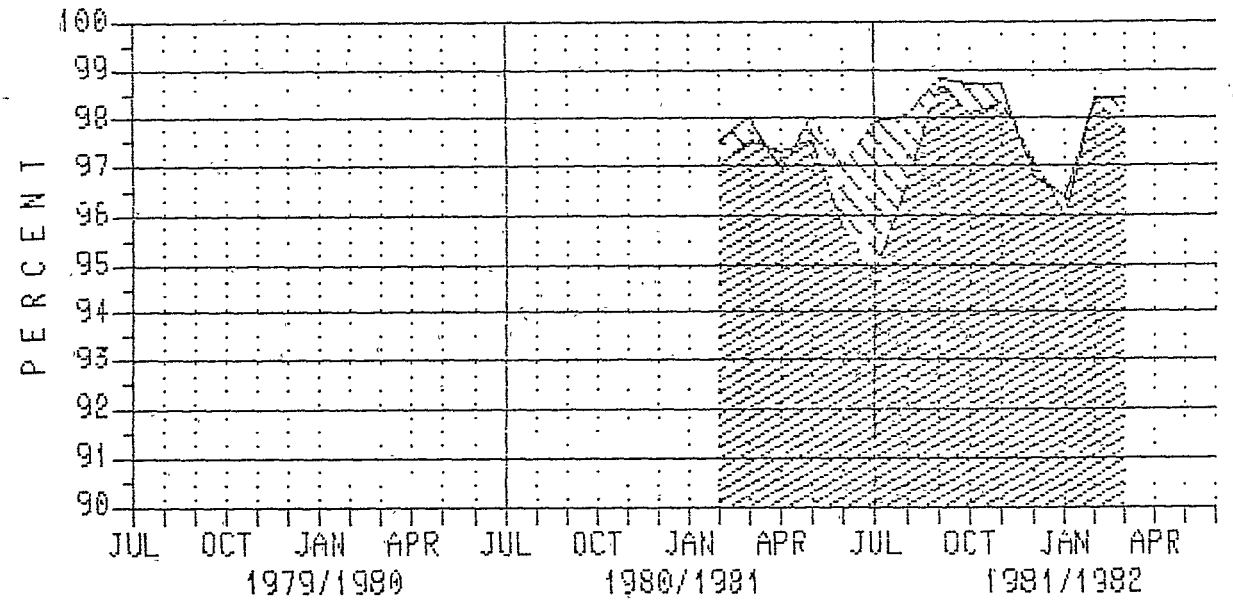
# 4 AM CAR COUNT



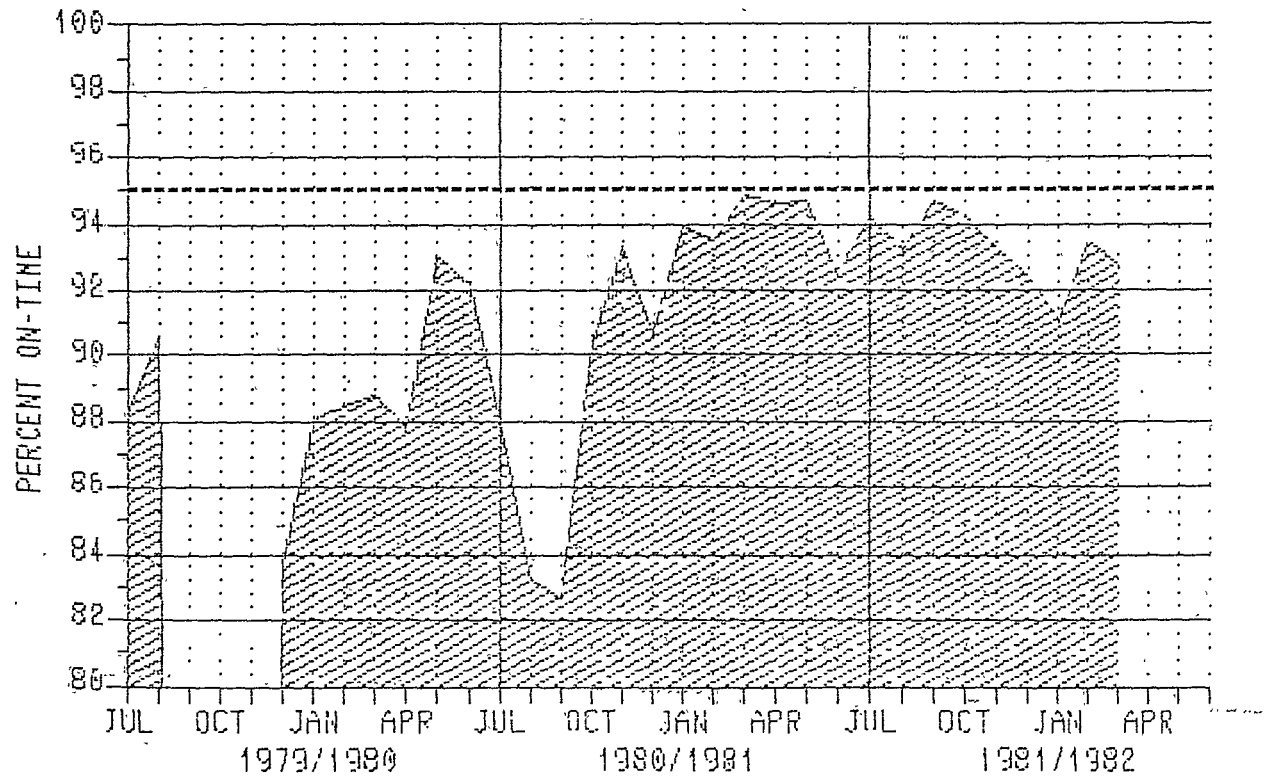

# SCHEDULED TRAIN RUNS COMPLETED



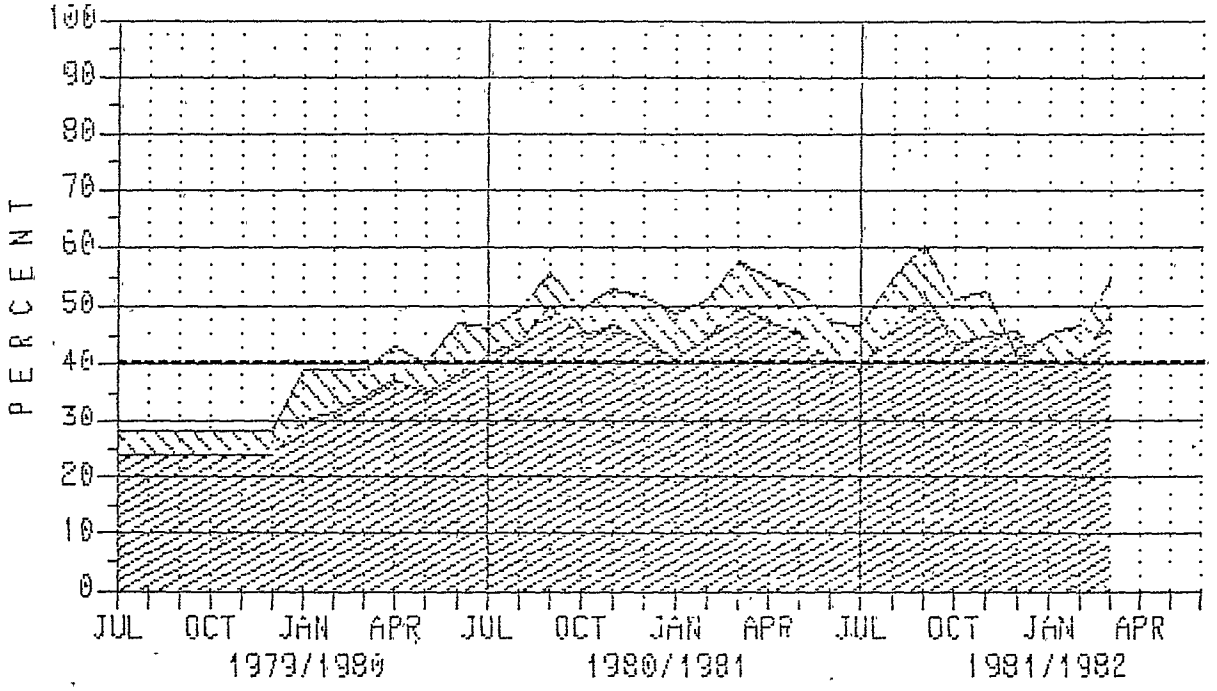
# PEAK PERIOD TRANSBAY CAR AND TRAIN THROUGHPUT



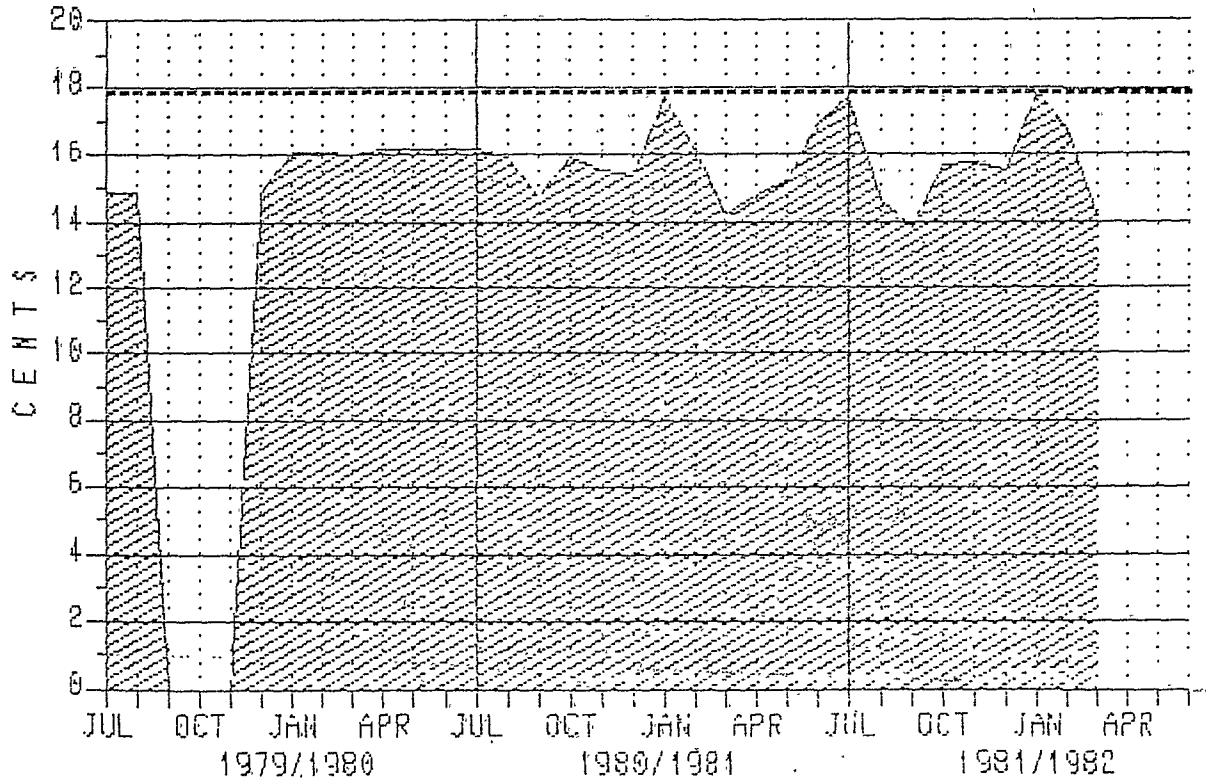

# DAILY ON-TIME PERFORMANCE



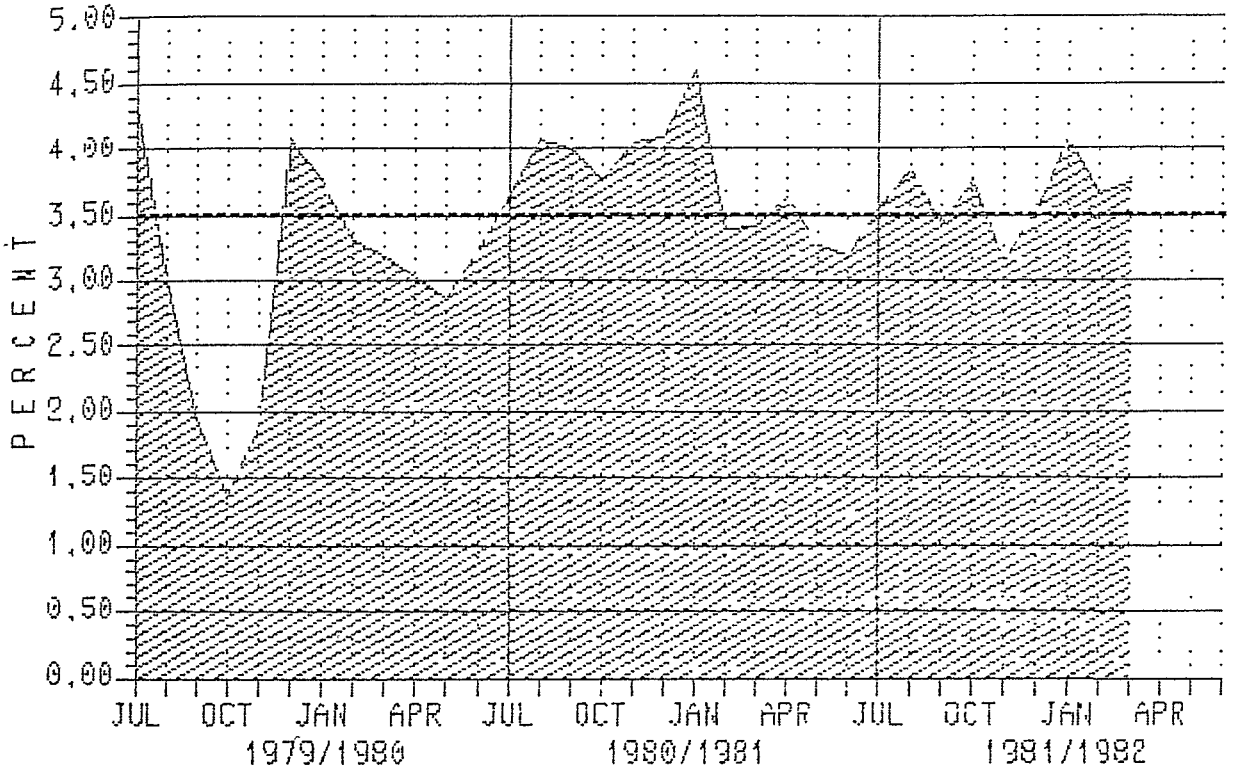
# OPERATING AND FAREBOX RATIOS



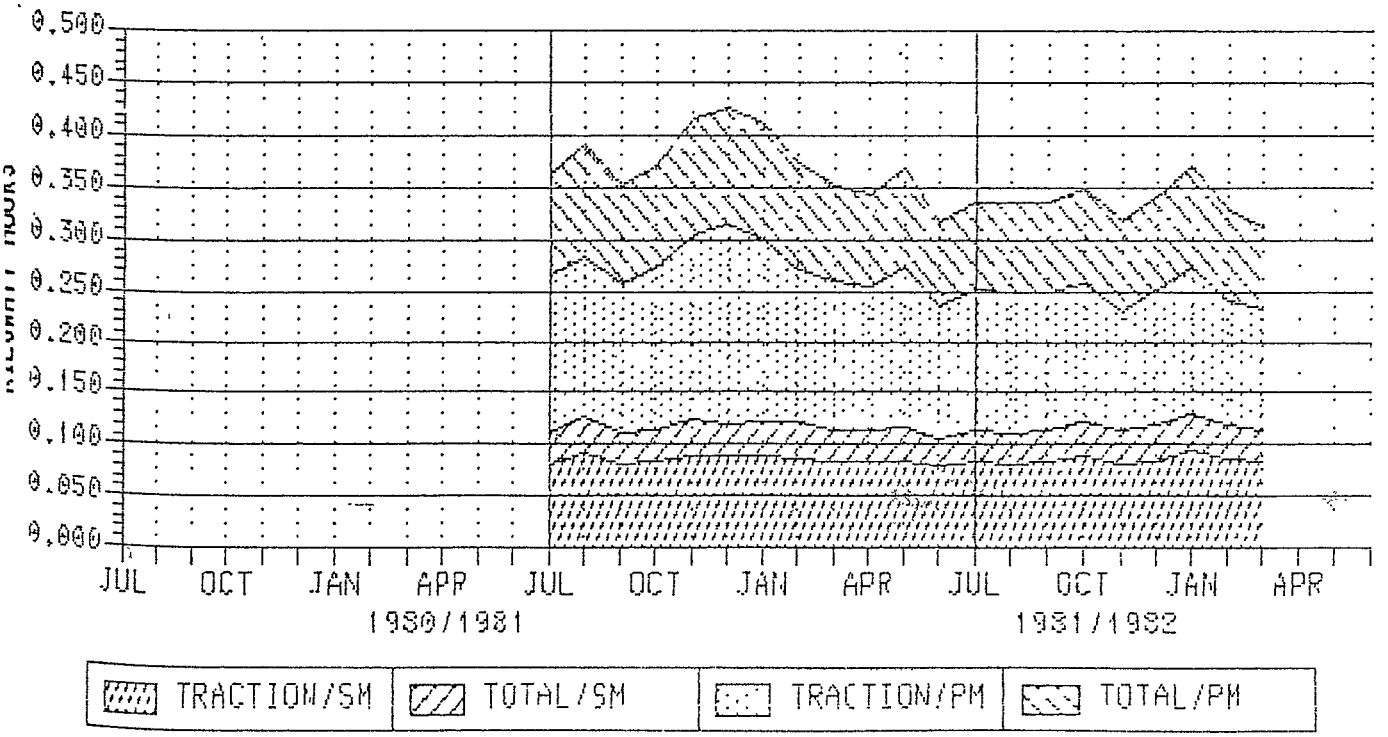

# RAIL COST PER PASSENGER-MILE



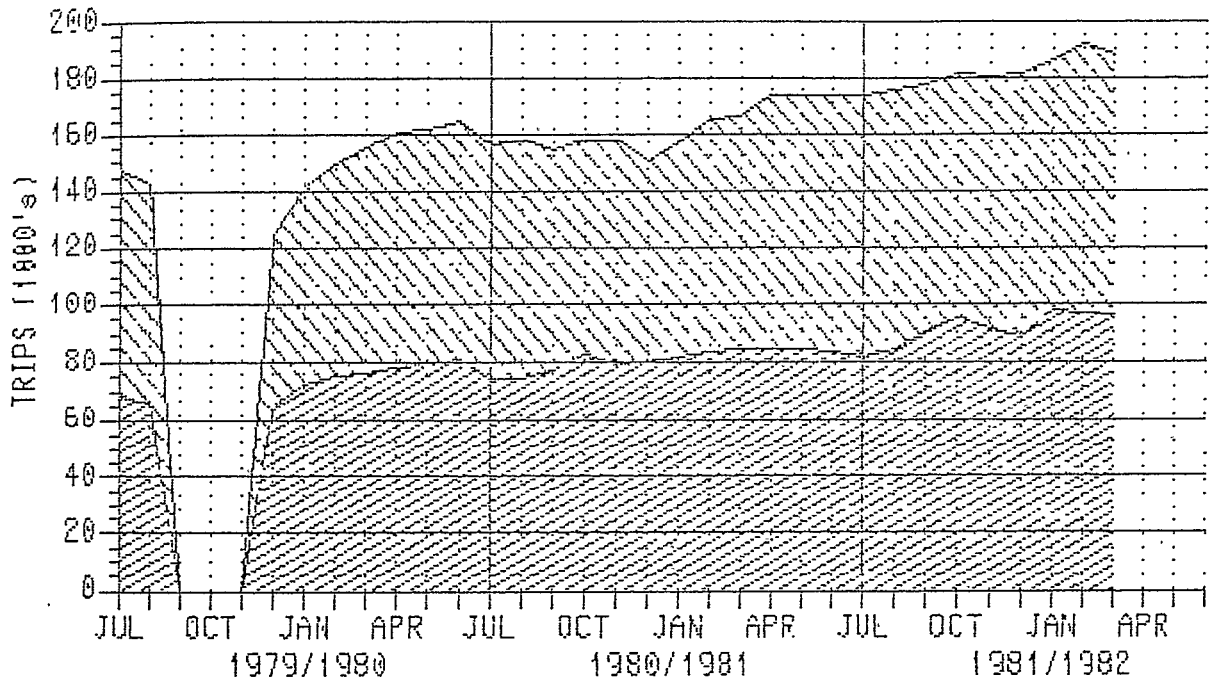
# PAID SICK-LEAVE



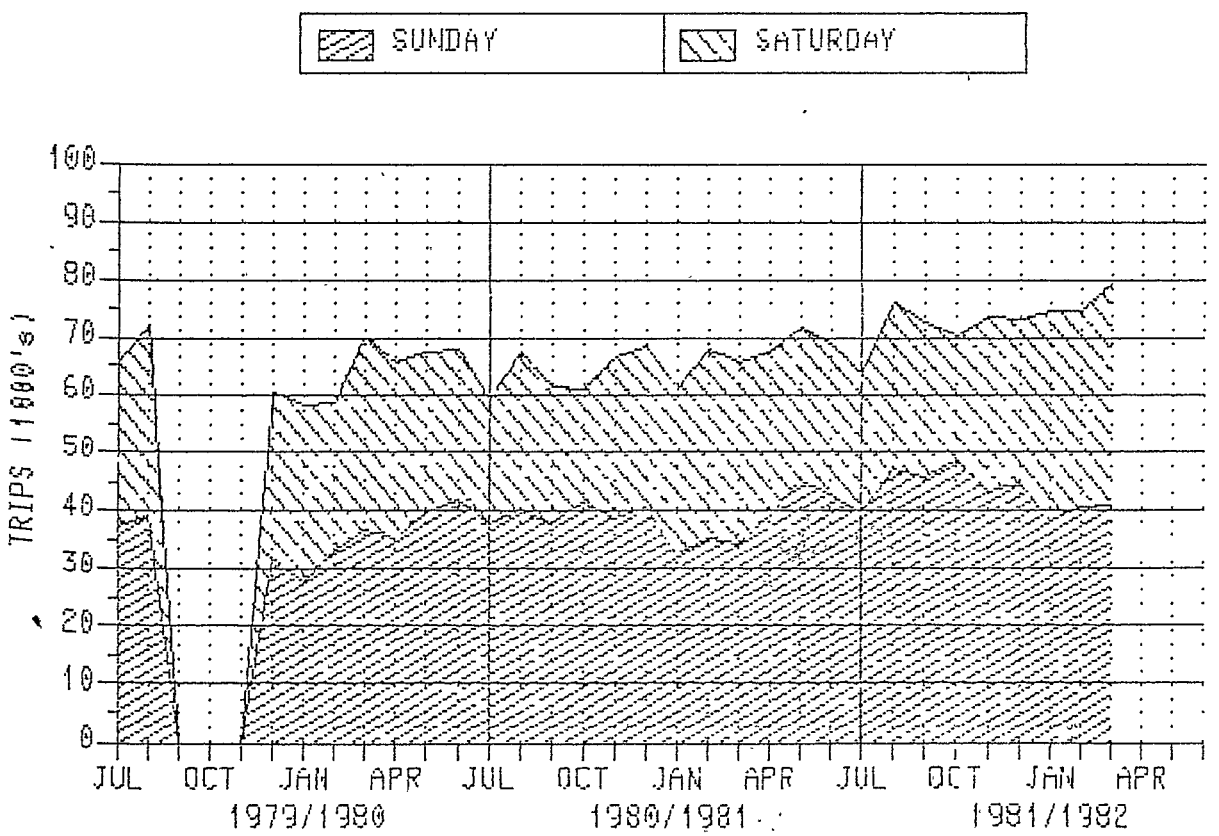

# ENERGY CONSUMPTION PER SEAT-MILE AND PER PASSENGER-MILE



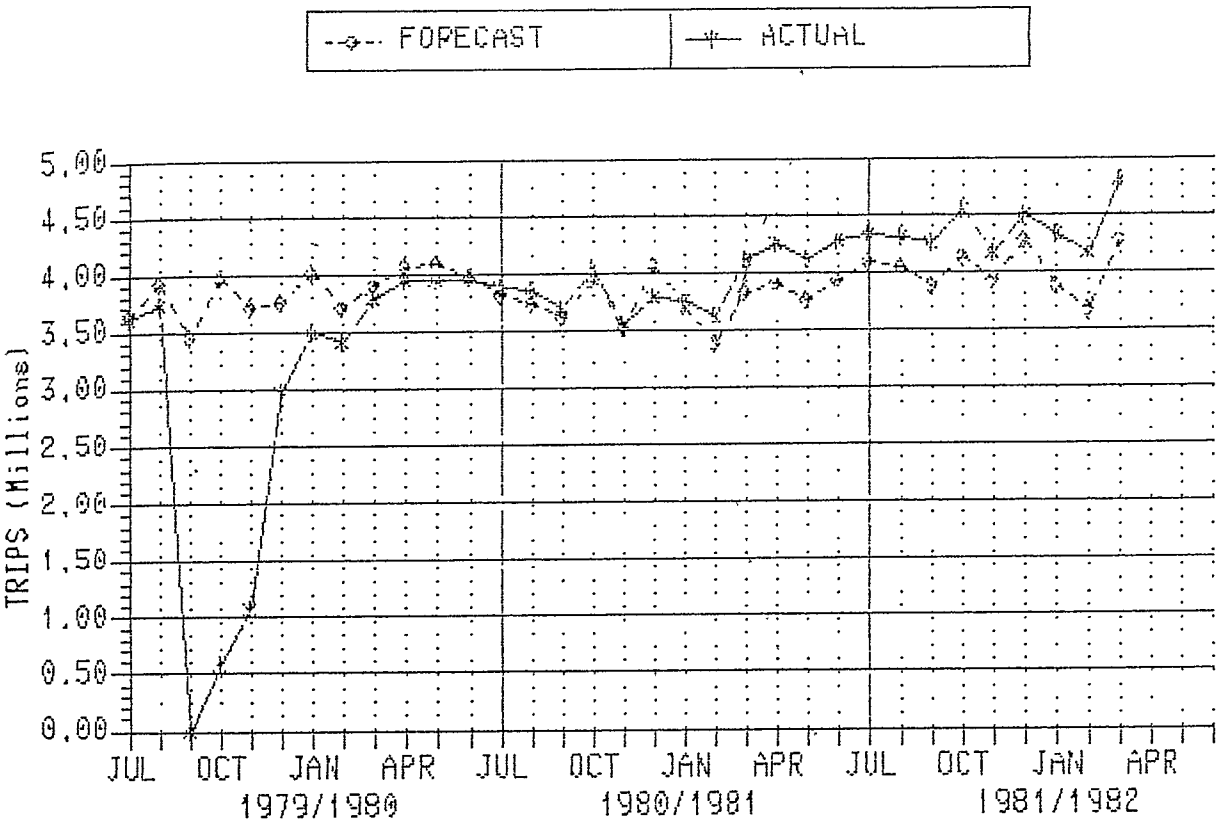
# AVERAGE WEEKDAY PATRONAGE



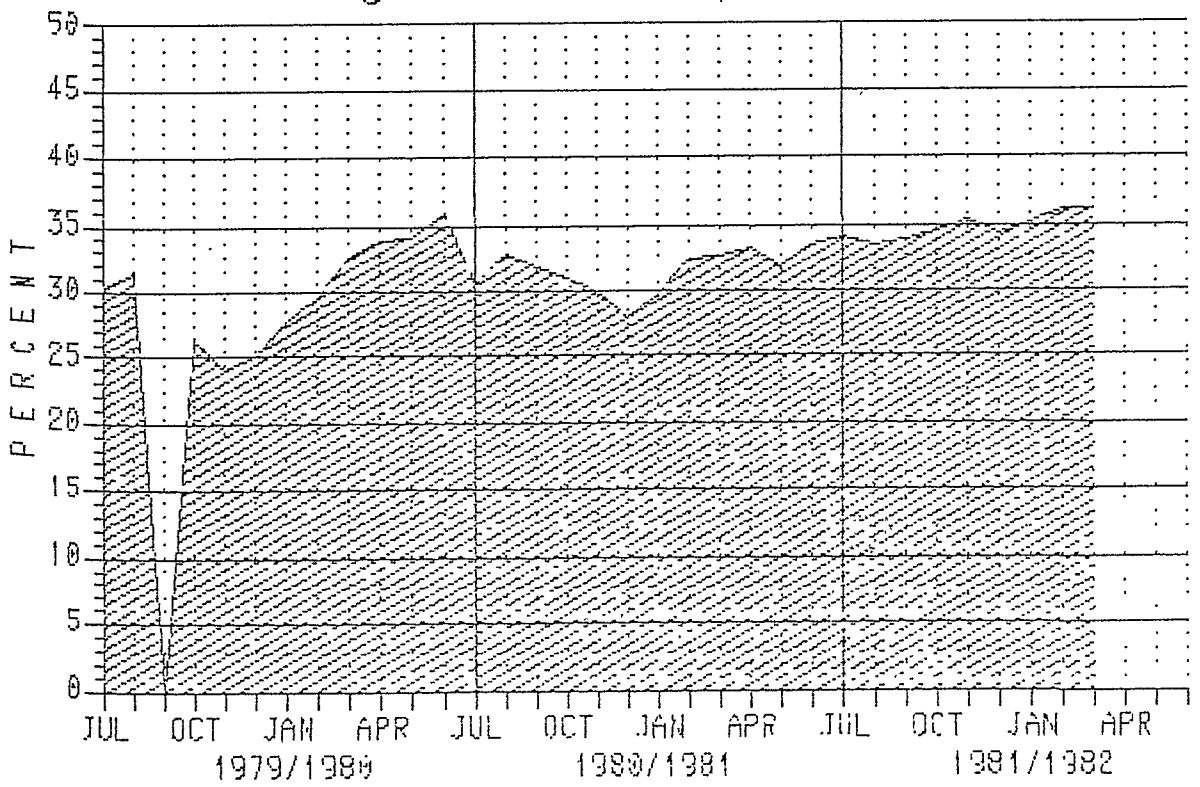

# AVERAGE WEEKEND PATRONAGE



# TOTAL MONTHLY PATRONAGE




# SYSTEM UTILIZATION
## (Passenger-miles per Seat-mile)



## THE BART SYSTEM

The Bay Area Rapid Transit District (BART) is a 71.5-mile rapid rail transit system serving over 2.5 million people in the three BART counties - Alameda, Contra Costa and San Francisco, and northern San Mateo County as well.

There are 34 BART stations, located along four lines of double track, which connect east Bay communities as far north as Richmond, as far east as Concord and as far south as Fremont to San Francisco and Daly City. BART provides Express Buses which connect outlying regions of Contra Costa and Alameda counties to five east bay BART stations.

Trains travel at speeds up to 80 mph providing 4-minute train frequency on merged lines in downtown Oakland and San Francisco, 7-minute frequency on the Richmond and Fremont lines and 8-minute to 15-minute service on the Concord line during peak travel hours. The system employs a high degree of automation, including the fare collection system, and is fully accessible to disabled persons.

People in the Bay Area ride BART because it is a safe, reliable, economical and energy-efficient means of transportation. Since opening in September 1972, BART has safely carried over 340 million passengers more than 4.5 billion passenger miles. BART today boasts a 94 percent on-time train performance record and has and average weekday patronage of 190,000. On an average passenger per mile basis, BART's use of energy is three times as efficient as an automobile in its total energy used for operations and 10 times as efficient during rush hours in the commute direction. Based on American Automobile Association and CalTrans data for 1982, people who ride BART can save over 50 percent in commute costs; for example, the BART fare from Concord to downtown San Francisco costs $1.95, compared to $4.67 cents, to make the same 30.5-mile trip by automobile; the 9-mile BART trip from Berkeley to San Francisco costs $1.40, compared to $3.32 by auto.

BART trains operate from 6 a.m. to midnight Monday through Saturday and 9 a.m. to midnight on Sunday.

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# # #

* Includes half the parking cost and half the tolls both where appropriate.

# BART SYSTEM FACT SHEET

## BOARD OF DIRECTORS

9 elected members representing 9 election districts in the three BART counties of Alameda, Contra Costa and San Francisco.

## MILEAGE

71.5 total - approximately 19 subway and tunnel; 23 aerial; 25 surface; 4 of transbay tube. (4 additional miles of San Francisco Municipal Railway were included in original 1962 plan.)

## BART STATIONS

14 subway, 13 aerial and 7 surface stations comprise the 34 stations of the BART system. Four of these are combination BART trains and MUNI Metro stations in downtown San Francisco. BART is building four additional stations for the MUNI's outer Market line.

## PARKING

Parking is free of charge at all except Lake Merritt (25¢) stations. 23 stations have parking lots ranging from 240 to 1400 car stalls. There are no parking lots within San Francisco City and County limits. Total capacity of all lots is 20,253. Special stalls for mid-day parking are available from 9 a.m. to 4 p.m.

## STATION FEATURES

Special elevators, ramps and other aids enable handicapped persons -- even those in wheelchairs -- to travel the entire system. Parking lots have stalls reserved for handicapped patrons' cars.

Bicycle and motorcycle racks, plus special bicycle lockers for super security, are available at all stations except downtown Oakland, Berkeley and San Francisco stations.

## TRANSBAY TUBE

3.6 miles, twin-section, concrete and steel.
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High earthquake tolerance.

monday - F

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6 a.m. - 12 midnight Monday through Saturday and 9 a.m. to midnight on Sunday. "Last Train" schedules vary from line to line.

Trains are run between Richmond and San Francisco/Daly City every 15 minutes; Richmond and Fremont every 15 minutes; between Fremont and Daly City every 15 minutes; and between Daly City and Concord every 15 minutes. Night ("X" service) is at 20-minute intervals.

Train intervals through downtown Oakland, Transbay, and along San Francisco lines are every 4 mintues during peak hours, and every 15 minutes during midday hours.

ESTIMATED COST OF SYSTEM

| | |
|---|---|
| Total cost of basic system (exclusive of Transbay Tube) | $1,443,000,00 |
| Cost of Transbay Tube | 176,000,00 |
| Total Cost | $1,619,000,00 |

Sources of Funding:

| | |
|---|---|
| 1962 General Obligation Bond Referendum | $ 792,000,00 |
| California Toll Bridge Authority | 176,000,00 |
| Proceeds of Sales Tax Revenue | 150,000,00 |
| Earnings from Temporary Investments | 111,000,00 |
| Transit Development | 24,000,00 |
| Miscellaneous Income | 51,000,00 |
| Federal Capital Grants | 330,000,00 |

MAJOR EQUIPMENT CONTRACTS

Rolling Stock: Rohr Industries--450 cars at a cost of $163 million Contract let July 1969.

ATO System: Westinghouse Corp.--Initial contract was for $26,199,959. Let March 1967. Change orders amounting to $6,461,539 brings total to $32,661,498.

AFC (FARE COLLECTION) IBM. Initial contract, $4,955,000. Let June 1968. Change orders bring contract total to $6,594,040.

ADDITIONAL AFC - Cubic Western Data: Phase I (Embarcadero Station) $5,058,860. Let March 1974. Phase II (suburban stations). Change orders, sales tax, and escalation bring contract total to $7,740,190.

An additional IBM contract, let January 1975, totals $1,278,000.

# # #

Office of Public Information
July 7, 1980

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

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BACKGROUND INFORMATION

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Propulsion - one 150-HP motor peer axle, four motors per car.
Features - aluminum body, 72 seats, carpeted, air-conditioned, tinted windows.
Car - 70' long, 10'6" high, 10'6" wide, headroom 6'9".
Track gauge - 5'6" wide for stability. (standard: 4'8")
Number of cars - 450 vehicles for initial full operation; built by Rohr Industries.
Speed - 80 MPH maximum, 39 MPH average, including 20-second station stops.
Acceleration and deceleration - 3 MPH per second maximum.

AUTOMATIC TRAIN CONTROL

Twin train control computers (one for backup) - at Lake Merritt Station, Oakland; built by Westinghouse.
Car-borne equipment - console monitored by attendant who can override automatic control in emergencies to stop train, or run at 25 MPH in manual mode.
Stations and wayside - network of control devices and track circuits controlling train speeds, stops, and safe spacing.
Backup Train protection system - Sequential Occupany Release System (SORS) - 52 mini computers located in 26 stations.

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Station equipment - IBM change and ticket vending machines and gates - new Cubic equipment at Embarcadero Station only.
Entry gate - records time, date, station; returns ticket.
Exit gate- computes required fare, takes exact-fare ticket, instructs if additional payment needed, or deducts proper amount from multi-ride ticket.
Ticket - credit-card size, magnetically encoded or "stored" with up to $20 of fares. Machines automatically deduct trip fares from stored fare value on ticket.

BASIC FARE

Minimum 50¢/Maximum $1.75 for longest one-way trip.

SPECIAL FARES

All discounted tickets must be purchased at participating local bank branches only, not at BART stations.

Children 4 and under ride free. Children 5 through 12 can purchase a red ticket worth $9.00 for 90¢. Handicapped persons can purchase a red ticket worth $9.00 for 90¢. Senior citizens 65 and over can purchase a green ticket worth $6.00 for just 60¢.

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Car - 70' long, 10'6" high, 10'6" wide, headroom 6'9".
Track gauge - 5'6" wide for stability. (standard: 4'8")
Number of cars - 450 vehicles for initial full operation; built by Rohr Industries.
Speed - 80 MPH maximum, 39 MPH average, including 20-second station stops.
Acceleration and deceleration - 3 MPH per second maximum.

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Ticket - credit-card size, magnetically encoded or "stored" with up to $20 of fares. Machines automatically deduct trip fares from stored fare value on ticket.

BASIC FARE

Minimum 50¢/Maximum $1.75 for longest one-way trip.

SPECIAL FARES

All discounted tickets must be purchased at participating local bank branches only, not at BART stations.

Children 4 and under ride free. Children 5 through 12 can purchase a red ticket worth $9.00 for 90¢. Handicapped persons can purchase a red ticket worth $9.00 for 90¢. Senior citizens 65 and over can purchase a green ticket worth $6.00 for just 60¢.

WEEKDAY BASE TRAIN SCHEDULES

6 a.m. - 12 midnight Monday through Saturday and 9 a.m. to midnight on Sunday. "Last Train" schedules vary from line to line.

Trains are run between Richmond and San Francisco/Daly City every 15 minutes; Richmond and Fremont every 15 minutes; between Fremont and Daly City every 15 minutes; and between Daly City and Concord every 15 minutes. Night ("X" service) is at 20-minute intervals.

Train intervals through downtown Oakland, Transbay, and along San Francisco lines are every 4 mintues during peak hours, and every 5 minutes during midday hours.

ESTIMATED COST OF SYSTEM

| | |
|---|---|
| Total cost of basic system (exclusive of Transbay Tube) | $1,443,000,0 |
| Cost of Transbay Tube | 176,000,0 |
| Total Cost | $1,619,000.0 |

Sources of Funding:

| | |
|---|---|
| 1962 General Obligation Bond Referendum | $ 792,000,0 |
| California Toll Bridge Authority | 176,000,0 |
| Proceeds of Sales Tax Revenue | 150,000,0 |
| Earnings from Temporary Investments | 111,000,0 |
| Transit Development | 24,000,0 |
| Miscellaneous Income | 51,000,0 |
| Federal Capital Grants | 330,000,0 |

MAJOR EQUIPMENT CONTRACTS

Rolling Stock: Rohr Industries---450 cars at a cost of $163 million Contract let July 1969.

ATO System: Westinghouse Corp.--Initial contract was for $26,199,959. Let March 1967. Change orders amounting to $6,461,539 brings total to $32,661,498.

AFC (FARE COLLECTION) IBM. Initial contract, $4,955,000. Let June 1968. Change orders bring contract total to $6,594,040.

ADDITIONAL AFC - Cubic Western Data: Phase I (Embarcadero Station) $5,058,860. Let March 1974. Phase II (suburban stations). Change orders, sales tax, and escalation bring contract total to $7,740,190.

An additional IBM contract, let January 1975, totals $1,278,000.

# # #

Office of Public Information
July 7, 1980

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BACKGROUND INFORMATION

# BART SYSTEM FACT SHEET

## BOARD OF DIRECTORS

9 elected members representing 9 election districts in the three BART counties:

Alameda, Contra Costa, and San Francisco

## MILEAGE

71.5 total - approximately 19 subway and tunnel; 23 aerial; 25 surface; 4 of transbay tube. (4 additional miles of S. F. Municipal Railway were included in original 1962 plan.)

## BART STATIONS

14 subway, 13 aerial and 7 surface stations comprise the 34 stations of the BART system. Four of these are combination BART trains and Muni Metro stations in downtown San Francisco. BART is building four additional stations for the Muni's outer Market line.

## PARKING

Parking is free of charge at all except Lake Merritt (25¢) stations, 23 stations have parking lots ranging from 240 to 1400 car stalls. (No parking lots within San Francisco City and County limits.) Total capacity of all lots is 20,253. Special stalls for mid-day parking are available from 9 a.m. to 4 p.m.

## STATION FEATURES

Special elevators, ramps and other aids enable handicapped persons -- even those in wheelchairs -- to travel the entire system. Parking lots have stalls reserved for handicapped patrons' cars.

Bicycle and motorcycle racks, plus special bicycle lockers for super security, are available at all stations except downtown Oakland, Berkeley and San Francisco stations.

## TRANSBAY TUBE

3.6 miles, twin-section, concrete and steel.
24' H x 48' W, buried in trench 75' - 135' underwater.
High earthquake tolerance.

TRAINS

Third rail propulsion power is 1000-volt DC electricity.
Propulsion - one 150-HP motor peer axle, four motors per car.
Features - aluminum body, 72 seats, carpeted, air-conditioned, tinted windows.
Car - 70' long, 10'6" high, 10'6" wide, headroom 6'9".
Track gauge - 5'6" wide for stability. (standard: 4'8")
Number of cars - 450 vehicles for initial full operation; built by Rohr Industries.
Speed - 80 MPH maximum, 39 MPH average, including 20-second station stops.
Acceleration and deceleration - 3 MPH per second maximum.

AUTOMATIC TRAIN CONTROL

Twin train control computers (one for backup) - at Lake Merritt Station, Oakland; built by Westinghouse.
Car-borne equipment - console monitored by attendant who can override automatic control in emergencies to stop train, or run at 25 MPH in manual mode.
Stations and wayside - network of control devices and track circuits controlling train speeds, stops, and safe spacing.
Backup Train protection system - Sequential Occupany Release System (SORS) - 52 mini computers located in 26 stations.

AUTOMATIC FARE COLLECTION

Station equipment - IBM change and ticket vending machines and gates - new Cubic equipment at Embarcadero Station only.
Entry gate - records time, date, station; returns ticket.
Exit gate- computes required fare, takes exact-fare ticket, instructs if additional payment needed, or deducts proper amount from multi-ride ticket.
Ticket - credit-card size, magnetically encoded or "stored" with up to $20 of fares. Machines automatically deduct trip fares from stored fare value on ticket.

BASIC FARE

Minimum 50¢/Maximum $1.75 for longest one-way trip.

SPECIAL FARES

All discounted tickets must be purchased at participating local bank branches only, not at BART stations.

Children 4 and under ride free. Children 5 through 12 can purchase a red ticket worth $9.00 for 90¢. Handicapped persons can purchase a red ticket worth $9.00 for 90¢. Senior citizens 65 and over can purchase a green ticket worth $6.00 for just 60¢.

## WEEKDAY BASE TRAIN SCHEDULES

6 a.m. - 12 midnight Monday through Saturday and 9 a.m. to midnight on Sunday. "Last Train" schedules vary from line to line.

Trains are run between Richmond and San Francisco/Daly City every 15 minutes; Richmond and Fremont every 15 minutes; between Fremont and Daly City every 15 minutes; and between Daly City and Concord every 15 minutes. Night ("X" service) is at 20-minute intervals.

Train intervals through downtown Oakland, Transbay, and along San Francisco lines are every 4 mintues during peak hours, and every 5 minutes during midday hours.

## ESTIMATED COST OF SYSTEM

| | |
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| Total cost of basic system (exclusive of Transbay Tube) | $1,443,000,000 |
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An additional IBM contract, let January 1975, totals $1,278,000.

# # #

Office of Public Information
July 7, 1980

# SPEEDY MEMORANDUM

TO: Mike Healy
Sy Mowbed

FROM: BAY AREA RAPID TRANSIT DISTRICT
800 MADISON STREET, OAKLAND, CALIFORNIA 94607
SENDER DEPT Planning & Analysis
LOCATION: PHONE NO 654

SUBJECT: Revision of "BART System Fact Sheet" DATE: 2/11/83

MESSAGE

Referenced document from your shop needs to be revised to reflect 1982 fare data (see attached ~~mark~~ mark up).

Attached is a fare structure description sheet for your reference.

SIGNED: Brad Eckley

REPLY

Sy please revise.

DATE OF REPLY: SIGNED:

FORM NO. 0366 (REV. 2 - 10/29/73)

THIS COPY FOR PERSON ADDRESSED

# SPEEDY MEMORANDUM

TO: Mike Healy
Sy Mowbel

FROM: BAY AREA RAPID TRANSIT DISTRICT
800 MADISON STREET, OAKLAND, CALIFORNIA 94607
SENDER DEPT Planning & Analysis
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MESSAGE

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REPLY

DATE OF REPLY: SIGNED:

FORM NO. 0366 (REV. 2 - 10/29/73)

PERSON ADDRESSED RETURNS THIS COPY TO SENDER

BART
BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone (415) 465-4100

BACKGROUND INFORMATION

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**BOARD OF DIRECTORS**

9 elected members representing 9 election districts in the three BART counties:

Alameda, Contra Costa, and San Francisco

**MILEAGE**

71.5 total - approximately 19 subway and tunnel; 23 aerial; 25 surface; 4 of transbay tube. (4 additional miles of S. F. Municipal Railway were included in original 1962 plan.)

**BART STATIONS**

14 subway, 13 aerial and 7 surface stations comprise the 34 stations of the BART system. Four of these are combination BART trains and Muni Metro stations in downtown San Francisco.

**PARKING**

Parking is free of charge at all except Lake Merritt (25¢) stations, 23 stations have parking lots ranging from 240 to 1800 car stalls. (No parking lots within San Francisco City and County limits.) Total capacity of all lots is 22,204. Special stalls for mid-day parking are available from 9 a.m. to 4 p.m.

**STATION FEATURES**

Special elevators, ramps and other aids enable handicapped persons. . . even those in wheelchairs. . . to travel the entire system. Parking lots have stalls reserved for handicapped patrons' cars.

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**TRANSBAY TUBE**

3.6 miles, twin-section, concrete and steel.
24' H x 48' W, buried in trench 75' - 135' underwater.
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Third rail propulsion power is 1000-volt DC electricity.
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AUTOMATIC FARE COLLECTION

Station equipment - IBM change and ticket vending machines and gates - Cubic fare equipment at all 34 stations.

Entry gate - records time, date, station; returns ticket.
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or BART Customer Service Center, John Muir.
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ESTIMATED COST OF SYSTEM-continued

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| | |
|---|---|
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Rohr Industries...450 cars at a cost of $163 Million Contract let July 1969.

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An additional IBM contract, let January 1975, totals $1,278,000.

# # #

Public Information Office
October, 1981

# BART FACT SHEET

(1982 annual data or as noted)



**FIXED FACILITIES**

**Mainline Track:** Revenue service is provided over 71 miles of double mainline track, of which approximately 30 miles are in subway, 24 elevated, and 21 at grade.

**Stations:** There are 34 stations including 14 in subway, 13 elevated, and 7 at grade. Average station spacing is between 1/2 to 1 mile within and adjacent to San Francisco, Oakland, and Berkeley downtown areas, and 2 to 4 miles apart in suburban areas. Automatic fare collection equipment is located in each station to vend and process patron tickets. BART provides approximately 22,000 free parking spaces at 22 stations.

**Maintenance Facilities:** Vehicle maintenance is performed at three Eastbay yards located in Hayward, Concord, and Richmond.

**Administrative/Central Control Center:** Trains are automatically controlled by wayside equipment and supervised by the central computer at BART headquarters, located above the Lake Merritt Station in Oakland.

**ROLLING STOCK**

**Fleet Inventory:** BART's maintenance fleet consists of 136 control-equipped A-cars and 301 trail B-cars. Each vehicle contains 72 seats and is approximately 70 feet long by 10.5 feet wide.

**Trains:** Train lengths range from 3 to 10 cars and consist of 2 A-cars (one at each end) and between 1 and 8 B-cars. Corresponding seating capacity is between 216 and 720 passengers. Top speed is 80 mph with a systemwide average of 33 mph, including station stops. Trains stop at each station along a designated route.

**SERVICE HOURS**

**Rail:** Rail service is operated between the hours of 6 a.m. and 12 midnight Monday through Saturday and 9 a.m. to 12 midnight on Sundays and major holidays. Service frequencies (in minutes) for individual routes and line segments are as follows:

| | TRANSBAY ROUTES | | | EASTBAY | CBD LINE SEGMENT | |
|---|---|---|---|---|---|---|
| | Concord-Daly City | Fremont-Daly City | Richmond-Daly City | Richmond-Fremont | San Francisco | Downtown Oakland |
| WEEKDAY | | | | | | |
| Peak Hour | 8.6 | 12 | 15 | 12 | 3.8 | 3.8 |
| Midday | 15 | 15 | 15 | 15 | 5 | 5 |
| Night | 20 | * | * | 20 | 20 | 10 |
| SATURDAY | | | | | | |
| Daytime | 20 | 20 | 20 | 20 | 6.7 | 6.7 |
| Night | 20 | * | * | 20 | 20 | 10 |
| SUNDAY/HOLIDAY | | | | | | |
| All Day | 20 | * | * | 20 | 20 | 10 |

*Requires transfer between Concord/Daly City and Richmond/Fremont routes

**Express Bus:** The District also provides express bus service within major travel corridors not served by rail in both Alameda and Contra Costa counties in the Eastbay. Bus service frequencies (in minutes) are as follows:

| | Eastern Contra Costa | Western Contra Costa | Central Contra Costa-Alameda | Eastern Alameda |
|---|---|---|---|---|
| WEEKDAY | | | | |
| Peak Hour | 30 | 30 | 30 | 30 |
| Midday | 30 | 30 | 30 | 30 |
| Night | 60 | * | 60 | 60 |
| SATURDAY | | | | |
| Daytime | 60 | 60 | 60 | 60 |
| Night | 60 | 60 | 60 | 60 |
| SUNDAY/HOLIDAY | | | | |
| All day | 60 | * | 60 | 60 |

*No service during this time period.

**FARES**

**Regular Adult:** Rail fares are largely based on a distance formula ranging from 60¢ to $2.15. The average weekday rail fare is currently $1.26. Regular express bus fares are 60¢ and 90¢ for one and two zone rides, respectively; rail patrons transferring to an express bus may obtain a free transfer worth 60¢.

**Discounts:** Rail fares for handicapped persons, students 5-12 years of age, and persons 65 years of age and older are 10% of the regular adult fares. Children under 5 can ride free. Discount bus fares are 10¢ for one zone and 20¢ for two zones for the groups listed above.

**Transfers:** Free transfers can be made between all BART trains. Special agreements between BART and most other Bay Area operators permit up to a 50% discount for connecting transit service (on a round-trip basis).

**PATRONAGE**

**Average Weekday:** BART patronage averaged 187,386 trips per weekday during 1982. Of these trips, 94,649 (50.5%) occurred within the 4-hour peak travel period (2 morning hours plus 2 afternoon hours). Transbay trips constitute 51.5% of weekday travel with 26.5% Eastbay and 22.0% Westbay.

**Weekends:** Saturday ridership averaged 75,068 trips during 1982 with 48.0% Transbay, 33.0% Eastbay, and 19.0% Westbay. Ridership for Sunday averaged 43,998 with market shares of 47.6% Transbay, 35.9% Eastbay, and 16.5% Westbay.

**Annual Ridership:** Total ridership during 1982 was 54,076,603 rail trips versus a forecast of 51,998,300 for the same period (4.0% above forecast and 7.7% above total ridership for 1981).

**CAPACITY**

**On-Line Requirements:** BART currently operates a maximum of 42 on-line trains which require 84 A-cars and 226 B-cars. In addition to these, 9 trains are held as ready spares requiring 18 A-cars and 29 B-cars.

**Maximum Service Delivery:** As of December 1982, scheduled peak hour capacity for the three Transbay routes serving downtown San Francisco and Oakland stations is 16 trains consisting of 149 cars (or 10,728 seats). For the Eastbay route, which serves downtown Oakland stations, maximum peak hour capacity is 5 trains consisting of 25 cars (or 1,800 seats).

**KEY PERFORMANCE INDICATORS**

**On-Time Performance:** Daily on-time performance has consistently been above 90% since October 1980 and averaged 93.4% during 1982.

**Scheduled Train Runs Completed:** Performance has consistently been above 98% since January 1981 and averaged 98.9% during 1982.

**Load Factors:** Continued patronage increases, given current capacity limitations, have resulted in peak hour load factors averaging 1.41 for Transbay service during 1982 and 1.13 for the Eastbay route. Load factors for the shoulder period (approximately 45 minutes before and after the peak hour) averaged 1.16 Transbay and 0.96 for the Eastbay route.

**Peak Period Transbay Throughput:** The percentage of scheduled Transbay capacity actually provided during 1982 is 97.9% for trains and 97.0% for cars.

**OTHER PERFORMANCE INFORMATION FOR 1982**

| PERFORMANCE DATA (in thousands) | |
|---|---|
| Passenger-miles | 731,634.7 |
| Car-miles | 28,866.7 |
| Car-hours | 1,064.8 |
| Rail operating cost | $117,294.8 |
| Express bus cost | $7,426.0 |
| Total operating cost | $124,720.8 |
| Passenger revenue | $57,741.8 |
| Other revenue | $6,024.1 |
| Total revenue | $63,765.9 |
| Operating deficit | $60,954.9 |

| PERFORMANCE INDICATORS | |
|---|---|
| Farebox ratio | 46.77% |
| Operating ratio | 51.65% |
| Rail operating cost/passenger | $2.17 |
| Rail operating cost/passenger-mile | 16.03¢ |
| Rail operating cost/car-mile | $4.06 |
| Rail operating cost/car-hour | $110.16 |
| Passengers/car-mile | 1.87 |
| Passenger-miles/seat-mile | 0.35 |
| Passenger-miles/car-hour | 687.11 |
| Rail operating revenue/passenger | $1.07 |
| Rail operating deficit/passenger | $1.13 |

ARTICLES: "NEW CON-
CEPT IN LAW ENFORCE.

# SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

INTER-OFFICE COMMUNICATION

BB#00-581
(Cancel 10-26-82)

**To:** Station Operatons Personnel **Date:** October 8, 1982

**From:** W. M. McDowell, Manager, Station Operations

**Subject:** Parking Lot Vacancy Count

The Department of Planning and Analysis has asked Station Operations to submit the second of 1982's semi-annual count of parking lot space vacancies.

The survey begins on Monday, October 18, and continues through Sunday, October 24, 1982.

The parking spaces total available at each station has been updated and are listed on the attached "BART Parking" spaces sheet. Be aware that a separate count is requested of both the number and vacancy rate of handicapped spaces within the "Parking Lot Vacancy" Log.

Parking counts for each day must be taken at 1200 hours.

NOTE: Only stations with parking lots will receive the attachments to this memo.

Final Request: Please initial each count tallied on the vacancy log.

Foreworkers: On Monday morning, October 25, be aware of collecting the completed logs (all together) for delivery to your Transportation Supervisor no later than 1500 hours on October 25, 1982.

WMM:lm

cc: W. B. Fleisher
H. L. Goode
W. T. Kritikos
A. Lee
S. Mouber
Rockridge Training

# PARKING LOT VACANCY

STATION: _____

| | MON | TUE | WED | THUR | FRI | SAT | SUN |
|---|---|---|---|---|---|---|---|
| Time All Day Spaces Fill (If Applicable) | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| If All Day Spaces DO NOT Fill Indicate Number of Vacant ALL Day Spaces* @1200 hours = | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Vacant Handicapped Spaces @1200 hours = | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Time Midday Spaces Fill (If Applicable) | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| If Midday Spaces DO NOT Fill Indicate Number of Vacant Midday Spaces @1200 hours = | ____ | ____ | ____ | ____ | ____ | ____ | ____ |

Survey Starting Date ____ / ____ / 1982
(MONTH) (DAY) (YEAR)

Station Agent/Agents _____
(PLEASE PRINT)

*NOTE: All-day spaces and midday spaces should be thought of as separate areas. Thus, in the all day spaces vacancy count, do not include vacant midday spaces.

RETURN TO: Line Transportation Supervisor
by 1500 hours - 10/25/82.

SURVEY PERIOD: October 18 through October 24, 1982.

# BART PARKING

| STATION | TOTAL SPACES | MIDDAY SPACES | HANDICAPPED SPACES | ALL DAY SPACES |
|---|---|---|---|---|
| Concord | 1,223 | 156 | 6 | 1,061 |
| Pleasant Hill | 1,586[a] | 107 | 4 | 1,475 |
| Walnut Creek | 1,168 | 112 | 6 | 1,050 |
| Lafayette | 1,014 | 23 | 6 | 985 |
| Orinda | 1,083[b] | 56 | 3 | 1,024 |
| Rockridge | 776 | 23 | 3 | 750 |
| MacArthur | 487 | 43 | 3 | 441 |
| Oakland West | 403 | 12 | 8 | 383 |
| Richmond | 754 | 33 | 3 | 718 |
| El Cerrito Del Norte | 1,054 | 134 | 5 | 915 |
| El Cerrito Plaza | 509 | 44 | 4 | 461 |
| North Berkeley | 504 | 93 | 3 | 408 |
| Ashby | 560 | 16 | 3 | 541 |
| Fremont | 1,703[c] | 55 | 7 | 1,641 |
| Union City | 932 | 60 | 3 | 869 |
| South Hayward | 880 | 88 | 3 | 789 |
| Hayward | 967 | 48 | 8 | 911 |
| Bay Fair | 1,408 | 111 | 3 | 1,294 |
| San Leandro | 1,066 | 74 | 4 | 988 |
| Coliseum | 923 | 75 | 2 | 846 |
| Fruitvale | 730 | 119 | 2 | 609 |
| Lake Merritt | 105 | -0- | -0- | 105 |
| Daly City | 1,877 | 484[d] | 18 | 1,375 |
| SYSTEM TOTAL | 21,712 | 1,966 | 107 | 19,639 |

[a] Includes 175-spaces gravel lot
[b] Includes 46-space gravel lot
[c] Includes 685-space gravel lot
[d] Includes 250-space permit lot

Department of Planning & Ana[illegible]
August 1982

# BART STATION PARKING SPACES

| Station | Mid-Day Spaces | Total Spaces |
|---|---|---|
| Concord | 76 | 1,223 |
| Pleasant Hill | 109 | 1,586 |
| Walnut Creek | 118 | 1,168 |
| Lafayette | 29 | 1,414 |
| Orinda | 59 | 1,083 |
| Rockridge | 26 | 776 |
| Richmond | 36 | 754 |
| El Cerrito Del Norte | 139 | 1,054 |
| El Cerrito Plaza | 48 | 509 |
| North Berkeley | 95 | 504 |
| Ashby | 19 | 560 |
| MacArthur | 46 | 487 |
| Oakland West | 20 | 403 |
| Fremont | 62 | 1,703 |
| Union City | 63 | 932 |
| South Hayward | 91 | 880 |
| Hayward | 65 | 967 |
| Bay Fair | 114 | 1,408 |
| San Leandro | 78 | 1,066 |
| Coliseum | 77 | 923 |
| Fruitvale | 121 | 730 |
| Lake Merritt | 0 | 197 |
| Daly City ** | 252 | 1,877 |
| SYSTEM TOTAL | 1,743 | 22,204 |

**The parking structure at Daly City has a total of 953 all-day parking spaces and 20 mid-day parking spaces. The remaining 672 all-day spaces and 232 mid-day spaces are located in a parking lot near the station.

Office of Public Information
June 1982

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone (415) 465-4100

# PARKING SPACES

| Station | No. of Spaces |
|---|---|
| Concord | ~~1,074~~ 1,223 |
| Pleasant Hill | ~~1,483~~ 1,586 |
| Walnut Creek | ~~1,156~~ 1,168 |
| Lafayette | ~~982~~ 1,414 |
| Orinda | ~~997~~ 1,083 |
| Rockridge | 776 |
| Richmond | 754 |
| El Cerrito Del Norte | 1,054 |
| El Cerrito Plaza | 509 |
| North Berkeley | ~~500~~ 504 |
| Ashby | 560 |
| MacArthur | 487 |
| Oakland West | 403 |
| Fremont | ~~1,027~~ 1,703 |
| Union City | ~~826~~ 932 |
| South Hayward | 880 |
| Hayward | ~~861~~ 967 |
| Bay Fair | 1,408 |
| San Leandro | ~~1,106~~ 1,064 |
| Coliseum | 923 |
| Fruitvale | 730 |
| Lake Merritt | 197 |
| Daly City | ~~1,627~~ 1,877 |
| | 22,284 |

Office of Public Affairs
February 1980

Master
3/22/82

12

# ESTIMATED AND PROJECTED PARKING CAPACITY

| Station | EXISTING STALLS As of 03/82 | ADDITIONAL STALLS | | | PROJECTED TOTAL AS OF 08/84 |
|---|---|---|---|---|---|
| | | NUMBER | COMPLETION DATE (est.) | FUNDING SOURCE(S) | |
| Glen Park | 0 | 58 | 4/83 | FAU/STA II | 58 |
| Concord | 1,223[a] | 207 | 10/82 | STA-II | 1,430 |
| Pleasant Hill | 1,586[b] | | | | 1,586 |
| Walnut Creek | 1,168 | | | | 1,168 |
| Lafayette | ~~1,414~~ ~~1,014~~[c] | | | | ~~1,014~~ 1,414 |
| Orinda | 1,083 | | | | 1,083 |
| Rockridge | 776 | 40 | 5/83 | STA II | 816 |
| MacArthur | 487 | | | | 487 |
| Oakland West | 403[d] | 100 | 11/83 | STA II | 503 |
| Richmond | 754 | 36 | 6/83 | STA II | 790 |
| El Cerrito Del Norte | 1,054 | 100 | 50-6/83 & 50-8/84 | STA II | 1,154 |
| El Cerrito Plaza | 509 | 100 | 50-6/83 & 50-8/84 | STA II STA II | 609 |
| North Berkeley | 504 | 35 | 6/83 | STA II | 539 |
| Ashby | 560 | | | | 560 |
| Daly City | 1,877[e] | | | | 1,877 |
| Fremont | 1,703[g] | | | | 1,703 |
| Union City | 932[f] | 40 | 6/83 | STA II | 972 |
| South Hayward | 880 | 40 | 6/83 | STA II | 920 |
| Hayward | 967 | 50 | 6/83 | STA II | 1,017 |
| Bayfair | 1,408 | 75 | 6/83 | STA II | 1,483 |
| San Leandro | 1,066 | | | | 1,066 |
| Coliseum | 923 | | | | 923 |
| Fruitvale | 730 | 50 | 6/83 | STA II | 780 |
| Lake Merritt | 197 | | | | 197 |
| TOTAL | ~~21,804~~ 22,204 | 1,616 | | | ~~22,735~~ 23,135 |

[a]Concord total does not include 530 leased spaces.
[b]Pleasant Hill total includes 175 space gravel lot.
[c]Lafayette total includes 400 space overflow lot.
[d]Oakland West total does not include 100 gravel funded spaces under freeway.
[e]Daly City total includes 250 stall permit lot.
[f]Union City total includes new west paved lot.
[g]Fremont total includes 685 space gravel lot.

3/17/82

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone (415) 465-4100

# PARKING SPACES

| Station | No. of Spaces |
|---|---|
| Concord | 1,074 |
| Pleasant Hill | 1,483 |
| Walnut Creek | 1,156 |
| Lafayette | 982 |
| Orinda | 997 |
| Rockridge | 776 |
| Richmond | 754 |
| El Cerrito Del Norte | 1,054 |
| El Cerrito Plaza | 509 |
| North Berkeley | 500 |
| Ashby | 560 |
| MacArthur | 487 |
| Oakland West | 403 |
| Fremont | 1,027 |
| Union City | 826 |
| South Hayward | 880 |
| Hayward | 861 |
| Bay Fair | 1,408 |
| San Leandro | 1,106 |
| Coliseum | 923 |
| Fruitvale | 730 |
| Lake Merritt | 197 |
| Daly City | 1,627 |

Office of Public Affairs
February 1980

# PARKING LOT UTILIZATION

## WEEKDAY

## WEEK OF JANUARY 25-29, 1982

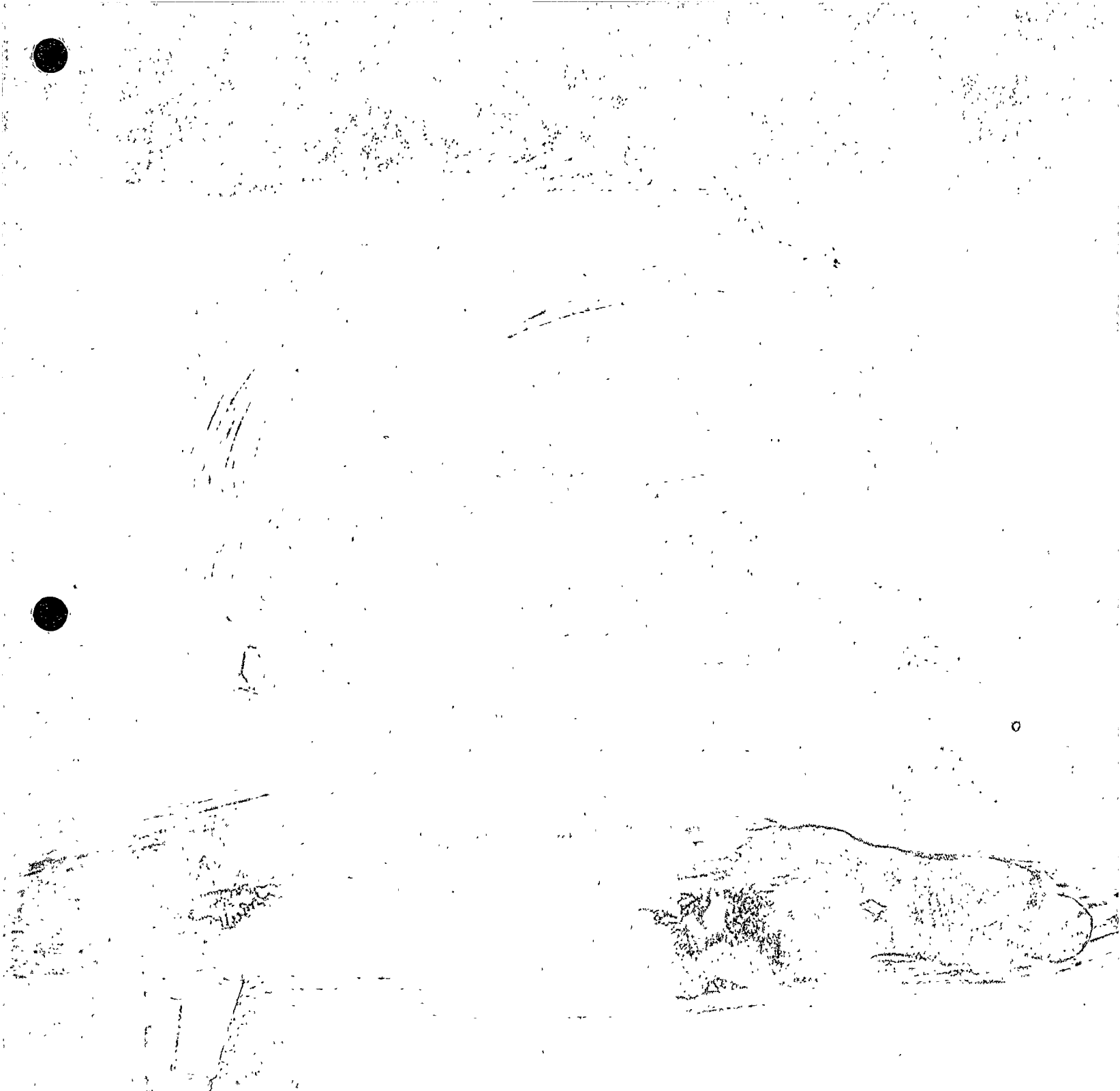
| Station | All Day Spaces | | | Mid-Day Spaces | | |
|---|---|---|---|---|---|---|
| | Available | Occupied | % Occupied | Available | Occupied @1200 | %Occupied @1200 |
| Concord | 1,147 | 1,147 | 100 | 76 | 76 | 100 |
| Pleasant Hill | 1,147 | 1,477 | 100 | 109 | 109 | 100 |
| Walnut Creek | 1,050 | 1,050 | 100 | 118 | 118 | 100 |
| Lafayette | 1,439 | 1,439 | 100 | 29 | 29 | 100 |
| Orinda | 1,024 | 1,024 | 100 | 59 | 59 | 100 |
| Rockridge | 750 | 747 | 99.6 | 26 | 26 | 100 |
| Richmond | 718 | NA | NA | 36 | NA | Na |
| El Cerrito Del Norte | 915 | NA | NA | 139 | NA | NA |
| El Cerrito Plaza | 461 | 461 | 100 | 48 | 48 | 100 |
| North Berkeley | 409 | 409 | 100 | 95 | 95 | 100 |
| Ashby | 541 | NA | NA | 19 | NA | NA |
| MacArthur | 441 | NA | NA | 46 | NA | NA |
| Oakland West | 383 | 383 | 100 | 20 | 20 | 100 |
| Fremont | 1,641 | NA | NA | 62 | NA | NA |
| Union City | 869 | NA | NA | 63 | NA | NA |
| South Hayward | 789 | NA | NA | 91 | NA | NA |
| Hayward | 902 | 902 | 100 | 65 | 65 | 100 |
| Bay Fair | 1,294 | NA | NA | 114 | NA | NA |
| San Leandro | 988 | 974 | 985 | 78 | 78 | 100 |
| Coliseum | 846 | 314 | 37 | 77 | 20 | 25.9 |
| Fruitvale | 609 | 609 | 100 | 121 | 121 | 100 |
| Lake Merritt | 197 | 197 | 100 | 0 | 0 | 0 |
| Daly City | 1,625 | 1,625 | 100 | 252 | 252 | 100 |
| SYSTEM TOTAL | 20,515 | 12,758* | 95.8* | 1,743 | 1,173* | 95.1* |

Source: Station Agents' Observations

*Seven stations not counted. NA = not available

952 - Instructions 952 - 20 JH Stations

| Station | Mid-Day Spaces | Total Spaces |
|---|---|---|
| Concord | 76 | 1,223 |
| Pleasant Hill | 109 | 1,586 |
| Walnut Creek | 118 | 1,168 |
| Lafayette | 29 | 1,414 |
| Orinda | 59 | 1,083 |
| Rockridge | 26 | 776 |
| Richmond | 36 | 754 |
| El Cerrito Del Norte | 139 | 1,054 |
| El Cerrito Plaza | 48 | 509 |
| North Berkeley | 95 | 504 |
| Ashby | 19 | 560 |
| MacArthur | 46 | 487 |
| Oakland West | 20 | 403 |
| Fremont | 62 | 1,703 |
| Union City | 63 | 932 |
| South Hayward | 91 | 880 |
| Hayward | 65 | 967 |
| Bay Fair | 114 | 1,408 |
| San Leandro | 78 | 1,066 |
| Coliseum | 77 | 923 |
| Fruitvale | 121 | 730 |
| Lake Merritt | 0 | 197 |
| Daly City ** | 252 | 1,877 |



| | | |
|---|---|---|
| SYSTEM TOTAL | 1,743 | 22,204 |

**The parking structure at Daly City has a total of 953 all-day parking spaces and 20 mid-day parking spaces. The remaining 672 all-day spaces and 232 mid-day spaces are located in a parking lot near the station.

Office of Public Information
June 1982

# BART STATION PARKING SPACES

# PARKING CAPACITY

| BART STATIONS ON THE "M" LINE | ALL DAY | MIDDAY | HANDICAPPED | TOTAL | BARTPOOL* |
|---|---|---|---|---|---|
| OAKLAND WEST BART STATION 1451 Seventh Street Oakland, CA 94607 | ~~375~~ 503 | ~~20~~ 12 | 8 | ~~403~~ 523 | 0 |
| EMBARCADERO BART STATION 293 Market Street San Francisco, CA 94105 | 0 | 0 | 0 | 0 | 0 |
| MONTGOMERY STREET BART STATION 598 Market Street San Francisco, CA 94105 | 0 | 0 | 0 | 0 | 0 |
| POWELL STREET BART STATION 899 Market Street San Francisco, CA 94105 | 0 | 0 | 0 | 0 | 0 |
| CIVIC CENTER BART STATION 1150 Market Street San Francisco, CA 94102 | 0 | 0 | 0 | 0 | 0 |
| 16TH STREET BART STATION 2000 Mission Street San Francisco, CA 94110 | 0 | 0 | 0 | 0 | 0 |
| 24TH STREET BART STATION 2800 Mission Street San Francisco, CA 94110 | 0 | 0 | 0 | 0 | 0 |
| GLEN PARK BART STATION 2901 Diamond STreet San Francisco, CA 94131 | 0 | 0 | 0 | 0 | 0 |
| BALBOA PARK BART STATION 401 Geneva Avenue San Francisco, CA 94112 | 0 | 0 | 0 | 0 | 0 |
| DALY CITY BART STATION 500 John Daly Blvd. Daly City, CA 94014 | ~~1357~~ 1375 | ~~562~~ 484** | 18 | 1877 | 75 |
| TOTAL | ~~1732~~ 1878 | ~~522~~ 496 | 26 | ~~2280~~ 2400 | 75 |

BART Pool Passes

* BARTpool spaces are available in the midday lots. After 9 a.m. the BARTpool spaces become midday spaces.

** Includes 251 permit spaces. After 9 a.m. these spaces become midday spaces.

850

# AUTOMOBILE PARKING CAPACITY AT BART STATIONS

The attached is a line by line breakdown of automobile parking capacity of parking lots at BART stations[1].

## RECAP OF ATTACHMENTS

| | ALL DAY | MIDDAY[2] | HANDICAPPED | TOTAL | BARTPOOL[3] |
|---|---|---|---|---|---|
| "A" LINE PARKING | | | 37 | 8553 | 95 |
| "C" LINE PARKING | | | 28 | 8[illegible]50 | 229 |
| "R" LINE PARKING | | | 21 | 3868 | 30 |
| "M" LINE PARKING | | | 26 | [illegible]280 | 75 |
| TOTAL | | | 112 | [illegible] | 430* |

(1) As noted on the attachments, there are no parking lots at downtown San Francisco BART stations to Balboa Park BART Station, Berkeley, 19th Street, and 12th Street BART stations.

(2) Midday parking spaces are for BART patrons who board the system after 9 a.m. These spaces are posted, "No Parking Between 7 a.m. and 9 a.m." and "No Unattended Vehicles Between 4 p.m. and 6 p.m."

(3) BARTPOOL is a program which provides preferential parking for three or more BART patrons who come to BART stations, in a single vehicle, where the program is active. BARTPOOL spaces are located in the midday lots and revert to midday spaces after 9 a.m. Information about this program is available from the BART Police Department.

* Preferential parking spaces are made available at the Daly City BART Station for S.F. residents who register for these permit spaces with the BART Planning Department. These spaces are located in the midday lots and revert to midday parking spaces after 9 a.m.

## PARKING CAPACITY

| BART STATIONS ON THE "C" LINE | ALL DAY | MIDDAY | HANDICAPPED | TOTAL | BARTPOOL* |
|---|---|---|---|---|---|
| CONCORD BART STATION<br>1451 Oakland Avenue<br>Concord, CA 94520 | [illegible] | [illegible] | 6 | [illegible] | 119 |
| PLEASANT HILL BART STATION<br>1365 Treat Blvd.<br>Pleasant Hill, CA 94596 | [illegible] | [illegible] | 4 | 1586 | 50 |
| WALNUT CREEK BART STATION<br>200 Ygnacio Valley Road<br>Walnut Creek, CA 94596 | [illegible] | [illegible] | 6 | 1168 | 0 |
| LAFAYETTE BART STATION<br>3601 Deerhill Road<br>Lafayette, CA 94549 | [illegible] | [illegible] | 6 | 1014 | 35 |
| ORINDA BART STATION<br>1 Camino Pablo<br>Orinda, CA 94563 | [illegible] | [illegible] | 3 | 1083 | 25 |
| ROCKRIDGE BART STATION<br>5660 College Avenue<br>Oakland, CA 94618 | [illegible] | [illegible] | 3 | 776 | 0 |
| TOTAL | [illegible] | [illegible] | 28 | [illegible] | 229 |

* BARTPOOL spaces are available in the midday lots. After 9 a.m. the BARTPOOL spaces revert to midday spaces.

## PARKING CAPACITY

| BART STATIONS ON THE "M" LINE | ALL DAY | MIDDAY | HANDICAPPED | TOTAL | BARTPOOL* |
|---|---|---|---|---|---|
| OAKLAND WEST BART STATION<br>1451 Seventh Street<br>Oakland, CA 94607 | 375 | 20 | 8 | 403 | 0 |
| EMBARCADERO BART STATION<br>298 Market Street<br>San Francisco, CA 94105 | 0 | 0 | 0 | 0 | 0 |
| MONTGOMERY STREET BART STATION<br>598 Market Street<br>San Francisco, CA 94105 | 0 | 0 | 0 | 0 | 0 |
| POWELL STREET BART STATION<br>899 Market Street<br>San Francisco, CA 94105 | 0 | 0 | 0 | 0 | 0 |
| CIVIC CENTER BART STATION<br>1150 Market Street<br>San Francisco, CA 94102 | 0 | 0 | 0 | 0 | 0 |
| 16TH STREET BART STATION<br>2000 Mission Street<br>San Francisco, CA 94110 | 0 | 0 | 0 | 0 | 0 |
| 24TH STREET BART STATION<br>2800 Mission Street<br>San Francisco, CA 94110 | 0 | 0 | 0 | 0 | 0 |
| GLEN PARK BART STATION<br>2901 Diamond STreet<br>San Francisco, CA 94131 | 0 | 0 | 0 | 0 | 0 |
| BALBOA PARK BART STATION<br>401 Geneva Avenue<br>San Francisco, CA 94112 | 0 | 0 | 0 | 0 | 0 |
| DALY CITY BART STATION<br>500 John Daly Blvd.<br>Daly City, CA 94014 | 1357 | 502** | 18 | 1877 | 75 |
| TOTAL | 1732 | 522 | 26 | 2280 | 75 |

* BARTPOOL spaces are available in the midday lots. After 9 a.m. the BARTpool [illegible] to the midday spaces.

** Includes 351 permit spaces. After 9 a.m. these spaces become [illegible]

# PARKING CAPACITY

| BART STATIONS ON THE "A" LINE | ALL DAY | MIDDAY | HANDICAPPED | TOTAL | BARTPOOL* |
|---|---|---|---|---|---|
| FREMONT BART STATION<br>200 BART Way<br>Fremont, CA 94536 | ~~1408~~ 1480 | 55 | 7 | 1542 | 50 |
| UNION CITY BART STATION<br>10 Union Square<br>Union City, CA 94587 | 869 | 60 | 3 | 932 | 21 |
| SOUTH HAYWARD BART STATION<br>28601 Dixon Street<br>Hayward, CA 94544 | ~~786~~ 789 | ~~91~~ 88 | 3 | 880 | 0 |
| HAYWARD BART STATION<br>699 "B" Street<br>Hayward, CA 94541 | ~~903~~ 911 | ~~56~~ 48 | 8 | 967 | 25 |
| BAYFAIR BART STATION<br>15242 Hesperian Blvd.<br>San Leandro, CA 94578 | ~~1291~~ 1294 | ~~114~~ 111 | 3 | ~~1408~~ | 0 |
| SAN LEANDRO BART STATION<br>1401 San Leandro Blvd.<br>San Leandro, CA 94577 | ~~984~~ 998 | ~~78~~ 74 | 4 | 1066 | 0 |
| COLISEUM BART STATION<br>7200 San Leandro Blvd.<br>Oakland, CA 94621 | ~~844~~ 846 | ~~77~~ 75 | 2 | 923 | 0 |
| FRUITVALE BART STATION<br>2401 E. 12th Street<br>Oakland, CA 94601 | ~~607~~ 609 | ~~121~~ 114 | 2 | 730 | 0 |
| LAKE MERRITT BART STATION<br>800 Madison Street<br>Oakland, CA 94607 | 100 | 0 | 5 | 105 | 0 |
| TOTAL | ~~7864~~ 7886 | ~~657~~ 630 | 37 | 8553 | 96 |

* BARTPOOL spaces are available in the midday lots. After 9 a.m. the BARTPOOL spaces revert to midday spaces.

# PARKING CAPACITY

| BART STATIONS ON THE "R" LINE | ALL DAY | MIDDAY | HANDICAPPED | TOTAL | BARTPOOL* |
|---|---|---|---|---|---|
| RICHMOND BART STATION<br>1700 Nevin Avenue<br>Richmond, CA 94801 | 718<br>~~715~~ | 33<br>~~36~~ | 3 | 754 | 0 |
| EL CERRITO DEL NORTE BART STATION<br>6400 Cutting Blvd.<br>El Cerrito, CA 94530 | 915<br>~~910~~ | 134<br>~~139~~ | 5 | 1054 | 30 |
| EL CERRITO PLAZA BART STATION<br>6699 Fiarmont Avenue<br>El Cerrito, CA 94530 | 461<br>~~457~~ | 44<br>~~48~~ | 4 | 509 | 0 |
| NORTH BERKELEY BART STATION<br>750 Sacramento Street<br>Berkeley, CA 94702 | 408<br>~~405~~ | 93<br>~~96~~ | 3 | 504 | 0 |
| BERKELEY BART STATION<br>2160 Shattuck Avenue<br>Berkeley, CA 94704 | 0 | 0 | 0 | 0 | 0 |
| ASHBY BART STATION<br>3100 Adeline Street<br>Berkeley, CA 94703 | 541<br>~~538~~ | 16<br>~~19~~ | 3 | 560 | 0 |
| MAC ARTHUR BART STATION<br>555 40th Street<br>Oakland, CA 94609 | 441<br>~~438~~ | 43<br>~~46~~ | 3 | 487 | 0 |
| 19TH STREET BART STATION<br>1900 Broadway<br>Oakland, CA 94612 | 0 | 0 | 0 | 0 | 0 |
| 12TH STREET BART STATION<br>1425 Broadway<br>Oakland, CA 94612 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | ~~3463~~<br>~~3484~~<br>3484 | ~~384~~<br>~~363~~<br>363 | 21 | 3868 | 30 |

* BARTPOOL spaces are available in the midday lots. After 9 a.m. the BARTPOOL spaces revert to midday spaces.

# PARKING CAPACITY

| BART STATIONS ON THE "C" LINE | ALL DAY | MIDDAY | HANDICAPPED | TOTAL | BARTPOOL* |
|---|---|---|---|---|---|
| CONCORD BART STATION<br>1451 Oakland Avenue<br>Concord, CA 94520 | 1593<br>~~1061~~ | 154<br>~~156~~ | 6 | 1753<br>~~1223~~ | 119 |
| PLEASANT HILL BART STATION<br>1365 Treat Blvd.<br>Pleasant Hill, CA 94596 | 1402<br>~~1471~~ | 180<br>~~111~~ | 4 | 1586 | 50 |
| WALNUT CREEK BART STATION<br>200 Ygnacio Valley Road<br>Walnut Creek, CA 94596 | 1047<br>~~1044~~ | 115<br>~~118~~ | 6 | 1168 | 0 |
| LAFAYETTE BART STATION<br>3601 Deerhill Road<br>Lafayette, CA 94549 | 963<br>~~973~~ | 45<br>~~35~~ | 6 | 1014 | 35 |
| ORINDA BART STATION<br>1 Camino Pablo<br>Orinda, CA 94563 | 966<br>~~1021~~ | 114<br>~~59~~ | 3 | 1083 | 25 |
| ROCKRIDGE BART STATION<br>5660 College Avenue<br>Oakland, CA 94618 | 750<br>~~747~~ | 23<br>~~26~~ | 3 | 776 | 0 |
| TOTAL | ~~6317~~<br>6721 | ~~505~~<br>631 | 28 | ~~6850~~<br>7380 | 229 |

* BARTPOOL spaces are available in the midday lots. After 9 a.m. the BARTPOOL spaces revert to midday spaces.

111
+1021
963
57

1
59
57
116

30

## PARKING CAPACITY

| BART STATIONS ON THE "M" LINE | ALL DAY | MIDDAY | HANDICAPPED | TOTAL | BARTPOOL* |
|---|---|---|---|---|---|
| OAKLAND WEST BART STATION<br>1451 Seventh Street<br>Oakland, CA 94607 | | | 8 | | 0 |
| EMBARCADERO BART STATION<br>298 Market Street<br>San Francisco, CA 94105 | 0 | 0 | 0 | 0 | 0 |
| MONTGOMERY STREET BART STATION<br>598 Market Street<br>San Francisco, CA 94105 | 0 | 0 | 0 | 0 | 0 |
| POWELL STREET BART STATION<br>899 Market Street<br>San Francisco, CA 94105 | 0 | 0 | 0 | 0 | 0 |
| CIVIC CENTER BART STATION<br>1150 Market Street<br>San Francisco, CA 94102 | 0 | 0 | 0 | 0 | 0 |
| 16TH STREET BART STATION<br>2000 Mission Street<br>San Francisco, CA 94110 | 0 | 0 | 0 | 0 | 0 |
| 24TH STREET BART STATION<br>2800 Mission Street<br>San Francisco, CA 94110 | 0 | 0 | 0 | 0 | 0 |
| GLEN PARK BART STATION<br>2901 Diamond STreet<br>San Francisco, CA 94131 | 0 | 0 | 0 | 0 | 0 |
| BALBOA PARK BART STATION<br>401 Geneva Avenue<br>San Francisco, CA 94112 | 0 | 0 | 0 | 0 | 0 |
| DALY CITY BART STATION<br>330 John Daly Blvd.<br>Daly City, CA 94014 | | | 18 | 1877 | 75 |
| TOTAL | | | 26 | | 75 |

# PARKING CAPACITY

| BART STATIONS ON THE "A" LINE | ALL DAY | MIDDAY | HANDICAPPED | TOTAL | BARTPOOL* |
|---|---|---|---|---|---|
| FREMONT BART STATION<br>200 BART Way<br>Fremont, CA 94536 | | 55 | 7 | 1542 | 50 |
| UNION CITY BART STATION<br>10 Union Square<br>Union City, CA 94587 | 869 | 60 | 3 | 932 | 21 |
| SOUTH HAYWARD BART STATION<br>28601 Dixon Street<br>Hayward, CA 94544 | | | 3 | 880 | 0 |
| HAYWARD BART STATION<br>699 "B" Street<br>Hayward, CA 94541 | | | 8 | 967 | 25 |
| BAYFAIR BART STATION<br>15242 Hesperian Blvd.<br>San Leandro, CA 94578 | | | 3 | 1408 | 0 |
| SAN LEANDRO BART STATION<br>1401 San Leandro Blvd.<br>San Leandro, CA 94577 | | | 4 | 1066 | 0 |
| COLISEUM BART STATION<br>7200 San Leandro Blvd.<br>Oakland, CA 94621 | | | 2 | 923 | 0 |
| FRUITVALE BART STATION<br>2401 E. 12th Street<br>Oakland, CA 94601 | | | 2 | 730 | 0 |
| LAKE MERRITT BART STATION<br>800 Madison Street<br>Oakland, CA 94607 | 100 | 0 | 5 | 105 | 0 |
| TOTAL | | | 37 | 8553 | 96 |

* BARTPOOL spaces are available in the midday lots. After 9 a.m. the BARTPOOL spaces revert to midday spaces.

# PARKING CAPACITY

| BART STATIONS ON THE "R" LINE | ALL DAY | MIDDAY | HANDICAPPED | TOTAL | BARTPOOL* |
|---|---|---|---|---|---|
| RICHMOND BART STATION<br>1700 Nevin Avenue<br>Richmond, CA 94801 | (37) | (5) | 3 | 754 | 0 |
| EL CERRITO DEL NORTE BART STATION<br>6400 Cutting Blvd.<br>El Cerrito, CA 94530 | (5) | (7) | 5 | 1054 | 30 |
| EL CERRITO PLAZA BART STATION<br>6699 Fiarmont Avenue<br>El Cerrito, CA 94530 | (1) | (1) | 4 | 509 | 0 |
| NORTH BERKELEY BART STATION<br>750 Sacramento Street<br>Berkeley, CA 94702 | (40) | (5) | 3 | 504 | 0 |
| BERKELEY BART STATION<br>2160 Shattuck Avenue<br>Berkeley, CA 94704 | 0 | 0 | 0 | 0 | 0 |
| ASHBY BART STATION<br>3100 Adeline Street<br>Berkeley, CA 94703 | (51) | (1) | 3 | 560 | 0 |
| MAC ARTHUR BART STATION<br>555 40th Street<br>Oakland, CA 94609 | (4) | (4) | 3 | 487 | 0 |
| 19TH STREET BART STATION<br>1900 Broadway<br>Oakland, CA 94612 | 0 | 0 | 0 | 0 | 0 |
| 12TH STREET BART STATION<br>1425 Broadway<br>Oakland, CA 94612 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | (97) | (34) | 21 | 3868 | 30 |

* BARTPOOL spaces are available in the midday lots. After 9 a.m. the BARTPOOL spaces revert to midday spaces.

# Kevin Starr / *BART, at age 10*

This coming fall, San Francisco attorney Eugene Garfinkle reminds me, BART will be 10 years old. Garfinkle, of course, currently is serving as the president of BART's elected board of directors — and doing a superb job.

Has an entire decade passed since BART first began its operations? Is it possible?

News reportage is by its very nature conflict-oriented. Thus these past 10 years BART has tended to get into the newspapers only when it is experiencing difficulties. The most important story of all, by contrast, the manner in which BART has shown that the San Francisco Bay Area might be integrated into a continuous urban/suburban civilization, has tended to go unreported. It is just too abstract a consideration.

Two vignettes from my personal life. In the course of researching a work on California history, I find myself using the Bancroft Library on the campus of the University of California at Berkeley. One wintry day a few months back, I suddenly had an insight into the highly developed urban life BART was making possible for me. After a number of hours of most satisfying research amidst the historical treasures of the Bancroft, I walked down one of the great sweeping promenades that cross and criss-cross the Berkeley campus, passing Arthur Putnam's magnificent statue of Cal football players (executed sometime in the late 1890s) before moving into an oak grove as untouched as the day that the great 19th century educator and minister Horace Bushnell first surveyed and selected the Berkeley site for the College of California.

And then, entering the Berkeley BART station, packed with young university students now able to find housing along the many destination points of the BART line, I was swept along with the crowds into a gleaming modernistic BART train. As the BART train glided along the elevated passageway between Berkeley and Oakland, I looked out the window at the Oz-like cityscape of San Francisco, floating — to change the comparision — like Atlantis being reborn from the seas against a russet sunset sky.

Then the exhilarating plunge down beneath the depths of the Bay itself, flying on electric wings to the City of San Francisco. When you emerge, as I did from the Powell Street BART station, the first sight you see as you ride the escalator upwards is Albert Pissis' magnificent 1904 James Flood Building, a strong and sturdy ssurvivor of pre-earthquake San Francisco. BART, in other words, had made possible both my convenient use of the Bancroft Library at Berkeley and my encounter with a visual pageant of the totality of the Bay Area cityscape, from the futurist BART train to the reassuring neoclassical elegance of the Flood Building, so evocative of the mood and energy of a long-lost San Francisco.

Now the second vignette. Last Monday afternoon at 4 o'clock found me heading down to Pebble Beach where I was scheduled to give a lecture. Somewhere around Santa Clara, traffic ground to a halt on the Bayshore freeway. San Mateo and Santa Clara counties both rejected BART, and now they must pay the price. From about 3:30 p.m. onwards, I'm told, the entire area between Sunnyvale and Hollister is a miasma of stop and go traffic.

The tragedy of BART, in other words, is not its temporary difficulties with this or that computer or car. The tragedy of BART is that it was not inaugurated from the first as a total Bay Area-wide system, linking Santa Rosa and San Jose, Concord and Pacifica.

As much as we cherish the individual ambiences and sovereignties of our local communities, we citizens of the Bay Area must acknowledge that we are living in a totally integrated and interdependent urban network — a greater San Francisco, if you will excuse the chauvinism, which the voters of the mid-1890s once had the opportunity (rejected) of integrating into a New York-style borough system.

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Has an entire decade passed since BART first began its operations? Is it possible?

News reportage is by its very nature conflict-oriented. Thus these past 10 years BART has tended to get into the newspapers only when it is experiencing difficulties. The most important story of all, by contrast, the manner in which BART has shown that the San Francisco Bay Area might be integrated into a continuous urban/suburban civilization, has tended to go unreported. It is just too abstract a consideration.

Two vignettes from my personal life. In the course of researching a work on California history, I find myself using the Bancroft Library on the campus of the University of California at Berkeley. One wintry day a few months back, I suddenly had an insight into the highly developed urban life BART was making possible for me. After a number of hours of most satisfying research amidst the historical treasures of the Bancroft, I walked down one of the great sweeping promenades that cross and criss-cross the Berkeley campus, passing Arthur Putnam's magnificent statue of Cal football players (executed sometime in the late 1890s) before moving into an oak grove as untouched as the day that the great 19th century educator and minister Horace Bushnell first surveyed and selected the Berkeley site for the College of Calfornia.

And then, entering the Berkeley BART station, packed with young university students now able to find housing along the many destination points of the BART line, I was swept along with the crowds into a gleaming modernistic BART train. As the BART train glided along the elevated passageway between Berkeley and Oakland, I looked out the window at the Oz-like cityscape of San Francisco, floating — to change the comparision — like Atlantis being reborn from the seas against a russet sunset sky.

Then the exhilarating plunge down beneath the depths of the Bay itself, flying on electric wings to the City of San Francisco. When you emerge, as I did from the Powell Street BART station, the first sight you see as you ride the escalator upwards is Albert Pissis' magnificent 1904 James Flood Building, a strong and sturdy ssurvivor of pre-earthquake San Francisco. BART, in other words, had made possible both my convenient use of the Bancroft Library at Berkeley and my encounter with a visual pageant of the totality of the Bay Area cityscape, from the futurist BART train to the reassuring neoclassical elegance of the Flood Building, so evocative of the mood and energy of a long-lost San Francisco.

Now the second vignette. Last Monday afternoon at 4 o'clock found me heading down to Pebble Beach where I was scheduled to give a lecture. Somewhere around Santa Clara, traffic ground to a halt on the Bayshore freeway. San Mateo and Santa Clara counties both rejected BART, and now they must pay the price. From about 3:30 p.m. onwards, I'm told, the entire area between Sunnyvale and Hollister is a miasma of stop and go traffic.

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ARTICLES: "BART - BREAKING RECORDS..."

Mike Healy
Department Manager - Public Affairs

A-102

# NEWS RELEASE

CONTACT: Sy Mouber
Manager, Public Information
(415) 465-4100, Ext. 514

July 17, 1981

FOR IMMEDIATE RELEASE

BART

## BART - BREAKING RECORDS AND OVERALL IMPROVED PERFORMANCE

By the end of this past June or fiscal year 1980/81, BART had achieved its highest fiscal-year patronage since beginning operations back in 1972, with the system seeing approximately 46.9 million in ridership.

This figure works out to 3.7 percent ahead of the fiscal year forecast, while the average weekday ridership is currently running better than 9 percent ahead of projections at almost 174,000. In June 1980, prior to the fare increase, BART's average weekday ridership was 164,558. Also, people were taking slightly longer trips in June 1981 than they were in June 1980, from an average of 12.83 miles to 13.45 in length.

Another record was broken when this past June became the highest patronage month in the system's history with about 4.3 million passenger trips recorded. The former monthly record was set this past April with 4.247 million. And May 1, 1981, saw the highest patronage day with 192,122. To date, the system has carried over 275 million passengers more than 3.6 billion passenger miles. This breaks down to 94.2 million in the East Bay, 72.6 million intra San Francisco, and 108 million transbay.

In a report to BART Board members this week, Executive Manager of Maintenance and Engineering, Richard Demko, showed how the transit system had dramatically improved in overall performance over the past five years, and particularly this past year since smoothing out the "close headways operation," introduced last summer.

Key examples of BART's performance record are as follows:

(MORE)

2-2-2-2- BART - BREAKING RECORDS AND OVERALL IMPROVED PERFORMANCE

OPERATING PERFORMANCE AND RELIABILITY COMPARISON - 1976-1981

| Revenue Service Parameter | July 1976 | Monthly Average July thru Sept. 1980 | Monthly Average April thru June 1981 |
|---|---|---|---|
| Number of trains scheduled during peak service hours | 33 | 55 | 42 |
| Average daily car availability at 0800 (percent) | 61% | 83% | 86% |
| Percent of scheduled runs completed | 90% | 96% | 99% |
| Percent of trains run "On Time" | 46% | 85% | 94% |
| *Transit vehicle equipment caused unscheduled train removals (per 1000 car-hours) | 5.4 | 2.6 | 1.9 |
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*BART operates about 3400 car hours per day.

An industry report on reliability gave BART very high marks compared with the industry. Using a standard measure of transit vehicle incidents or malfunctions every 10,000 miles of operation, BART came in the lowest at 1.8 for a 3-month period through March 1981, while the average number of malfunctions for the industry per 10,000 miles of oepration was 3.8. BART runs about 94,000 car miles per weekday.

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**Industrial development: Chessie maps a winning strategy**

November 9, 1981

# RAILWAY AGE

## BART girds for growth

# RAILWAY AGE

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# Inside


LUTHER S. MILLER

## TIME TO "SELL HARDER"

Once each year, some 1,000 railroad and railroad supply people converge on Washington for what has come to be known as "Railway Progress Day"—a day when the suppliers (through their trade association, the Railway Progress Institute) treat their customers and themselves to a simple lunch and an elegant black-tie dinner, and, in between, to a variety of speeches, most of them by folks who are supposed to be able to forecast the future. This year's event fell on Oct. 29, and it was memorable for two reasons: (1) the optimism prevailing among the railroad executives present, and (2) the pessimism that clung like a morning-after hangover to many of the suppliers, especially those in the freight-car business.

The forecasts that came out of this meeting were overcast with all kinds of ifs and buts, but they boiled down to this: The railroads, thanks to a combination of rate and tax relief, have the money to buy whatever equipment they need—but right now, with about 200,000 cars in surplus, they don't need much. Carbuilders, suffering from the effects of the buying splurge of a few years ago, can expect to build no more than 25,000 new cars next year, a fraction of capacity. One builder's reaction: "That's not as many cars as we've been used to—but it still represents more than a billion dollars in business. We're just going to have to sell harder."

## THE TRUTH ABOUT BART

Which of the following statements is closest to the truth? (1) While the intentions of Bay Area Rapid Transit planners were noble, the net result of their work will go down in transit annals as a monumental boondoggle. (2) BART is now working fairly well, but it has fallen so far short of expectations that plans for expanded capacity have been quietly shelved.

We are pleased to report, in this issue's cover story, that neither of the above statements is anywhere close to the facts of the case. BART, the victim in its early years not only of its own overly ambitious technology but also of a bad press that it did not always earn, has quietly turned a horror story into a success story. Not only, reports Contributing Editor William D. Middleton (p. 22), is BART "running at close to its originally intended capacity level, and running rather well at that"—it is "moving ahead with a five-year capital improvement program that will provide the new facilities, computer and vehicle improvements, and new cars that will permit the system to virtually double its capacity by the mid-1980's."

There is even more impressive evidence, as far as the business community is concerned, of BART's success. The system is credited with having helped spur the construction of some 20 million square feet of office space in downtown San Francisco—an expansion that has created 200,000 new jobs.

It is to be hoped (though faintly, we confess) that all of this is not lost on the Reagan Administration, whose simplistic approach to public transportation appears to be based on its findings that (1) rapid transit is too costly, especially when (2) buses can do the job on roadways already in place.

BART is carrying up to 200,000 riders a day beneath the sidewalks of San Francisco. It would take a gridlock of buses to carry out that task on the streets.

Years ago New York Governor Nelson Rockefeller, a consummate politician, discovered that "good transportation is good politics." When will President Reagan, who prides himself on being a good businessman, discover that good transportation is also good business?

By WILLIAM D. MIDDLETON,
Contributing Editor

*Bay Area Rapid Transit has embarked on a five-year capital pro-*

From the time it opened in 1972 the San Francisco Bay Area's BART system has often seemed more promise than reality as its operators—and its not always patient riders—have been beset by problems of seemingly unending variety and number. As one problem was solved, another always seemed ready to take its place, and for Bay Area commuters frequent schedule disruptions, breakdowns, and overcrowded rush hour trains became a BART way of life.

But finally, after years of hard work to overcome complex technical problems, BART is running at close to its originally-intended capacity level, and running rather well at that.

The turnaround has been, as BART general manager Keith Bernard puts it, "a gradual, slow build-up that all seemed to come together at the end of 1980."

BART's "Close Headways" operation, begun in June 1980, removed a severe limit on the frequency of train operations that had been imposed by a series of train control and signaling problems. At the same time BART was beginning to see some real progress in its long-running efforts to correct equipment reliability problems and to develop a more effective maintenance program. Peak period passenger capacity has increased, and the improved reliability and productivity of the system have contributed to record gains in BART ridership.

Long before BART reached its present level of performance, its availability had contributed to a growth of downtown San Francisco business activity, making the city one of the nation's ten fastest growing metropolitan areas. As that growth continues, BART expects to gain as much as 10% annually in ridership well into the 1980's.

Handling that kind of traffic growth will require further gains in BART capacity and performance levels, and the system is now moving ahead with a five-year capital improvement program that will provide the new facilities, computer and vehicle improvements, and new cars that will permit the system to virtually double its capacity by the mid-1980's.

● **Closing a gap.** The start of Close Headways operation in mid-1980 allowed BART to reduce its peak period headways from five minutes to an average of about 3½ minutes, and to increase the number of trains in operation at any one time from 33 to 43. Overall system carrying capacity was increased by half, while peak period transbay service was increased from 10 trains an hour to 16, a capacity increase of 60%. A direct transbay service was finally installed between Richmond and Daly City, operating on a 15-minute frequency.

The road to Close Headways has been a long and difficult one for BART. The problems go all the way back to the system's 1972 start-up, when train detection problems were encountered which required some form of independent back-up to the basic ATC system. Since 1974 this had been accomplished with CABS I (for Computer Automated Block System-one station separation), which used BART's central computer to make a series of logic checks, independent of ATC, to assure a one-station minimum train separation. This limited BART to a minimum headway of about five minutes, which severely restricted peak period capacity and prevented the system from starting the transbay service between Richmond and Daly City.

In 1975, BART developed a replacement for CABS I called SORS (Sequential Occupancy Release System), a different form of ATC back-up. Using a series of mini-computers at each of 26 control points, SORS provides an automatic check-in, check-out of trains in subsequent blocks; once SORS detects a train, the system locks up a track circuit until the train has been detected in a subsequent block.

Although SORS was ready to go in 1975, a separate train separation problem precluded the planned operation at closer headways. Many of BART's braking profiles were determined potentially inadequate to assure safe train separation under "worst case" wet track conditions. Rewiring of nearly half of BART's 1,700 track circuits to correct the problem took almost three years. California PUC hearings leading to approval for operation with SORS took most of 1978. Just as the PUC was about to announce its approval, BART's disasterous Transbay Tube fire of January 1979 intervened, and it was only after more than another year of hearings that PUC approval for the change finally came.

In typical BART fashion, the start of

*gram designed to virtually double its capacity by the mid-1980's.*

Close Headways operation was not a smooth one. "We added more trains too soon," recalls general manager Keith Bernard, "and this made service dramatically worse for about three months." A special task force was organized to correct wayside train control problems on a 24 hour basis, and changes were made in schedules and system management.

"We worked our way out of it," says Bernard. Further improvement in system reliability is being realized from BART's "Cutout Car" program which went into operation last April following PUC approval. Closely related to the braking profile changes that were part of the Close Headways program, the cutout car capability permits BART to continue a train in operation at its full performance level with malfunctioning friction brakes cut out on one or more cars, depending upon train length.

Previously, a train with brake problems normally had to operate at half speed until it could be removed from service, delaying following trains. When the cutout car capability went into effect, BART estimated it would reduce train removals for friction brake problems from a monthly average of 53 to only 3; by the end of July the system had already achieved 90% of this cutout car improvement goal.

● **Operating despite failures.** Still further gains in service reliability are expected late this year when BART plans to begin operating under a new Manual Cab Signalling (MCS) capability, which like the Cutout Car Program, will enable the system to continue operating safely despite failures. The original BART design gave a train operator no indication of the ATC-commanded speed, or speed restrictions, and limited manual mode operation to a 25 mph limit. With MCS a train operator has a cab signal system and manual speed control up to the system's maximum permissible speed. Thus, BART can continue running safely at its full performance level despite an on-train ATC failure.

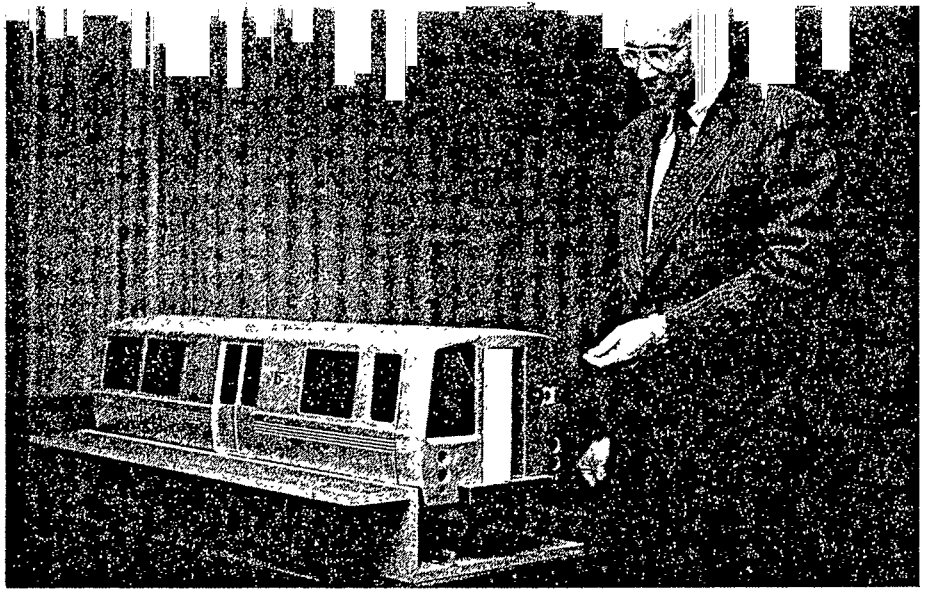
Both the Cutout Car and MCS programs are part of the Reliability Improvement Program that BART initiated in 1979. This $8 million program is made up of limited scope projects that will improve reliability in 13 major problem areas that have the greatest impact on overall BART service. More than half of these projects are now complete, or substantially complete, and in almost every case BART has attained or exceeded the reliability improvement goals originally established. For a project to improve the reliability of vehicle ATO power supply, for example, BART set a goal of reducing the failure rate by 80%; even before the project was completed that goal had been exceeded. Modifications to troublesome printed circuit boards and other components have reduced failure rates by anywhere from two-thirds to as much as 95%. But by far the most dramatic reliability improvement has come from corrective work that has virtually eliminated BART's long-standing traction motor flashover problem. From a historical rate of 0.144 failures per 1000 car hours, reliability improvements had dropped the rate to only 0.004 failures per 1000 car hours by early this year; in 228,698 operating hours for rewound and modified traction motors through the end of January, BART had experienced only a single failure.

Contributing, too, to BART's growing vehicle and system reliability has been a steadily improving maintenance program. The key to this has been the adoption of an airline maintenance philosophy, says BART's director of maintenance and engineering, Richard P. Demko, who brought 25 years of TWA aviation maintenance experience with him to BART in 1976. "Maintenance is maintenance," says Dick Demko, comparing BART's maintenance problems with those of an airline.

BART's airline-style maintenance program is based upon rigid standards and engineering procedural manuals. The maintenance forces do their work, and BART's inspectors inspect the work according to these engineering standards and procedures, and neither has the authority to change them. Inspection and maintenance can appeal an engineering decision, but engineering has the final authority. And, says Dick Demko, "I will not overrule engineering."

Equally important to Demko's maintenance program is compulsory adherence to Preventive Maintenance (PM) schedules. "This gives us credibility," says Demko. "I'm really adamant on this point," he adds. "There's no way I'll permit a car to run that's out of time."

"This approach has worked well," he says. "Skipping a PM may buy something in the short term, but the long-term price is too high."



Keith Bernard, BART general manager, with model of new "C" car; BART plans to purchase 90.

Since construction of the BART system began, some 20 million square feet of new space has been built in downtown San Francisco, more than doubling the city's office building space. And over just the past five years this enormous business expansion has given San Francisco a gain of more than 200,000 new jobs. Predictions for the next few years are for still more downtown San Francisco growth. Within four years, the expected completion of another 9 million square feet will increase San Francisco office space—and employment—by almost 25%.

Growth of this magnitude would have been all but impossible without BART. Well over half of the system's 170,000 daily passengers travel in the transbay corridor between San Francisco and the East Bay, and BART now carries almost 30% of all peak-hour transbay trips. BART expects ridership increases of anywhere from 6% to 10% annually well into the 1980's. With some portions of the system now operating at close to capacity during peak periods, BART has developed a five-year, $403 million capital improvement program that will provide the needed growth in system capacity by enabling the system to reduce its operating headway to 2 minutes from the current minimum of about 3½ minutes. Some $175 million of this five-year program will go into modification or replacement of BART's existing vehicles and equipment, while the remainder will pay for construction and new vehicle needs.

● **Building for the future.** Two major construction projects will provide BART with the additional operating flexibility and capacity that will be needed for even closer headway operation.

Already under construction is BART's KE track, which will add a third track through the downtown Oakland subway at the critical Oakland Wye. The extra track will give BART additional peak period capacity through the congested junction and provide an alternate track to facilitate train removals in case of equipment breakdowns. The track will also serve as a more central off-peak car storage area.

Completion of a first phase of work last summer has already permitted the use of a portion of the new track for storage and siding purposes. The full project should be completed by early 1983.

Not yet started is a project that will expand train storage and turnback capacity at BART's Daly City terminal in San Francisco. The three tracks presently available limit Daly City to a minimum average of 3½ minutes between originating trains. BART plans to build an extension southward over an abandoned SP branch line, and add a three-track turnaround zone and a ten-track storage yard. These facilities should readily permit the 2 minute average between originating trains that BART will need to meet its projected traffic growth. Preliminary engineering for the project has started, but construction is still several years away.

Important, too, to an increased system capacity is BART's planned Integrated Control System (ICS), a major replacement and modification project for BART's central computer control. "Our present computer control will be completely saturated at 50 trains on the system," says general manager Keith Bernard. "We'll need to get to 75 trains on the system at a time."

BART plans to expand its present 440-car rolling stock fleet to meet the traffic growth of the 1980's with a new fleet of 90 "C" cars, that could go to bid at any time. Unlike the system's current fleet, which is made up of either "A" control cars that can operate only at train ends, or "B" cars that can operate only mid-train, the new "C" car design will be capable of either lead car or mid-train operation. This will give BART much greater flexibility in subdividing train consists. At present, for example, a long consist can be broken down into two smaller trains only by taking a train into a yard and adding "A" control cars to the subdivided consists. With two "C" cars at mid-train, two shorter consists can be established merely by uncoupling the longer train. BART has estimated that this greater operating flexibility can save the system as much as $800,000 a year in operating costs.

Each "C" car will be an individual unit, with an operating cab at one end. The use of a flat end, with a clamshell door connection, will enable the cars to be coupled mid-train, unlike the present slope-ended "A" cars. While the "C" cars will be fully interchangeable with BART's original car fleet, the new rolling stock will incorporate a number of major improvements. All of the fire hardening features now being retrofitted to the original cars, for example, have been incorporated into the "C" car design. The cars will get a new air conditioning system that will incorporate redundant equipment, so that some air conditioning capacity will be retained even if one unit fails. A new ATO system to be specified for the "C" cars is also scheduled to replace the system presently installed in BART's "A" car fleet. The truck design of the original car fleet will be retained, while the new cars will employ motors identical to the modified motors of the original fleet. Thus, BART will have full truck and motor interchangeability among its rolling stock fleet.

Specifications for the new cars were developed by BART, with assistance, from Kaiser Engineers as consultants. Industrial design for the "C" car was by Sundberg-Ferrar.

Although requested 80% UMTA funding for the $100 million order has not yet been approved, BART hopes to complete delivery of its "C" car fleet by 1985. The 90-car order that BART currently plans may also include an option for 60 additional cars.

While BART's "C" car fleet is still at least four years in the future, the system has been expanding its effective rolling stock capacity through a conversion program for some of its existing cars. As the system's operating pattern has evolved, BART has found itself with an excess of lead "A" units, while there was a shortage of the mid-train "B" units. Some 17 of the "A" units were inoperable as a result of accident damage, while another 15 had been delivered without ATO equipment. BART has found that most of these excess lead cars could be converted to mid-train units at less cost than they could have been repaired or fitted with ATO equipment. One badly damaged "A" unit that would have cost $170,000 to repair as a lead car, for example, was converted to a "B" car for only $60,000.

*(Continued on page 43)*

# BART girds for growth

*(Continued from page 25)*

Altogether, BART plans the conversion of 35 "A" cars for mid-train operation. More than half have now been placed in service, and the full program should be completed by June 1982.

● **Funding: a nagging question.** If the need is clear for the expanded capacity that BART's planned five-year program will provide, the outlook for getting the necessary funding is far from certain, given the current climate of retrenchment for both capital and operating cost support from UMTA. Except for the Daly City storage yard and turnback facility project, which is still in the preliminary engineering stage, BART has applied for an 80% federal share for all of its capacity-enhancing improvement projects. But only one of these, the Oakland KE track project which started in 1980, has yet received UMTA support.

According to Bernard, the system's case for this federal support is clear. "About 80% of the total capital costs for BART was locally financed, and the local public will be paying for the system through the year 2000," he says. "Now, we feel there's a strong case for an 80% federal share of the costs that will permit BART to double its capacity. There's a big job to do here yet; the transbay link needs this additional BART capacity to meet the needs of the region."

For BART and its Bay Area commuters the road to modern mass transit has been fraught with far more misadventure, disappointment, and difficulty than anyone could have imagined, and it has cost more and taken far longer than anyone expected when Bay Area voters narrowly approved the bond issue that created BART in November 1962. But now that the system is running well at least there can be little doubt that the Bay Area's pioneering "new generation" mass transit system is now paying off handsomely for the region. Bay Area commuters have an unparalleled alternative to the automobile for their daily trips, and the entire BART region is enjoying a level of growth and renewal that would be difficult to imagine without BART.

But the benefits of BART go beyond that, for as Bernard observed recently, "BART pioneered, and the rest of the country benefitted." Thus the real legacy of the Bay Area's bold venture in mass transportation, and all of its lessons learned the hard way, extends far beyond the Bay Area itself to the new generation of rapid transit systems now running or building in Washington, Atlanta, Baltimore, and Miami, and yet to start elsewhere. For in all those places, modern mass transit owes much to the ideas and the technology first essayed by BART. ■

Robert W. McKnight
AAR

Robert C. Fort
Southern

Ronald W. Coiner
American Standard

Joseph C. Janke
American Standard

# People in the News

**ASSOCIATION OF AMERICAN RAILROADS.—Robert W. McKnight** appointed manager-communication and signal engineering, Washington, D.C. Mr. McKnight's most recent position was as editor, *The Signalman's Journal*, for the Brotherhood of Railroad Signalmen. Prior to that he was editor, *Railway Signaling and Communications* and associate editor, *Railway Age*.

**BURLINGTON NORTHERN.**—In the Law Department, **R.V. Wicka** named associate general counsel; **N.P. Moros** and **T.W. Spence,** assistant general solicitors, all in St. Paul. **R.P. Schmidt** and **R.T. Rathmann** appointed assistant regional counsel, St. Louis. **K. Kent Koolen** appointed assistant regional counsel, Billings, Mont. **Michael Holland** becomes attorney, Seattle. In the Claims Department, **Gene R. Rusert** named general manager claims; **Kenneth I. Coy,** assistant general manager claims and **Martin O. Gora,** claims manager, all in St. Paul.

**Joseph R. Galassi** appointed assistant vice president of strategic planning.

**Clifford E. Dahlberg** appointed assistant vice president, coal and taconite pricing.

In the Public Affairs Department, St. Paul, **Dennis W. McLeod** named director, branch line management.

**CHICAGO & NORTH WESTERN.**—In the Materials Department, **David A. Kaufman** named director-inventory and commitment control; **Terrence D. Murphy,** director-materials industrial engineering and value analysis; **Rick J. Sliwa,** director-engineering material purchases; **Joseph G. Vitas,** director-equipment parts and fuel purchases. All are headquartered in Chicago.

**CONRAIL.—Gerald N. Corcoran,** assistant superintendent, Cleveland Division, appointed division superintendent at Detroit, succeeding **Robert J. Gernon,** now regional superintendent-transportation, Southern Region, Indianapolis. **Victor L. Terziu,** terminal superintendent, Selkirk Yard, near Albany, N.Y., named superintendent, Pittsburgh Division, succeeding **Robert E. Hatton,** now general manager, Northeastern Region, New Haven, Conn.

**EASTERN SHORE RAILROAD, INC.—S.M. Gedney** appointed general superintendent, Cape Charles, Va., with jurisdiction over all operating functions, including transportation, maintenance of way, and maintenance of equipment. **Frank H. Waring** named vice president-traffic, with responsibility for all sales, pricing, rate quotations, customer service and industrial development matters. **Lawrence M. Nottingham** appointed general agent. **Arthur J. Tross** named comptroller.

Howard Hawley
Tube-Lok

Per Erik Olson
Swederail

**SOUTHERN—Robert C. Fort,** special representative public relations, named manager of public relations, succeeding **Charles O. Morgret,** who retired after more than 42 years in the railroad industry, the last 18 with Southern.

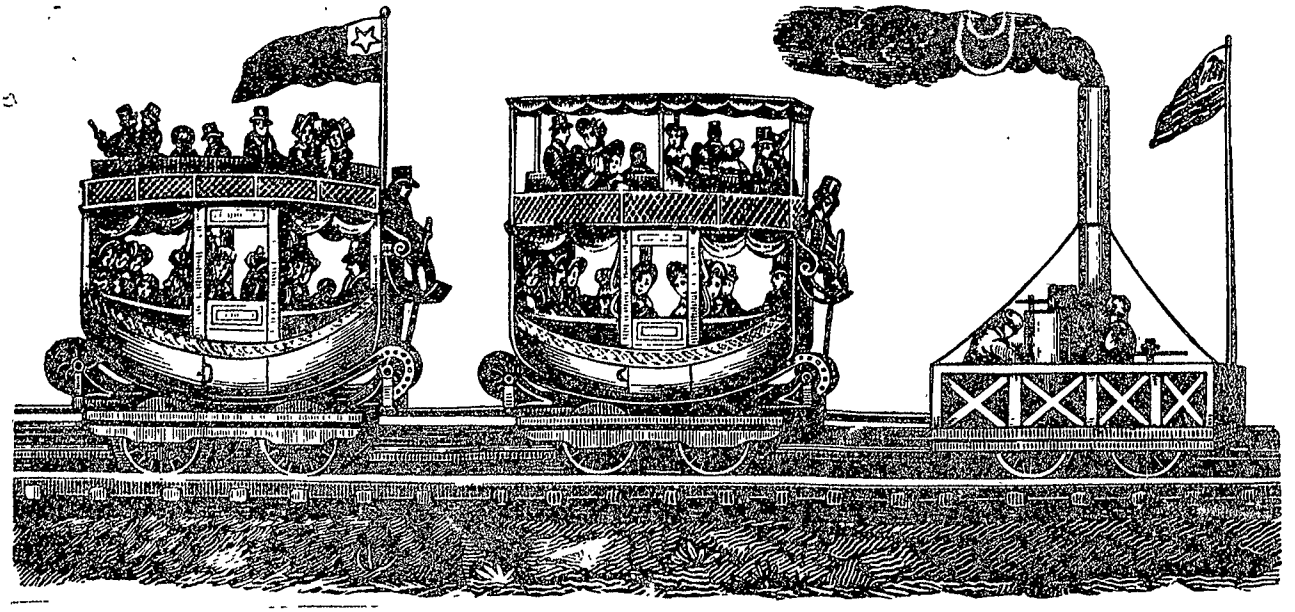
## Suppliers

**Joseph C. Janke,** vice president-marketing, **Westinghouse Air Brake Division, American Standard Inc.,** has been appointed vice president-international and business planning of American Standard's **Railway Products Group,** Pittsburgh. **Ronald W. Coiner,** manager-mass transit engineering, Westinghouse Air Brake Division, succeeds Mr. Janke as vice president-marketing.

**Howard Hawley** has been named product manager for railroad maintenance of way equipment, **Tube-Lok Products,** Portland, Ore. Mr. Hawley was formerly marketing services manager.

**Per Erik Olson,** a former Swedish State Railways research engineer who helped introduce Swedish-design (ASEA) locomotives into the United States, has been named president of a new Stockholm-based company, Swederail Consulting AB. The new firm, which will engage in international railway consulting, is a joint enterprise of Swedish State Railways and two Swedish consultants, Scandiaconsult AB and VIAK AB.

ARTICLES: "MASS TRANSIT'S NEW LOOK"



# BAY AREA RAPID TRANSIT

## Mass Transit's New Look

by Michael C. Healy
*Bay Area Rapid Transit District Press Officer*

In an age when public transportation is being revitalized throughout the nation, the advent of the Bay Area Rapid Transit system (BART) seems perfectly timed. But it was not mere coincidence that brought BART into being during this new period of mass transit consciousness.

As the first all new regional rail transit system to be built in the United States in over 60 years, BART is the result of some farsighted thinking stretching back almost a quarter of a century.

Following the post war building boom in the bay area there was growing local concern for the then developing problem of traffic congestion in key corridors as well as the future of regional mobility. As a result of this concern the California State Legislature, back in July of 1951, created a nine-county San Francisco Bay Area Rapid Transit Commission to study regional transit problems with an eye to long range transit planning.

**Creation of Rail System**

After several years of work on the study, the commission presented its report to the legislature. The report recommended that a bay area rapid transit district be created to build and operate a regional rail rapid transit system. And, that this new system act as a trunk line for a total bay area transportation concept. The plan, if adopted, would eventually include many other forms of transportation interfacing with the new system but indicated that further studies would be needed. A major objective of any plan, the report pointed out, would be orderly urbanization and economic expansion of the region while at the same time minimizing the need for additional freeways.

On June 4, 1957, not long after receiving the Transit Commission's final report, the legislature created a special five-county BART District which included Alameda, Contra Costa, Marin, San Francisco, and San Mateo Counties. The BART Act, which came under Public Utilities Code Section 28500, set up a 16 member policy-making board with representatives to be appointed from each of the five member counties on a population basis. Under the existing rules this allowed Alameda and San Francisco counties four representatives, Contra Costa and San Mateo Counties three representatives, and Marin County two representatives. The appointments were split up between the board of supervisors, and the city selection committees in each of the member counties. Board members would serve a four year term and be paid $50 per meeting up to a maximum of $250 per month.

The BART Board of Directors would be

charged with setting District policy; hiring the general manager, general counsel, treasurer, controller; and the District secretary, and authorizing the expenditure of funds. Preliminary to a referendum, the fledgling District was given certain taxing powers to cover administration costs and pay for needed engineering and financial studies. Such taxes would come from property owners in the member counties with a ceiling of 5¢ per $100 of assessed valuation.

**Locally Financed**

The District's immediate task was to develop a comprehensive plan for a rapid transit system complete with price tag for the basic construction. BART, as it happened, would be the largest locally financed public works project in the nation's history.

In 1959 the legislature passed a special bill to make money available to the District for construction of the transbay tube, the key link for the future system, from State Toll Bridge Authority bonds. However, the bill stipulated that such funds would only be available if BART was able to raise at least $500,000,000 or more locally for financing. Except for those who strongly believed in, or were directly connected with the project, there was little optimism that this could be achieved. It was already beginning to look like Marin and San Mateo Counties might eventually withdraw, and there was growing opposition to the project from some factions of the community.

Meanwhile the skeleton District staff and its consultants continued to work on the final plan which would be presented to the voters for approval in a referendum scheduled for the November 1962 ballot. A major portion of the work included, at the request of the District, participation in the planning, by each affected city and county. Such partnership in the planning process was considered important if the needs of the individual communities were to be met.

In order to give the project a fighting chance at the ballot box, the legislature amended the District Act to require 60 percent voter approval rather than the usual two-thirds ratio. Then, in December 1961 San Mateo supervisors voted to withdraw the county from the District. Following this, in early 1962, Marin County reluctantly withdrew after it was determined by Golden Gate Bridge District consultants that carrying trains across the Golden Gate Bridge was unfeasible. Now, with three counties making up the core District, the BART Board of Directors was reduced from 16 to 11 members. It was not until 1965 that the law on population requirements was changed which allowed for an additional representative from Contra Costa County to be added to the BART Board.

**Revision in Plans**

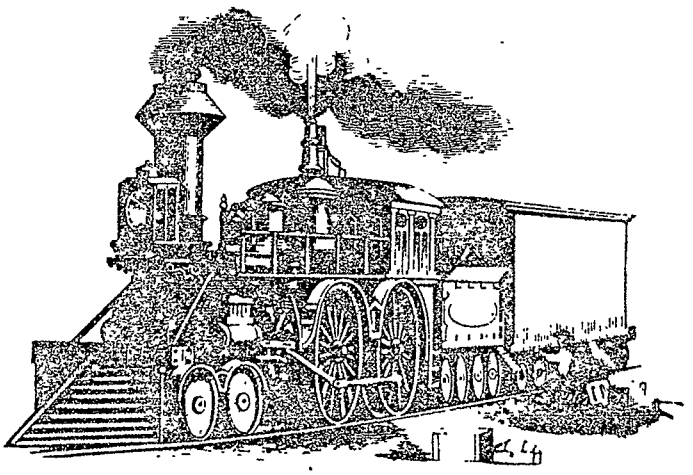
Now the District was primarily concerned with revising its initial five-county plan and concentrating on traffic between East Bay suburbs and city centers and San Francisco. The final three-county plan, called the Composite Report, was approved by the three Boards of Supervisors in July of 1962. In November, 1962, the voters of the three counties approved a $792 million general obligation bond issue for construction of the 75-mile project. Averaged out between the three counties, the proposition squeaked through with a little over 61 percent of the voters approving.

Following the referendum a taxpayers suit was filed in Contra Costa County challenging the validity of the election. In June of 1963, Contra Costa County Superior Court ruled in favor of the District, but the result was a seven month delay in completing the first phase of detail design work, and ultimately some delay in the start of construction.

**Changed Board**

Recently the structure of the BART Board of Directors was changed, by voter referendum, from an appointed board to an elected board, and reduced to nine members representing nine election districts. The new Board was elected on November 5, 1974, and officially took office on November 29.

Today, nearly 13 years after the Districts' enabling legislation, the basic system is complete and sleek BART trains are carrying passengers to and from 14 communities in the three member counties. Though much remains to be done in terms of operational tuning, and looking to the possibility of future extensions, BART has surely arrived on the scene at a most propitious time in the history of the Bay Area.



ARTICLES: ...
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May 18, 1981

# BART LOOKS TO MEETING THE CHALLENGES OF THE 80's

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According to BART Board President John Glenn, the "C" car, so named because it will comprise the capabilities of the transit system's current A and B cars, is one of the major elements in BART's long-range capital improvement plans.

Glenn, who chaired the transit district board's engineering committee during the development of the new car, said it would not only provide the needed capacity to meet rising patronage demands, but would also offer a great deal more operating flexibility than the current lead and mid-train cars. As an example, instead of taking a 10-car train back to the yard after rush hour and bringing out a shorter train, the design of the new car will allow BART to break up that train out on the main line, keep one part of it in service and deadhead the other section back to the yard. The "C" car will offer this capability which BART does not now have.

"This will result in energy and maintenance savings, as well as saving time."

Glenn noted that BART saw its highest patronage month since beginning operations back in 1972, this past April with over 4.2 million riders recorded. In fact, since April 1975 BART patronage has increased by better than 50 percent, from a weekday average of about 116,000 to the current average of 174,000.

BART is projecting that by June, 1986, ridership, which is already a year ahead of projections, could reach anywhere from 210,000 a day to 230,000 a day. To meet these projected demands, BART plans to purchase at least 90 of the new cars to add to the current fleet of 439.

2-2-2-2- BART LOOKS TO MEETING THE CHALLENGES OF THE 80's

Other major projects planned over the next five years include the purchase and installation of a new integrated control system which will provide more system capacity; a special turnback facility at the system's Daly City terminus to enhance train frequency and provide additional train storage for the system's west bay operations; completion of a new subway track through downtown Oakland, and a major program to improve the fire safety of the system, particularly the current transit car fleet. As a major step in this area, BART this past year completed the installation of all new fire-resistant seat cushions for its transit cars. The new seat cushions were manufactured from a low-smoke neoprene material chosen after a six months research and development program conducted by BART. They replaced the old polyurethane seat cushions.

BART President Glenn said that all of these projects and others are integral to each other and will all result in a further improved transit system.

This past year has already seen major improvements to the system's level of service and overall performance. In July 1980, while planning for the future, BART moved ahead on several fronts, beginning with the transition to "close headways" operation. Working off its primary train control and protection system with a backup system in place, BART began increased train frequency, and added a fourth line--the long-awaited direct service between Richmond and San Francisco/Daly City. Headways through downtown Oakland, transbay, and through San Francisco went from seven minutes during peak periods to about four minutes. With 42 trains operating instead of 33, as in the past, capacity was increased significantly, about 60 percent in the transbay corridor during the peak hours. BART followed the increase in weekday service in July with the addition of the fourth line (Richmond/Daly City) on Saturdays

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Another major undertaking in the 1980's will be able to extend BART by approximately 52 miles to outlying communities in Contra Costa County and Alameda County, and to the San Francisco International Airport from the Daly City Station. Extensive planning is now underway by BART to develop four major extensions of the system at an estimated cost of $1.7 billion. The policy adopted by the BART Board of Directors calls for the extension projects to be developed concurrently over about a 20-year span.

All in all, BART has made great strides over the past few years to reach its ultimate potential.

In a recent performance report to the BART Board of Directors, it was noted that since 1976 several major areas of operation have shown outstanding improvement. The percentage of BART's "on-time" performance has improved by 105 percent. In July 1976, BART was operating at only 46 percent level of "on-time" performance, while in March 1981 the system achieved a 94.9 percent level. The percentage of completed runs without train removals reached 99.3 percent last month, while in 1976 the system completed only 90 percent of its scheduled runs. The number of train removals, due to a variety of malfunctions, has improved by 59 percent, with only 2.2 trains per 1,000 car hous being taken out of service in March, as against 5.4 in July 1976.

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BART has now carried over 266,758,404 passengers over 3.5 billion miles without passenger fatility since it began operations in 1972.

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Public Information Office
October, 1981

SPECIAL TO PASSENGER TRANSPORT
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# NEWS RELEASE

BART

Mike Healy
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January 13, 1981

FOR IMMEDIATE RELEASE

BART - A YEAR-END ROUNDUP

BART saw its highest patronage year during 1980 with annual ridership reaching 45.3 million, some 99.5% of forecast. This represents an 8% increase over 1978 (1979 was not typical due to two periods of prolonged service interruption). Patronage exceeded forecast each month except January, February and December. At the beginning of the year, BART riders were still returning to the system following the labor dispute. In December, the economic downturn probably reduced the normal amount of shopping trips on BART.

Since BART began operating, the system has carried over 250,000,000 passengers more than 3.4 billion passenger miles. In the eastbay, ridership was approximately 87.5 million, westbay 67.4 million and transbay about 96 million.

As BART begins the new year, average daily ridership is running slightly over 160,000 which is ahead of forecast by about 5 percent for January. Historically, there has always been a dramatic dip in ridership at the beginning of a new year.

Also during the past year BART obtained permission from the California Public Utilities Commission (CPUC) to go forward with its plans to replace all of the seats in the fleet with a new cushion material made from a new low-smoke neoprene material. BART had conducted an extensive research and development program throughout the latter part of 1979 to find a suitable material to replace the polyurethane seats. Over 400 materials were evaluated in the process. The installation began in June, 1980, and was completed late in October of last year.

In June, BART received permission from the CPUC to proceed with its long-awaited Close Headways program which would allow more trains to be put into operation at one

— MORE —

time and pave the way for full direct Richmond/Daly City service, which began operating July 7, 1980.

The new direct service between Richmond and the westbay operates at a base 15-minute frequency from 6 a.m. to 6 p.m., Monday through Friday, immediately doubling service along the Richmond line serving the communities of El Cerrito, Albany, and Berkeley through downtown Oakland.

The number of trains operated on the system at one time was increased from 33 to 43. This translated into a 60% increase in the number of trains operated through the transbay tube in the peak hours (from 10 to 16). However, in preparing for the expanded service BART management cautioned that there were sure to be transition problems with operating under Close Headways.

"This will be a whole new way of operating this sytem," said BART General Manager Keith Bernard, "and we expect that there will be problems."

The problems did come and appeared to be most severe during September. Following several days of commute hour delays and disruptions, Bernard ordered that the schedule be adjusted with at least two trains removed, bringing the total number of trains operated at one time during the peak hour down to 41. A task force was also formed to correct wayside train control problems on a 24-hour per day basis. Once the new schedule was in place, the service did smooth out considerably when compared with the summer months.

Bernard said that part of the problem was due to train congestion in areas on the system which could easily become bottlenecks if a single train malfunctioned.

BART also raised fares for the first time since 1975 in order to keep up with escalating costs and to insure eligibility for operating subsidies as required by Assembly Bill 1107. Fares were raised on June 30 an average of 37 percent.

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3-3-3-3 BART - A YEAR-END ROUNDUP

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Work began in April of this year on the third track through downtown Oakland. The new 1.5 mile track from the Washington Street portal to the 23rd Street portal is the first new mainline track to be added to the BART system since regular train operations began in 1972. At the 12th Street and 19th Street BART Stations the new track, called the "K-E" track, will provide a crossover platform for passenger convenience. Also this new trackage will serve as a means of more easily removing malfunctioning trains from this part of the system.

On Saturday, October 1, 1980, BART began operating expanded Saturday service, by offering direct Richmond/Daly City trains as well as on weekdays. The new four-route Saturday service approximates BART's usual weekday service.

During 1980, BART adopted an extension policy which maps out the possiblity of eventual rail service to the Pittsburg-Antioch area, the Livermore-Pleasanton area, and the Warm Springs area, as well as the possible extension of BART to the San Francisco Airport. The extension plans cover the period of the next 20 years.

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Another improvement to system access was the start-up of the new "Loma Ranger" shuttle service which connects BART's Glen Park Station with the Miraloma Park neighborhood in San Francisco. The two-van shuttle service began on June 30.

In the coming year BART expects to complete the first phase of the KE track thrown downtown Oakland and see further improvements to service reliability when two modifications to the trains are completed. These modifications are the new Manual Control System (MCS) that will permit full normal operation of a train under manual control when the automatic control malfunctions, thus allowing the train to remain in service; and "cutout car" which will allow trains of certain lengths to remain in service even though one or possibly two cars may roll free due to a brake problem on those individual cars. BART hopes to have these two modifications completed by mid-1981.

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ARTICLES: YESTERDAY,
TODAY, TOMORROW"

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February 17, 1981 BART

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Since beginning operations little over eight years ago, BART alone has carried over 260,000,000 passengers more than 3.4 billion passenger miles. About 100 million of the trips taken have been transbay. This past year the system saw its highest patronage year to date with ~~45.3~~ about 50 million in ridership. And the ridership continues to grow.

Now that many of the systems early technical problems are behind it and many other improvements still in the works, it is projected that by 1985 well over 2~~5~~0,000 trips a day will be taken on the system. Average daily ridership is currently running about ~~264,000~~ 185,000

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Other projects call for completion of a third track through downtown Oakland to enhance overall operations, the installation of a new integrated computer system, and the construction of a turn-back facility at Daly City. The Daly City turn-back facility will allow the system to ultimately achieve a 2-minute train frequency, and will include a storage facility which will offer a savings by not having to deadhead trains back to the system's east bay yards after closing.

All 'n all, the bay area has come a long way in developing a regional transportation network from the days of General Goethals' proposal, and BART is a key trunk line component of the network which includes Muni, A. C. Transit, Golden Gate Transit, Samtrans, and Santa Clara County Transit. Together these systems carry well over a million passengers a day around the bay area.

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# BART PATRONAGE REPORT

## NO. 109

## FOR OCTOBER 1981

## BY BART OFFICE OF RESEARCH

BART monthly patronage for October was a record 4,540,391 trips. The daily record was also broken (twice) during the month. On Friday, October 9th, a daily record of 196,166 paid trips was established. Subsequently, on October 15th, a new daily record of 201,555 paid trips was set. Both were A's game days and included the resultant increased BART usage. Another record set for this month was the weekday average of 181,574 trips. This is the first time ever BART has averaged over 180,000 trips per weekday for a month.

While detailed line segment data is not yet available, it is apparent that much of this increased patronage is coming from the Transbay and Eastbay market segments (respectively 117% and 123% of forecast). While a seasonal increase in BART ridership was expected, recent trends seem particularly strong and persistent. Per Figure 1 the weekday ridership figures were at or above 180,000 for October, not including the two record days and Columbus Day, which was a partial holiday.

Attachments I & II give the regular summaries. Figure 2 gives fiscal year comparisons.

November 17, 1981

Attachment I

## TOTAL BART RAIL PATRONAGE[A]

MONTH: October 1981

| | # Days | Eastbay | Westbay | Transbay | TOTAL | Forecast | Sept.1981[B] TOTAL | Oct. 1980 TOTAL |
|---|---|---|---|---|---|---|---|---|
| Weekdays | 22 | 1,122,650 | 896,890 | 1,975,096 | 3,994,636 | 109.7 | 3,727,991 | 3,627,585 |
| Saturdays | 5 | 109,500 | 70,502 | 171,688 | 351,690 | 105.5 | 290,296 | 244,568 |
| Sundays | 4 | 82,971 | 28,995 | 82,099 | 194,065 | 121.9 | 182,696 | 166,243 |
| Holidays | 0 | - | - | - | - | - | 55,904 | --- |
| TOTAL | 31 | 1,315,121 | 996,387 | 2,228,883 | 4,540,391 | 109.9 | 4,256,887 | 4,038,396 |

## AVERAGE WEEKDAY BART RAIL PATRONAGE[C]

MONTH: October 1981[D]

| | Eastbay | Westbay | Transbay | TOTAL | Sept. 1981[B] TOTAL | Oct. 1980 TOTAL |
|---|---|---|---|---|---|---|
| A.M. Peak/2 hrs. | 11,951 | 11,149 | 24,268 | 47,368 | 45,114 | 43,323 |
| % Forecast | 123 | 115 | 117 | 118 | 114 | 128 |
| Daytime Off-Peak | 20,162 | 14,070 | 27,751 | 61,983 | 62,141 | 54,461 |
| % Forecast | 105 | 104 | 102 | 103 | 105 | 96 |
| P.M. Peak/2 hrs. | 12,317 | 11,346 | 24,072 | 47,735 | 46,911 | 39,935 |
| % Forecast | 111 | 115 | 116 | 114 | 115 | 102 |
| Evening Off-Peak | 6,599 | 4,203 | 13,686 | 24,488 | 23,358 | 20,002 |
| % Forecast | 102 | 104 | 106 | 104 | 101 | 83 |
| TOTAL Oct. 1981 | 51,029 | 40,768 | 89,777 | 181,574 | --- | --- |
| % Forecast | 110 | 110 | 110 | 110 | | |
| TOTAL Sept. 1981 | 48,415 | 39,879 | 89,230 | --- | 177,524 | --- |
| % Forecast | 106 | 109 | 111 | | 109 | |
| TOTAL Oct. 1980 | 46,702 | 37,285 | 73,734 | --- | --- | 157,721 |
| % Forecast | 107 | 101 | 100 | | | 102 |

## BUDGET PERIOD DATA

| | BUDGET PERIOD: SEPTEMBER 28 - OCTOBER 25, 1981 | | | | | | FY TO DATE | | |
|---|---|---|---|---|---|---|---|---|---|
| | # Days | Eastbay | Westbay | Transbay | TOTAL | Forecast (% of) | Budgeted | Actual | A/B (%) |
| Weekdays | 20 | 1,032,499 | 809,894 | 1,793,944 | 3,636,337 | 110.4 | 13,304,600 | 14,333,923 | 107.7 |
| Saturdays | 4 | 86,753 | 56,146 | 139,038 | 281,937 | 107.4 | 1,136,700 | 1,208,392 | 106.3 |
| Sundays | 4 | 82,971 | 28,995 | 82,099 | 194,065 | 121.9 | 695,800 | 771,997 | 111.0 |
| Holidays | 0 | - | - | - | - | - | 103,300 | 158,687 | 153.6 |
| TOTAL | 28 | 1,202,223 | 895,035 | 2,015,081 | 4,112,339 | 110.7 | 15,240,400 | 16,472,999 | 108.1 |

Attachment II

## BART RAIL TRIP DISTANCE AND FARE DATA

| | MONTH: OCTOBER 1981 | Sept. 1981 | Oct. 1980 |
|---|---|---|---|
| PASSENGER MILES - Average Weekday | 2,432,758 | 2,358,728 | 2,096,210 |
| TRIP LENGTH - Average Weekday | 13.40 | 13.47 | 13.29 |
| EXTRACTED FARE: | | | |
| Average Weekday | $1.042 | $1.046 | $1.031 |
| Average Saturday | 1.017 | 1.015 | 1.005 |
| Average Sunday | 1.022 | 1.037 | 1.012 |
| Holiday | --- | 1.032 | --- |

## BART RAIL HISTORICAL DATA AS OF OCTOBER 1981

| | PATRONAGE[B] | | | | PASSENGER MILES[B,E] (000) |
|---|---|---|---|---|---|
| | Eastbay | Westbay | Transbay | TOTAL | |
| Fiscal Year-to-Date | 4,926,479 | 3,805,799 | 8,713,626 | 17,445,904 | 235,875 |
| Calendar 1981 | 12,075,740 | 9,155,583 | 20,329,323 | 41,560,646 | 558,406 |
| TOTAL Since Start-Up | 99,145,051 | 76,475,097 | 116,969,416 | 292,589,564 | 3,864,179 |

## MONTHLY BAY AREA TRAVEL DATA-PATRONAGE COMPARISONS[F]

MONTH: September 1981

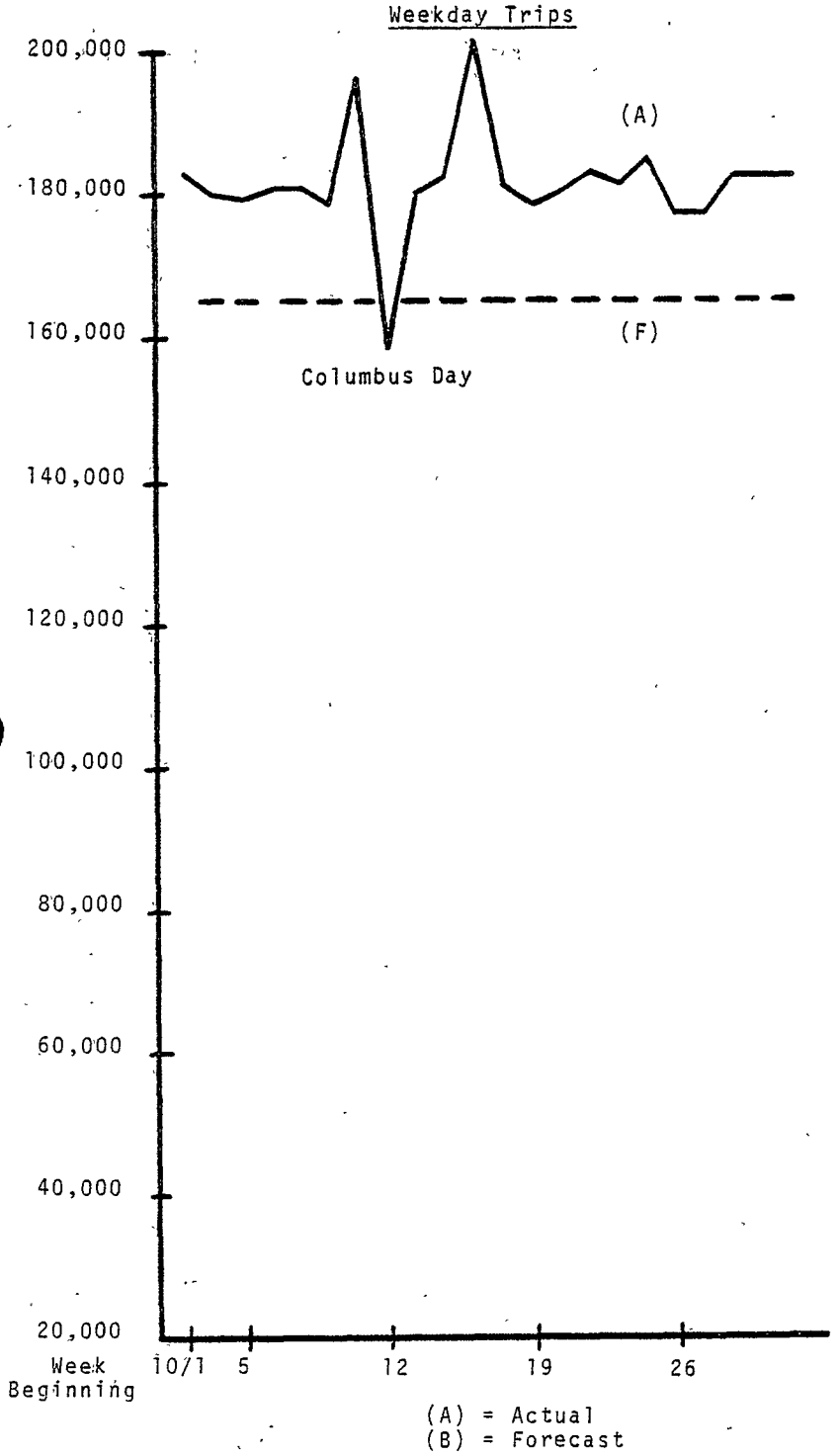
| | Eastbay | Westbay | Transbay | TOTAL | Aug. 1981 TOTAL | Sept. 1980 TOTAL |
|---|---|---|---|---|---|---|
| BART | | | | | | |
| Rail Passenger Trips | N.A. | --- | --- | N.A. | 4,278,454 | 3,681,520 |
| Express Bus Trips | N.A. | --- | N.A. | N.A. | N.A. | 211,684 |
| AC TRANSIT | N.A. | --- | N.A. | N.A. | N.A. | N.A. |
| SF MUNI | --- | N.A. | --- | N.A. | N.A. | 11,489,066 |
| TRANSFERS: | | | | | | |
| BART AC Transit | N.A. | --- | --- | N.A. | N.A. | N.A. |
| BART - SF MUNI | --- | N.A. | --- | N.A. | N.A. | 90,301 |
| S.F.-OAK BAY BRIDGE | | | | | | |
| Auto Person Trips[G] | --- | --- | 7,490,700 | 7,490,700 | 7,895,076 | 7,175,482 |
| GOLDEN GATE TRANSIT | | | | | | |
| Bus Only | --- | --- | N.A. | N.A. | 544,240 | 525,909 |

NOTES:
A. Number of operating days: October 1981= 31; September 1981 = 30; October 1980=31
B. Per the Errata Sheet, dated October 19, 1981, and issued with the September patronage report, these figures have been increased.
C. Does not include holidays.
D. October 1981 detail based on nine good data weekdays.
E. October 1981 passenger miles = 60,849,812. Budget period (9/28-10/25/81) = 55,141,086
F. Patronage reporting methods for the different Bay Area Rapid Transit Operators are currently under review. As new data is made available, this section will be updated or revised.
G. September 1981 estimate based on 3,075,000 total westbound vehicular trips (August 1981 = 3,241,000) with 87% assumed to be by automobiles and other non-commercial vehicles at 1.4 people per vehicle x 2 for traffic in both directions.

F I G U R E 1

COMPARISON OF FORECAST AND ACTUAL BART PATRONAGE

October 1981




Daily Averages: Actual vs. Forecast

Weekdays (22)

| | |
|---|---|
| Actual | 181,574 |
| Forecast | 165,500 |
| % of Forecast | 109.7 |

Saturdays (5)

| | |
|---|---|
| Actual | 70,338 |
| Forecast | 66,700 |
| % of Forecast | 105.5 |

Sundays (4)

| | |
|---|---|
| Actual | 48.516 |
| Forecast | 39,800 |
| % of Forecast | 121.9 |

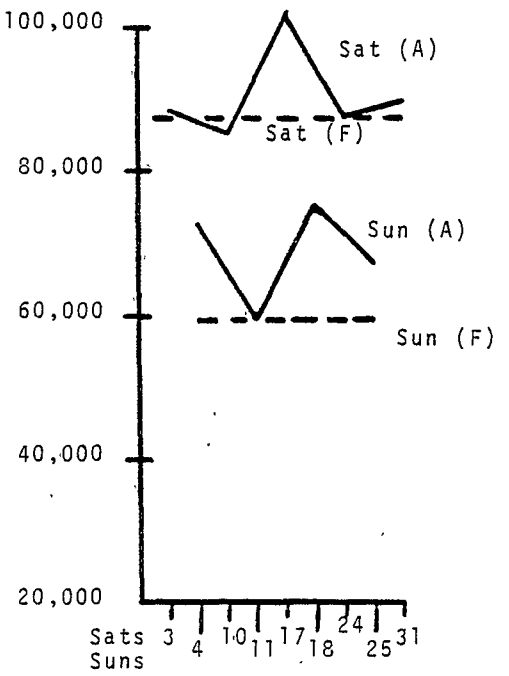
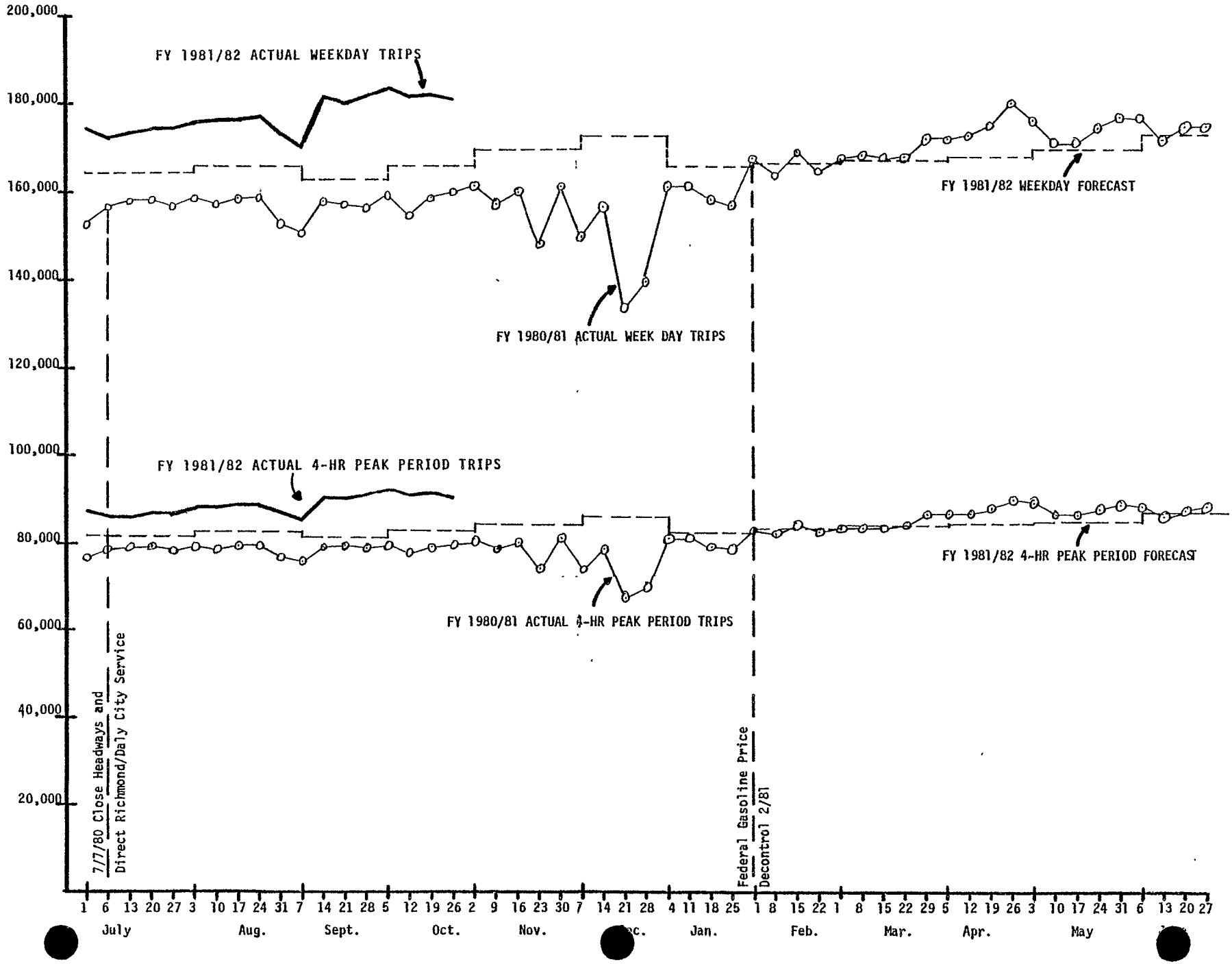


FIGURE 2

COMPARISON OF FORECAST AND ACTUAL BART PATRONAGE FOR FY 1981/82

AND ACTUAL BART PATRONAGE FOR FY 1980/81

AVERAGE WEEKDAY AND AVERAGE PEAK PERIOD TRIPS BY WEEK



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2-2-2-2- BART YESTERDAY, TODAY AND TOMORROW

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Other projects call for completion of a third track through downtown Oakland to enhance overall operations, the installation of a new integrated computer system, and the construction of a turn-back facility at Daly City. The Daly City turn-back facility will allow the system to ultimately achieve a 2-minute train frequency, and will include a storage facility which will offer a savings by not having to deadhead trains back to the system's east bay yards after closing.

All in all, the bay area has come a long way in developing a regional transportation network from the days of General Goethals' proposal, and BART is a key trunk line component of the network which includes Muni, A. C. Transit, Golden Gate Transit, Samtrans, and Santa Clara County Transit. Together these systems carry well over a million passengers a day around the bay area.

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Mike Healy
Department Manager-Public Affairs

BIOGRAPHICAL INFORMATION

ROBERT S. ALLEN

BART DIRECTOR - DISTRICT # 5

ROBERT S. ALLEN, Livermore, won a seat on the first elected BART Board of Directors in 1974, for a two year term. He has since been elected to serve four year terms, first in 1976, then again in 1980.

Director Allen is the immediate past Vice President of the BART Board of Directors. He is presently serving as Vice Chairperson of the BART Board's Engineering and Operations Committee, and is a member of the Public Information and Legislation Committee. Allen is BART's liaison to the Alameda/Contra Costa Transit District (A/C Transit).

A Livermore resident since 1958, Director Allen has worked extensively with scouting and other youth groups, LDS Church choral and drama productions, and taxpayer and other patriotic organizations. In 1978, he was the Republican 9th Congressional District nominee.

Director Allen has 23 years experience in railraod engineering and operations on three major railraods. Before joining Southern Pacific in 1965 he was a classification analyst with the University of California Lawrence Livermore Laboratory.

A member of the American Railway Engineering Association (AREA), he serves on its Committee 32 (Systems Engineering). Director Allen has served also on AREA Committee 16, which then dealt with the Economics of Railway Location and Operation.

Director Allen was born in Chicago and raised in Evanston, Illinois. He attended Rensselaer Polytechnic Institute in Troy, New York and graduated from the University of Colorado at Boulder with a BS (Bus) major in Accounting in 1949. He later attended the University of Colorado School of Law and did

( MORE )

-2-2-2-2- BIOGRAPHICAL INFORMATION

Robert S. Allen - BART Director, District #5

graduate work in business administration at Brigham Young University in Provo, Utah.

Robert S. Allen is married to the former Thelma Mae Call of Salt Lake City. The couple reside at 223 Donner Avenue, Livermore, with their 11-year old son Ronald. They have six other grown children and five grandchildren. They are active in the Livermore Second Ward, Pleasanton, California Stake, and The Church of Jesus Christ of Latter-day Saints (Mormon).

# # #

Office of Public Information

September 1982

BIOGRAPHICAL INFORMATION

ROBERT S. ALLEN

BART DIRECTOR - DISTRICT #5

ROBERT S. ALLEN, Livermore, won a seat on the first elected BART Board of Directors in 1974, for a two year term. He has since been elected to serve four year terms, first in 1976, then again in 1980.

Director Allen is the immediate past vice president of the BART Board of Directors. He is presently serving as vice chairperson of the BART Board's Engineering and Operations Committee, and is a member of the Public Information and Legislation Committee. Director Allen serves, with Director Margaret K. Pryor, as BART's Liaison to the Alameda Contra Costa Transit (AC Transit) District.

A Livermore resident since 1958, Director Allen has worked extensively with scouting and other youth groups, LDS Church choral and drama productions, and taxpayer and other patriotic organizations. In 1978, he was the Republican 9th Congressional District nominee.

Director Allen has 23 years experience in railroad engineering and operations on three major railroads. Before joining Southern Pacific in 1965 he was a classification analyst with the University of California Lawrence Livermore Laboratory.

(MORE)

2-2-2-2

BIOGRAPHICAL INFORMATION

Robert S. Allen - BART Director, District #5

A member of the American Railway Engineering Association (AREA), he serves on its Committee 32 (Systems Engineering). Director Allen has served also on AREA Committee 16, which then dealt with the Economics of Railway Location and Operation.

Director Allen was born in Chicago and raised in Evanston, Illinois. He attended Rensselaer Polytechnic Institute in Troy, New York and graduated from the University of Colorado at Boulder with a BS (Bus) major in accounting in 1949. He later attended the University of Colorado School of Law and did graduate work in business administration at Brigham Young University in Provo, Utah.

Robert S. Allen is married to the former Thelma Mae Call of Salt Lake City. The couple reside at 223 Donner Avenue, Livermore, with their 11 year old son Ronald. They have six other grown children and five grandchildren. They are active in the Livermore Second Ward, Pleasanton, California Stake, and the Church of Jesus Christ of Latter-Day Saints (Mormon).

# # #

Office of Public Information
September 1982

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BIOGRAPHICAL INFORMATION

ROBERT S. ALLEN

VICE PRESIDENT, BOARD OF DIRECTORS

Robert S. Allen of Livermore won a seat on the first elected BART Board of Directors in 1974 and was re-elected to a four-year term in 1976.

A Livermore resident since 1958, Allen has worked extensively with youth, LDS Church choral, taxpayer and patriotic groups. In 1978 he was the Republican nominee for Congress in California's 9th Congressional District.

As a member of the first elected BART board he has sought safe and efficient BART operation, all-night operation as soon as feasible, and charging city core property for the benefit it receives from BART (with a corresponding reduction in the burden on those deriving no direct benefit). Allen has long sought a heavy Daly City surcharge against Peninsula commuters who receive prime service but do not pay the property and sales taxes levied on BART District residents. He also opposes "so-called affirmative action programs," favoring in their place "color-blind" personnel policies with hiring and promotion based strictly on merit. He has campaigned for set-out tracks to minimize the effect a single train breakdown may have on the entire system. He dreams of BART running so well that San Mateo and Santa Clara Counties will want to buy into the system and BART can loop the Bay via San Jose.

Since 1965 Allen, an engineering cost analyst, has worked for the Southern Pacific Transportation Company in its Western Division Office in Oakland. He was a classification analyst with the University of California's Lawrence Livermore National Laboratory from 1958 to 1964, and before that worked for the Denver & Rio Grande Western Railroad, the

Colorado National Guard, and the Chicago and Northwestern Railroad.

A member of the American Railway Engineering Association, he serves on its Committee 32 (Systems Engineering). He has served on AREA Committee 16, which then dealt with the Economics of Railway Location and Operation.

Allen was born in Chicago, and raised in Evanston, Illinois. He attended Rensselaer Polytechnic Institute, Troy, New York, and graduated from the University of Colorodo at Boulder with a Bachelor of Science in Accounting in 1949. He later attended University of Colorado's School of Law and did graduate work in business administration at Brigham Young University, Provo, Utah.

Allen is married to the former Thelma Mae Call of Salt Lake City. The couple reside at 223 Donner Avenue, Livermore, with two of their seven children, Elizabeth, 18 and Ronald, 10.

Office of Public Information
October, 1980

BIOGRAPHICAL INFORMATION

NELLO BIANCO

BART DIRECTOR - DISTRICT #2

NELLO BIANCO of Richmond was appointed to the BART Board of Directors in 1969 by the Contra Costa County Board of Supervisors. He was reappointed in 1973, and in 1974 Director Bianco was chosen by the Electorate of BART's District #2 as their representative to the first elected BART Board of Directors. In that election he received the highest number of votes among all the 134 candidates running for the nine newly elected BART Board seats.

Unopposed in the 1978 election, Director Bianco has retained his position on the BART Board, and will seek re-election in 1982.

Director Bianco currently is Chairperson of BART Board's Engineering and Operations Committee. He is also a member of the El Cerrito Station Impact Study Committee and is an active participant in the Eastern Contra Costa County Light Rail Study.

Director Bianco, during his 15 years of service as a BART director, has served the District in a variety of capacities. In 1974 and then again in 1980, Director Bianco was president of the BART board. He served as Vice president in 1973, 1976 and 1978. In 1972 and 1979, Director Bianco chaired the board's Public Information and Legislation Committee and was chairperson of BART's Engineering and Operations Committee in 1970.

Director Bianco initiated the District's association with the University of California Lawrence Berkeley Laboratory, which has been a major factor in solving technical problems on the system. He also first called for major litigation against BART's principal suppliers and developers.

Director Bianco was very instrumental in arranging for the first citizens' advisory committee to study extension of BART's rail system within

( MORE )

2-2-2-2 BIOGRAPHICAL INFORMATION

Nello Bianco - BART Director, District #2

the three BART counties and he headed up the committee on the Pittsburg-Antioch Extension Study. He has also been a member of the Board of Directors of the American Public Transit Association. In March of 1977, Director Bianco was appointed to the Departmental Transporation Advisory Committee by then Speaker Leo T. McCarthy.

A native of Weed, California, Director Bianco's family moved to Richmond California in 1938. He has been a businessman in that city since 1954, and is an active community leader. In addition to serving on the Richmond Council, he has been a member of the Richmond Port Commission, the Richmond Redevelopment Commission, the Richmond Housing Authority Commission and the City of Richmond Personnel Board. Currently Director Bianco is a director of the Richmond Boys Club of America and the East Bay Chapter of the National Safety Council.

Director Bianco attended Golden Gate College in San Francisco and from 1951 to 1953 was with the Armed Forced in Korea.

Nello Bianco and his wife, the former Betty Anselmo of Martinez, reside in Richmond and have three children, Connie, Robert and Gary.

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Office of Public Information
September 1982

BIOGRAPHICAL INFORMATION

EUGENE GARFINKLE

PRESIDENT, BART BOARD OF DIRECTORS

BART DIRECTOR - DISTRICT #8

EUGENE GARFINKLE, a San Francisco attorney, was elected president of the BART Board of Directors in December 1981. He was originally appointed by the District Board of Directors to represent District #8, and was sworn into office on March 16, 1977. In November 1978, he was elected to the BART Board for a 4-year term and plans to run for office again in November 1982.

President Garfinkle has served on various board committees in 1979 and was elected by the Board to the position of Vice President. As BART President, he serves as an ex-officio member of all standing committees.

President Garfinkle is a partner in the law firm of Dreher, Dreher & Garfinkle in San Francisco. The law firm is in general practice, specializing in business and corporate affairs. He has had extensive experience in transportation and related matters.

He is a native of Oakland, Californa, having moved to San Francisco in 1956. He graduated from Oakland High School in 1947 and from the University of California at Berkeley in 1951 with a Bachelor of Science degree in Business.

President Garfinkle attended the University of California Law School at Berkeley and graduated in 1954 with a Juris Doctor. He also received a Master of Business Administration in 1962 from Golden Gate College in San Francisco.

He was an attorney with Southern Pacific Company from 1956 through 1964, and attained the title of Assistant General Attorney. He joined his present law firm in January 1965, and became a partner in January 1966.

( MORE )

-2-2-2-2- BIOGRAPHICAL INFORMATION

EUGENE GARFINKLE - BART Director, District #8

President Garfinkle is active in various business and professional organizations and is a member of the American Bar Association, Corporation Banking and Business Law Section; the California Bar Association and the Bar Assocaition of San Francisco.

Eugene Garfinkle and his family reside in the St. Francis Wood area of San Francisco.

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Office of Public Information

September 1982

BIOGRAPHICAL INFORMATION

JOHN W. GLENN

BOARD MEMBER - DISTRICT #6

JOHN W. GLENN, of Fremont, became the first elected BART Board member to represent District #6 in November 1974. He was re-elected in 1978 to a 4-year term and plans to run for re-election in November 1982.

In 1981, Director Glenn was president of the BART Board of Directors, having served the previous year as vice president. During his tenure on the BART Board, Director Glenn has served on all the board's standing committees. Currently he is chairperson of the Board's Administration Committee. Director Glenn has also served as chairperson of the Special Safety and Wage Review Committee and the special Ways and Means Committee.

Director Glenn is presently BART's voting member to the Executive Committee of the American Public Transit Association (APTA) and is also a member of APTA's Board of Directors. APTA is the transit industry's trade association and is headquartered in Washington, D. C.

Director Glenn has been a resident of the San Francisco Bay Area for 20 years. He is founder and owner of John Glenn Adjusters and Administrators, with offices in Oakland, Portland, San Rafael and San Jose.

Prior to founding his own firm in 1966, Glenn was Northern California Divisional Claims Manager for the Beneficial Group and was associated with that firm for 12 years. He is a member and past president of the East Bay

( MORE )

2-2-2-2 BIOGRAPHICAL INFORMATION

John W. Glenn - BART Director, District #6

Adjusters Association, member of the California Association of Independent Insurance Adjusters serving as president during this past year, and also a member of the National Association of Independent Insurance Adjusters, Oregon Casualty Adjusters and Central Coast Claims Association.

For his extraordinary achievements, Glenn has been listed in both "Who's Who in California Business and Finance 1980/81," and "Who's Who in California 1981/82."

A native of Puxico, Missouri, Glenn graduated in 1952 from Southeast Missouri State University at Cape Girardeau, Missouri, with a Bachelor of Science Degree in Marketing. He has done post-graduate work at the University of Missouri at Kansas City and California State University of Hayward.

During World War II and until 1948, Director Glenn saw extensive sea duty in the U. S. Maritime Service.

John Glenn is married to the former Betty Jo Berry of St. Louis, Missouri, and they have three children. The Glenn family reside in Fremont.

# # #

Office of Public Information
September 1982

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BIOGRAPHICAL INFORMATION

JOHN W. GLENN

BOARD OF DIRECTORS

BART President, John W. Glenn of Fremont, CA., has been a resident of the San Francisco Bay Area for 20 years. He is founder and owner of John Glenn Adjusters and Administrators with offices in Oakland, Portland, San Rafael, and San Jose.

Prior to founding his own firm in 1966, Glenn was Northern California Divisional Claims Manager for the Beneficial Group and was associated with that firm for 12 years. He is a member and past President of the East Bay Adjusters Association, member of the California Association of Independent Insurance Adjusters serving as President during this past year and also a member of the National Association of Independent Insurance Adjusters, Oregon Casualty Adjusters and Central Coast Claims Association.

On November 5, 1974, Glenn became the first elected Director of District #6 representing the cities of Fremont, Newark, Union City, Hayward and San Lorenzo to the BART Board of Directors. He was re-elected in 1978 for an additional four-year term. He has served as Chairman of all standing committees including Engineering and Operations, Administration, Public Information and Legislation, and has also served as Chairman of the Special Salary and Wage Review Committee and the Special Ways and Means Committee. During 1980 Glenn served as Vice President of the BART Board.

Glenn has been listed in the 1980-81 edition of "Who's Who in California Business and Finance."

Biographical Information

John W. Glenn

A native of Puxico, Missouri, Glenn graduated in 1952 from Southeast Missouri State University at Cape Girardeau, Missouri, with a Bachelor of Science Degree in Marketing. He has done post graduate work at the University of Missouri at Kansas City and California State University of Hayward.

Glenn saw extensive sea duty in the U. S. Maritime Service from 1945 to 1948.

He is married to the former Betty Jo Berry of St. Louis, Missouri, and they have three children. The Glenn family reside in Fremont.

Public Information Office

February 1981

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone (415) 465-4100

BIOGRAPHICAL INFORMATION

JOHN W. GLENN

BART DIRECTOR - DISTRICT #6

JOHN W. GLENN, District 6: First elected to board in 1974 and re-elcted in 1978 and 1982, served as Committee Chairman of all standing committees, Vice President in 1979 and President in 1981. Member of Board of Directors of American Public Transit Association. Founder and president of John Glenn Adjusters and Administrators. Director and past president of the East Bay Adjusters Association, past president of the California Association of Independent Insurance Adjusters, official of the National Association of Insurance Adjusters, past president and past area governor of Toastmasters International. Partner in Tri-Cities Apartment Complex and Industrial Park in Richland, Wash., Glen Cove Marina of California, Pointe Benecia, Kings 8, and has other real estate investments in southern California, Texas, Oklahoma, Missouri and Tennessee. Serves as a member of the Board of Regents of the Holy Family College, Fremont, CA. Graduated from Southeast Missouri State University, and did post-graduate work at University of Missouri, Kansas City, MO and California State University at Hayward, CA. Resides in Fremont with wife, Betty, and three children.

Office of Public Affairs
September, 1983

BIOGRAPHICAL INFORMATION

JOHN H. KIRKWOOD

BART DIRECTOR - DISTRICT #9

JOHN H. KIRKWOOD, BART Director representing District #9 in San Francisco, was elected to the Board in the first BART Board election held in November 1974. Director Kirkwood was re-elected in 1976 and then again in November 1980.

In 1979, Director Kirkwood served as president of the BART Board, having been elected, uninamously, by his colleagues. Director Kirkwood is currently Chairperson of the BART Board's Public Information and Legislation Committee. He also serves as a member of BART's Liaison Committee to the San Francisco Municipal Railway.

Director Kirkwood formerly served as transit advisor to the San Francisco Planning & Urban Research Association (SPUR), and is currently a businessman in San Francisco. He has served on the Boards of the Sacramento-Stockton Bay Area Corridor Study, the Northwest San Francisco Corridor Study, and the "BART Trails" Study (bicycle and hiking pathways coordinated with BART). He is currently a Board member of SPUR and the National Association of Railway Passengers. Director Kirkwood is also a member of Bay Area Electric Railway Association, California Tomorrow, the Planning and Conservation League, and the World Affairs Council.

Director Kirkwood was born in Palo Alto and raised in Saratoga, Sacramento and San Francisco areas. He graduated from Stanford University with a Bachelor of Arts degree.

John Kirkwood is currently residing in San Francisco.

Office of Public Information

September 1982

BIOGRAPHICAL INFORMATION

MARGARET K. PRYOR

BART DIRECTOR - DISTRICT #4

MARGARET K. PRYOR was first elected to the BART Board of Directors on November 4, 1980, to represent District #4, thus becoming the newest BART director. Director Pryor was first appointed to BART Board on August 28, 1980, to fill the vacancy caused by the resignation of Dr. Harvey Glasser. Director Pryor was elected to fill Dr. Glasser's unexpired term and will seek re-election to a full four year term on the BART Board at the November 1982 General Elections.

Director Pryor is presently Vice Chairperson of the BART Board's Public Information and Legislation Committee and is a member of the Engineering and Operations. She represents BART on Oakland's Downtown Circulation Project Committee.

Director Pryor brings to BART an extensive professional career of community involvement. For ten years, she was successfully engaged in organization planning, implementation and evaluation of programs addressing urban concerns. These activities include citizen participation, delivery of social services, public health, youth development, senior citizens, handicapped, criminal justice, transportation, housing and employment and affirmative action.

In addition, Director Pryor serves as advisor to the Governor's Office of Volunteerism and is active on a number of boards, including the National Women's Political Caucus, NAACP, the National Association of Neighborhoods, Black Women Organized for Political Action (BWOPA), and the Alameda County

( MORE )

-2-2-2-2- BIOGRAPHICAL INFORMATION

Margaret K. Pryor - BART Director, District #4

United Way Advisory Committee. She is also past vice president of the International Longshoremen and Warehousemen Union of Federated Women (ILWUFW).

Since 1977, Director Pryor has been with Oakland Citizen's Committee for Urban Renewal (OCCUR), where she holds the position of administrator. Previously she was assigned to personnel relations and equal opportunity programs at Kaiser Industries, Inc., and Kaiser Steel, Inc., both in Oakland.

In 1955, Director Pryor received a Bachelor of Arts Degree in Business from the Arizona State University at Tempe, Arizona, and was an MBA candidate during 1960-62 at the University of California at Berkeley. From 1965 through 1967, she continued her studies and completed Labor Relations and Negotiation courses at the University of San Francisco.

A resident of Oakland since 1956, Margaret K. Pryor is married and has two children and two grandchildren.

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Office of Public Information

September 1982

BIOGRAPHICAL INFORMATION

MARGARET K. PRYOR

BART DIRECTOR - DISTRICT #4

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Director Pryor is presently Vice Chairman of the BART Board's Public Information and Legislation Committee and is a member of the Engineering and Operations Committee. She represents BART on Oakland's Downtown Circulation Project Committee.

Director Pryor serves with Director Robert Allen as BART's Liaison to the Alameda Contra Costa Transit (AC Transit) District. Nationally, she is the Regional Representative to the American Public Transit Association (APTA).

(MORE)

BIOGRAPHICAL INFORMATION

Margaret K. Pryor - BART Director, District #4

Director Pryor brings to BART an extensive professional career of community involvement. For ten years, she was successfully engaged in organization, planning, implementation and evaluation of programs addressing urban concerns. These activities include citizen participation, delivery of social services, public health, youth development, senior citizens, handicapped, criminal justice, transportation, housing and employment and affirmative action.

In addition, Director Pryor serves as advisor to the Governor's Office of Volunteerism and is active on a number of boards, including the National Women's Political Caucus, NAACP, the National Association of Neighborhoods, Black Women Organized for Political Action (BWOPA), and the Alameda County United Way Advisory Committee. She is also past vice president of the International Longshoremen and Warehousemen Union of Federated Women (ILWUFW).

Since 1977 Director Pryor has been with Oakland Citizen's Committee for Urban Renewal (OCCUR), where she holds the position of Administrator. Previously she was assigned to personnel relations and equal opportunity programs at Kaiser Industries, Inc. and Kaiser Steel, Inc., both in Oakland.

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A resident of Oakland since 1956, Margaret K. Pryor is married and has two children and two grandchildren.

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Office of Public Information
September 1982

BIOGRAPHICAL INFORMATION

MARGARET K. PRYOR

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BIOGRAPHICAL INFORMATION

Margaret K. Pryor - BART Director, District #4

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A resident of Oakland since 1956, Margaret K. Pryor is married and has two children and two grandchildren.

# # #

Office of Public Information
September 1982

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone (415) 465-4100

BIOGRAPHICAL INFORMATION

# MARGARET K. PRYOR

## BART DIRECTOR - DISTRICT #4

MARGARET K. PRYOR was first elected to represent District 4 on the BART Board of Directors November 4, 1980, to complete an unexpired term of a BART director who had resigned. However, Director Pryor had been appointed to the BART Board on August 28, 1982, to fill the vacancy caused by this resignation.

Director Pryor was re-elected to a full four year term on the BART Board of Directors at the general elections held November 2, 1982.

Director Pryor is presently a member of the BART Board's Administration Committee. She is chairperson of BART's Liaison to the Alameda-Contra Costa Transit (AC Transit) District. She represents BART on Oakland's Downtown Circulation Project Committee, and the Coliseum Area Industrial Advisory Committee.

Nationally, she is the regional representative to the American Public Transit Association (APTA), the national public transit trade association. Director Pryor is an active member of the Governing Board of APTA and serves on APTA's Minority Affairs Committee.

Director Pryor brings to BART an extensive professional career of community involvement. For ten years she was successfully engaged in organization planning, implementation and evaluation of programs addressing urban concerns. These activities include citizen participation, delivery of social services, public health, youth development, senior citizens, handicapped, criminal justice, transportation, housing and employment, and affirmative action.

BIOGRAPHICAL INFORMATION - MARGARET K. PRYOR

Director Pryor is active on a number of boards, including the National Women's Political Caucus, NAACP, the National Association of Neighborhoods, Black Women Organized for Political Action (BWOPA), Transportation and Communications Committee of the National Black Caucus of Local Elected Officials, a part of the National League of Cities, and the Alameda County United Way Advisory Committee. She is also past vice president of the International Longshoremen and Warehousemen Union of Federated Women (ILWUFW).

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A resident of Oakland since 1956, Margaret K. Pryor is married and has two children and two grandchildren.

# # #

Office of Public Information
March 1983

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone (415) 465-4100

BIOGRAPHICAL INFORMATION

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BIOGRAPHICAL INFORMATION - MARGARET K. PRYOR

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A resident of Oakland since 1956, Margaret K. Pryor is married and has two children and two grandchildren.

# # #

Office of Public Information
March 1983

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
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BIOGRAPHICAL INFORMATION

## MARGARET K. PRYOR

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Director Pryor is presently a member of the BART Board's Administration Committee. She is chairperson of BART's Liaison to the Alameda-Contra Costa Transit (AC Transit) District. She represents BART on Oakland's Downtown Circulation Project Committee, and the Coliseum Area Industrial Advisory Committee.

Nationally, she is the regional representative to the American Public Transit Association (APTA), the national public transit trade association. Director Pryor is an active member of the Governing Board of APTA and serves on APTA's Minority Affairs Committee.

Director Pryor brings to BART an extensive professional career of community involvement. For ten years she was successfully engaged in organization planning, implementation and evaluation of programs addressing urban concerns. These activities include citizen participation, delivery of social services, public health, youth development, senior citizens, handicapped, criminal justice, transportation, housing and employment, and affirmative action.

BIOGRAPHICAL INFORMATION - MARGARET K. PRYOR

Director Pryor is active on a number of boards, including the National Women's Political Caucus, NAACP, the National Association of Neighborhoods, Black Women Organized for Political Action (BWOPA), Transportation and Communications Committee of the National Black Caucus of Local Elected Officials, a part of the National League of Cities, and the Alameda County United Way Advisory Committee. She is also past vice president of the International Longshoremen and Warehousemen Union of Federated Women (ILWUFW).

Since 1977, Director Pryor has been with Oakland Citizen's Committee for Urban Renewal (OCCUR), where she holds the position of Administrator. Previously, she was assigned to personnel relations and equal opportunity programs at Kaiser Industries, Inc., and Kaiser Steel, Inc., both in Oakland.

In 1955, Director Pryor received a Bachelor of Arts degree in business from the Arizona State University at Tempe, Arizona, and was an MBA candidate during 1960-62 at the University of California at Berkeley. From 1965 through 1967, she continued her studies and completed labor relations and negotiation courses at the University of San Francisco.

A resident of Oakland since 1956, Margaret K. Pryor is married and has two children and two grandchildren.

# # #

Office of Public Information
March 1983

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone (415) 465-4100

BIOGRAPHICAL INFORMATION

## MARGARET K. PRYOR

## BART DIRECTOR - DISTRICT #4

MARGARET K. PRYOR was first elected to represent District 4 on the BART Board of Directors November 4, 1980, to complete an unexpired term of a BART director who had resigned. However, Director Pryor had been appointed to the BART Board on August 28, 1982, to fill the vacancy caused by this resignation.

Director Pryor was re-elected to a full four year term on the BART Board of Directors at the general elections held November 2, 1982.

Director Pryor is presently a member of the BART Board's Administration Committee. She is chairperson of BART's Liaison to the Alameda-Contra Costa Transit (AC Transit) District. She represents BART on Oakland's Downtown Circulation Project Committee, and the Coliseum Area Industrial Advisory Committee.

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BIOGRAPHICAL INFORMATION - MARGARET K. PRYOR

Director Pryor is active on a number of boards, including the National Women's Political Caucus, NAACP, the National Association of Neighborhoods, Black Women Organized for Political Action (BWOPA), Transportation and Communications Committee of the National Black Caucus of Local Elected Officials, a part of the National League of Cities, and the Alameda County United Way Advisory Committee. She is also past vice president of the International Longshoremen and Warehousemen Union of Federated Women (ILWUFW).

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A resident of Oakland since 1956, Margaret K. Pryor is married and has two children and two grandchildren.

# # #

Office of Public Information
March 1983

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BIOGRAPHICAL INFORMATION

# MARGARET KATHERINE PRYOR

## BOARD OF DIRECTORS

Margaret Katherine Pryor was appointed to the Board of Directors on August 28, 1980, to fill the vacancy from District 4, which resulted from the resignation of Dr. Harvey W. Glasser, which became effective August 1, 1980. BART's District 4 encompasses the areas of East Oakland and Alameda. Mrs. Pryor will serve on an interim basis until November 4, 1980, when she must stand for election to serve the balance of the Glasser term which runs until November, 1982.

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Presently, Mrs. Pryor is the Community Development Specialist with the Oakland Citizens Committee for Urban Renewal (OCCUR), a position she has held since 1977. Previously she was assigned to personnel relations and equal opportunity programs at Kaiser Industries, Inc., and Kaiser Steel, Inc., both in Oakland.

In 1956, Mrs. Pryor received a Bachelor of Arts Degree from the Arizona State University at Tempe, Arizona. She was an MBA Candidate during 1960-62 at the University of California at Berkeley, and between 1965-67 took Labor Relations and Negotiations courses at the University of San Francisco.

A resident of Oakland since 1955, Mrs. Pryor is married, has two children and two grandchildren.

Office of Public Information
September 5, 1980

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BIOGRAPHICAL INFORMATION

# MARGARET KATHERINE PRYOR

## BOARD OF DIRECTORS

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A resident of Oakland since 1955, Mrs. Pryor is married, has two children and two grandchildren.

Office of Public Information
September 5, 1980

BART
BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BIOGRAPHICAL INFORMATION

# MARGARET KATHERINE PRYOR

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A resident of Oakland since 1955, Mrs. Pryor is married, has two children and two grandchildren.

Office of Public Information
September 5, 1980

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BIOGRAPHICAL INFORMATION

# MARGARET KATHERINE PRYOR

## BOARD OF DIRECTORS

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A resident of Oakland since 1955, Mrs. Pryor is married, has two children and two grandchildren.

Office of Public Information
September 5, 1980

BIOGRAPHICAL INFORMATION

ARTHUR J. SHARTSIS

VICE-PRESIDENT, BART BOARD OF DIRECTORS

BART DIRECTOR - DISTRICT #3

ATHUR J. SHARTSIS, a San Francisco attorney, was first elected to the BART Board of Directors representing District #3 in November 1976, and was re-elected in November 1980.

Director Shartsis is presently the Vice President of the BART Board of Directors and serves as an ex-officio member of all standing committees. He is also a member of the El Cerrito Station Impact Study.

Director Shartsis is a partner in the law firm of Shartsis, Friese & Ginsburg in San Francisco. His firm specializes in general corporate practice. His wife, Mary Jo, an attorney in the same firm, specializes in anti-trust law.

Director Shartsis was raised in the North Hollywood area of Los Angeles. After graduating from the University of California at Berkeley in 1967, he studied political science at Oxford University in England, then returned to Berkeley and the University of California Law School. He entered law practice in 1971 with the San Francisco firm of Morrison & Foerster. In June 1975 he and his partners established their own firm.

Arthur J. Shartsis and his wife reside in Oakland with their two sons, Alexander, Age 3, and 6-month old, Matthew.

# # #

Office of Public Information
September 1982

BIOGRAPHICAL INFORMATION

## BARCLAY SIMPSON

## BART DIRECTOR - DISTRICT #1

BARCLAY SIMPSON, a widely known businessman and civic leader, was first elected to the BART Board of Directors in November 1976 to represent District #1. He was re-elected to serve a four-year term in November 1980.

Presently he is a member of the Board's Administration Committee and serves as BART's representative on the Pleasant Hill Station Impact Study Group. In 1979, Director Simpson was President of the BART Board of Directors. Also, Director Simpson is BART's liaison with the Metropolitan Transportation Commission (MTC). In 1979, Director Simpson served as president of the BART Board of Directors.

Director Simpson is chairman of the board of the Simpson Company, a multi-plant manufacturing and construction services company headquartered in San Leandro. He is also the owner of the Barclay Simpson Art Gallery in Lafayette.

Director Simpson is a member of Robert Gordon Sproul Associates of the University of California and served two terms as a trustee of John Muir Hospital.

Director Simpson received a Bachelor of Science degree in Business Administration from the University of California at Berkeley and completed the Stanford Business School Graduate Executive Program. During World War II, he served with U. S. Navy and was stationed on an aircraft carrier as an aircraft pilot.

Barclay Simpson resides in Orinda with his wife Sharon and their three children.

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Office of Public Information
September 1982

BIOGRAPHICAL INFORMATION

WILFRED T. USSERY

BART DIRECTOR - DISTRICT #7

WILFRED T. USSERY, a San Francisco Urban Planner, was elected to the BART Board of Directors, representing District #7, in November 1978, in order to fill the unexpired term of Ella Hill Hutch, who had become a member of the San Francisco Board of Supervisors. Director Ussery was elected in November 1980 to full four year term of office.

Director Ussery is presently the Vice Chairperson of the BART Board's Administration Committee and is a member of the BART Liaison Committee to the San Francisco Municipal Railway.

As the Director of Program Development for the San Francisco Housing Authority, Director Ussery brings to the BART Board both experience and expertise in architecture, urban design and community development. He administers a construction and housing rehabilitation budget of nearly $30 million and supervises a staff of 13.

Born in Pine Bluff, Arkansas, Director Ussery came to Berkeley, California, in 1943. He attended Berkeley public schools, San Francisco city College and the University of Calfiornia at Berkeley.

As National Chairman of the Congress of Racial Equality (CORE) from 1967 to 1969, Director Ussery was a principal strategist in the movement to open job opportunities to minorities and women in the Bay Area. Through his active involvement and in his capacity as a board member and Chairman of a National civil rights organization, Director Ussery laid the groundwork for Affirmative Action policies and procedures in use nationwide.

( MORE )

2-2-2-2- BIOGRAPHICAL INFORMATION

WILFRED T. USSERY - BART Director - District #7

In his current position and in previous urban planning projects, such as functioning as a member of the design team for the Oakland Coliseum, Director Ussery has gained valuable insights into the process of adapting huge and costly projects to serve the needs of the people.

As an urban planner and community development specialist, Director Ussery believes "The time has come to begin planning long range goals for BART, beyond just moving people from place to place." He has become an advocate of the view "that each BART station can play a vital role in the economic and social development of the neighborhood or community in which it is located."

Director Ussery is a member of the San Francisco Black Leadership Forum. He is also a founding member of the Bay Area Black United Fund and is currently serving as its Treasurer, member of its Executive Committee and Board of Directors.

WILFRED T. USSERY resides in San Francisco with his wife Maxine.

# # #

Office of Public Information

September 1982

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BIOGRAPHICAL INFORMATION

# ROSLYN L. BALTIMORE

## BOARD OF DIRECTORS

Roslyn L. Baltimore, a San Francisco businesswoman, was appointed to the BART Board of Directors on February 21, 1978 by vote of the Board to represent District No. 7.

Director Baltimore was formerly an Assistant Vice President with Wells Fargo Bank and currently heads her own consulting firm specializing in real estate development in low and moderate income housing.

A native of New York, Ms. Baltimore received her Bachelor of Arts degree from Boston University in 1964, and a Masters degree from Harvard Graduate School of Education in 1970. Director Baltimore also received a Masters degree in Business Administration from Harvard Graduate School of Business Administration in 1972.

Ms. Baltimore has been a California Real Estate Broker since 1975, and was Vice-President of the Board of Booker T. Washington Community Center in San Francisco. She is a member of the Black Leadership Forum, Black Women Organized for Action and Women Entrepreneurs. Ms. Baltimore is also a member of the Advisory Board for National Housing Law Project, Multifamily Demonstration Project, a former member of the Urban Affairs Committee of the Mortgage Bankers Association of Northern California, a member of the Commonwealth Club and the Toastmasters.

Director Baltimore resides in San Francisco.

Office of Public Information
April 6, 1978

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BIOGRAPHICAL INFORMATION

# HARVEY W. GLASSER, M.D.

## BOARD OF DIRECTORS

Harvey W. Glasser, M.D., of Alameda was elected to the Board of Directors of the San Francisco Bay Area Rapid Transit District on November 5, 1974, by voters of the Fourth BART District.

Dr. Glasser brings to the first elected BART Board a strong interest in the quality and professionalism of the BART staff. His special areas of concern are selection of high-quality management, the District affirmative action program, user access and information systems.

A resident of the Bay Area since 1959, Dr. Glasser is the founder and president of Western Hospital Corporation, a hospital consulting and managment firm in Alameda. He has become widely known through a broad range of professional and civic activities and an interest in environmental and conservation causes.

Dr. Glasser is a Board member of the Exploratorium in San Francisco and the California Historical Society. He is a member and supporter of a number of other organizations in the Bay Area, including KQED public television station, the Sierra Club, ACEP, AMA, the Oceanic Society, and the Commonwealth Club.

Dr. Glasser was born in Chicago and raised in the Chicago and Glencoe areas. He attended the University of Illinois and the Sorbonne in Paris as an undergraduate. He received his M.D. from the University of Chicago School of Medicine in 1959, and served residencies in psychiatry

at Stanford University Hospital in Palo Alto and Mt. Zion Hospital in San Francisco.

He served for two years in U.S. Public Health Service Hospitals at Staten Island, New York and Lexington, Kentucky.

A confirmed outdoorsman, his interests include skiing, hiking, and sailing. He has been a private pilot for 22 years.

Dr. Glasser is married to the former Cynthia Neuhaus of Berkeley. The couple have three children, Caitlin, eight; Jennifer, six; and Mary Elizabeth, four years. The Glassers reside in Alameda.

Dr. Glasser was elected to serve as President of BART Board for calendar year 1978 by his fellow Directors.

Public Information Office
September, 1978

BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street
Oakland, California 94607
Telephone 465-4100

BIOGRAPHICAL INFORMATION

# ELLA HILL HUTCH

## VICE PRESIDENT, BOARD OF DIRECTORS

Ella Hill Hutch was elected to the Board of Directors of the Bay Area Rapid Transit District on November 5, 1974, by voters of the Seventh BART District. She was elected vice president of the Board on December 9, 1976.

Before being named vice president Ms. Hutch served as Chairperson of the Administration Committee, and before that as Vice Chairperson of the Public Information and Legislation Committee.

A resident of San Francisco, Ms. Hutch has served on the staff of a major trade union organization since 1953, is a member of the Office and Professional Employees International Union, Local 29, and is active in a wide range of social and political causes and organizations. Currently she is Vice Chairperson of the Issues and Resolutions Committee of the Democratic County Central Committee, and is also a member of the California State Democratic Party's Central Committee and Affirmative Action Task Force.

Ms. Hutch was born in Kissimmee, Florida and studied in the areas of business and sociology at City College of San Francisco and San Francisco State University.

She is a trustee of the Glide Foundation and one of the founders of the Black Women Organized for Political Action.

Public Information Office
December, 1976


RIDE
BART
TO


BART
COMES TO
SAN FRANCISCO

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BUDGETED SOURCES OF OPERATING FUNDS

| OPERATING REQUIREMENTS | FY1981/82 (Millions) | FY1982/83 (Millions) |
|---|---|---|
| Net Operating Expense | $120.4 | $133.2 |
| Capital Allocations: | | |
| Improvement Allowance | $ 2.6 | $ 2.7 |
| Right of Way Purchase | -0- | 2.0 |
| Revenue Bond Debt Service | -0- | 5.5 |
| Capitalized Planning Expense | -0- | 0.5 |
| Total Operating Requirements | $123.0 | $143.9 |
| **BUDGETED SOURCES OF FUNDING** | | |
| Operating Revenues | | |
| - Fares | $ 46.8 | $ 63.3 |
| - Others (advertising revenues, etc.) | 5.0 | 3.9 |
| Total: | $ 51.8 | $ 67.2 |
| ½ cent sales tax - Three BART counties (75% BART share) | $ 62.7 | $ 66.1 |
| ½ cent sales tax - Three BART counties (25% allocated share. Available funds allocated by Metropolitan Transportation Commission to BART, MUNI and AC Transit) | $ -0- | $-0- |
| Property taxes prior to Proposition 13. These funds were available from what was a five-cent general fund property tax. This tax was authorized by the California State Legislature in 1957 for administrative costs. Current estimate reflects reduction in property tax revenue experienced by BART and all other local agencies since Proposition 13. | $ 3.0 | $ 4.4 |
| Transportation Development ACT (TDA). These funds are allocated by the Metropolitan Transportation Commission and are derived from sales tax revenues, and represent funds for which no other agency qualifies. | $ 5.3* | $ 3.0* |
| U. S. Urban Mass Transportation Administration Act, Section 5 Operating funds. These funds are allocated by the Metropolitan Transportation Commission | $ -0- | $ -0- |
| Total Operating Sources | $122.8 | $140.7 |
| NET FINANCIAL RESULT (DEFICIT) | $ (0.2)** | $ (3.2)** |

* Requested from the Metropolitan Transportation Commission
** To be funded from operating reserves

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BUDGETED SOURCES OF OPERATING FUNDS

| OPERATING REQUIREMENTS | FY1981/82 (Millions) | FY 1982/83 (Millions) |
|---|---|---|
| Net Operating Expense | $120.4 | $133.2 |
| Capital Allocations: | | |
| Improvement Allowance | $ 2.6 | $ 2.7 |
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| Total Operating Requirements | $123.0 | $143.9 |
| **BUDGETED SOURCES OF FUNDING** | | |
| Operating revenues | | |
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| - Others (advertising revenues, etc.) | 5.0 | 3.9 |
| Total: | $ 51.8 | $ 67.2 |
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| Transportation Development Act (TDA). These funds are allocated by the Metropolitan Transporatation Commission and are derived from sales tax revenues, and represent funds for which no other agency qualifies. | $ 5.3* | $ 3.0* |
| U. S. Urban Mass Transportation Administration Act, Section 5-Operating funds. These funds are allocated by the Metropolitan Transporattion Commission. | $ -0- | $ -0- |
| Total Operating Sources | $122.8 | $140.7 |
| NET FINANCIAL RESULT (DEFICIT) | $ (0.2)** | $ (3.2)** |

*Requested from the Metropolitan Transportation Commission

**To be funded from operating reserves

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BUDGETED SOURCES OF OPERATING FUNDS

| OPERATING REQUIREMENTS | FY1981/82 (Millions) | FY1982/83 (Millions) |
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| Transportation Development ACT (TDA). These funds are allocated by the Metropolitan Transportation Commission and are derived from sales tax revenues, and represent funds for which no other agency qualifies. | $ 5.3* | $ 3.0* |
| U. S. Urban Mass Transportation Administration Act, Section 5 Operating funds. These funds are allocated by the Metropolitan Transportation Commission | $ -0- | $ -0- |
| Total Operating Sources | $122.8 | $140.7 |
| NET FINANCIAL RESULT (DEFICIT) | $ (0.2)** | $ (3.2)** |

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** To be funded from operating reserves

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

# BUDGETED SOURCES OF OPERATING FUNDS
# FY 1981/82

## OPERATING BUDGET FY 1981/82

| | |
|---|---|
| $ 120.2 | Million Operating Expense |
| 2.6 | Improvement Allowance |
| $ 122.8 | Million Total Operating Requirements |

## BUDGETED SOURCES OF FUNDING FY 1981/82

| | |
|---|---|
| $ 51.8 | Million from operating revenue (fares, advertising revenue, etc.). |
| $ 62.7 | Million from 1/2 cent sales tax (75% BART share). |
| $ -0- | Million from 1/2 cent sales tax (25% regionally allocated share. Available funds allocated by Metropolitan Transportation Commission to other transit operators). |
| $ 3.0 | Million from what, before Proposition 13, was a five-cent general fund property tax. This tax was authorized by the California State Legislature in 1957 for administrative costs. Current estimate reflects reduction in property tax revenue experienced by BART and all other local agencies since Proposition 13. |
| $ 5.3* | Million from Transit Development Act (TDA) funds. This money is administered by the Metropolitan Transportation Commission and is derived from local share of gasoline tax revenue. |
| $ -0- | Million U. S. Urban Mass Transportation Administration (UMTA), Section 5 (available funds allocated by Metropolitan Transportation Commission to other transit operators). |

## TOTAL

$ 122.8** Million total operating sources

* Requested from Metropolitan Transportation Commission
** Budgeted deficit of $0.04 Million

Public Affairs Department
August, 1981

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

# BUDGETED SOURCES OF OPERATING FUNDS
# FY 1981/82

## OPERATING BUDGET FY 1981/82

| | |
|---|---|
| $ 120.2 | Million Operating Expense |
| 2.6 | Improvement Allowance |
| $ 122.8 | Million Total Operating Requirements |

## BUDGETED SOURCES OF FUNDING FY 1981/82

| | |
|---|---|
| $ 51.8 | Million from operating revenue (fares, advertising revenue, etc.). |
| $ 62.7 | Million from 1/2 cent sales tax (75% BART share). |
| $ -0- | Million from 1/2 cent sales tax (25% regionally allocated share. Available funds allocated by Metropolitan Transportation Commission to other transit operators). |
| $ 3.0 | Million from what, before Proposition 13, was a five-cent general fund property tax. This tax was authorized by the California State Legislature in 1957 for administrative costs. Current estimate reflects reduction in property tax revenue experienced by BART and all other local agencies since Proposition 13. |
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| $ -0- | Million U. S. Urban Mass Transportation Administration (UMTA), Section 5 (available funds allocated by Metropolitan Transportation Commission to other transit operators). |

## TOTAL

$ 122.8** Million total operating sources

* Requested from Metropolitan Transportation Commission
** Budgeted deficit of $0.04 Million

Public Affairs Department
August, 1981

Form No. 0061

BAY AREA RAPID TRANSIT

Routing Slip

S. Mouber
From

8/20/81
Date Initiated

| To | Person | Initials |
|---|---|---|
| 1 | Ward Belding | WBB |
| 2 | Sy Mouber | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Use Routing Sequence Numbers to Designate Person Concerned

___ Referred for appropriate action
___ For concurrence
___ For comment
___ For information
X For approval
___ Please discuss with me
___ Read and retain
___ Return before filing
___ Note & send to central files

Comments:

Please return to me with your comments or approval.

Suggested additions indicated on attached. I think the Budget Officer should review & OK this.

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BUDGETED SOURCES OF OPERATING FUNDS
FY 1981/82

OPERATING BUDGET FY 1981/82

| | | |
|---|---|---|
| $ 120.2 | Million | Operating Expense |
| 2.6 | Million | Improvement Allowance |
| $ 122.8 | Million | Total Operating Requirements |

SOURCES OF FUNDING FY 1981/82

| | |
|---|---|
| $ 51.8 | Million from operating revenue (fares, advertising revenue, etc.) |
| $ 62.7 | Million from 1/2 cent sales tax (75%) BART share) |
| $ -0- | Million from 1/2 cent sales tax (25%) regionally allocated share) |
| $ 3.0 | Million from what, before Proposition 13, was a five-cent general fund property tax. This tax was authorized by the California State Legislature in 1957 for administrative costs. Current estimate reflects reduction in property tax revenue experienced by BART and all other local agencies since Proposition 13. |
| $ 5.3* | Million from Transit Development Act (TDA) funds. This money is administered by the Metropolitan Transportation Commission and is derived from local share of gasoline tax revenue. |
| $ -0- | Million U. S. Urban Mass Transportation Administration (UMTA), Section 5/ Available funds allocated by MTC to other operators. |

TOTAL

$ 122.8 Million, (Budgeted) leaving a deficit of $ 0.04 Million

Total Operating Sources

Also after

* Requested from MTC

Public Affairs Department
August, 1981.

Form No. 005

**BAY AREA RAPID TRANSIT**

**Routing Slip**

LWD — From

8/3 — Date Initiated

| To | Person | Initials |
|---|---|---|
| 1 | Ey Monbeck | |
| 2 | J CMA — J | |
| 3 | | |
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| 5 | | |
| 6 | | |
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| | | |
| | | |
| | | |
| | | |

Use Routing Sequence Numbers to Designate Person Concerned

X — Referred for appropriate action

___ For concurrence

___ For comment

___ For information

___ For approval

___ Please discuss with me

___ Read and retain

___ Return before filing

___ Note & send to central files

Comments:

Per your request

Note that figures reflect BD approved budget but do not agree with MTC authorized TDA/Section 5 allocation to BART for 81/82

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BUDGETED
SOURCES OF OPERATING FUNDS
FY 1981/82

81/82 OPERATING BUDGET FY 1980/81

| | | | |
|---|---|---|---|
| 120.2 | $ 105.5 ✓ | Million | |
| 2.6 | 2.5 ✓ | Million | Improvement Allowance |
| 122.8 | $ 108.0 ✓ | Million | |

SOURCES OF FUNDING

| | | |
|---|---|---|
| 51.8 | $ 45.5 ✓ | Million from operating revenue |
| 62.7 | $ 56.6 ✓ | Million from 1/2 cent sales tax (75%) |
| -0- | $ -0- | Million from 1/2 cent sales tax (25%) |
| 5.0** | $ 3.6* ✓ | Million from ½ cent general fund property tax. This tax was authorized by the State Legislature in 1957 for administrative costs. Prior to Proposition 13 was a ~~What before~~ Property tax. Obsolete. Current estimate reflects reduction in revenue experienced by BART and all other local agencies since Prop. 13. |
| 5.3# | $ 1.7 ✓ | Million from Transit Development Act (TDA) funds. This money is administered by the Metropolitan Transportation Commission and is derived from local share of gas tax revenue. |
| -0- | $ .5 ✓ | Million U. S. Urban Mass Transportation Administration (UMTA), Section 5. |

TOTAL

$ 107.9 ✓ Million, leaving a deficit of $ .1 million ✓

122.8 " " " " " $ 0.04 million

* FY 1980/81 budget includes an estimated $ 1.1 million allocated to BART by the three BART counties in lieu of State "bail-out" monies.

** No "bail out" assumed to be available when budget was prepared. # Requested from MTC.

Public Affairs Department
July, 1981

0?

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

## SOURCES OF OPERATING FUNDS

### OPERATING BUDGET FY 1980/81

| | |
|---|---|
| $ 105.5 | Million |
| 2.5 | Million Improvement Allowance |
| $ 108.0 | Million |

### SOURCES OF FUNDING

| | |
|---|---|
| $ 45.5 | Million from operating revenue |
| $ 56.6 | Million from 1/2 cent sales tax (75%) |
| $ -0- | Million from 1/2 cent sales tax (25%) |
| $ 3.6* | Million from 5 cent general fund property tax. This tax was authorized by the State Legislature in 1957 for administrative costs. |
| $ 1.7 | Million from Transit Development Act (TDA) funds. This money is administered by the Metropolitan Transportation Commission and is derived from local share of gas tax revenue. |
| $ .5 | Million U. S. Urban Mass Transportation Administration (UMTA), Section 5. |

### TOTAL

$ 107.9 Million, leaving a deficit of $ .1 million

* FY 1980/81 budget includes an estimated $ 1.1 million allocated to BART by the three BART counties in lieu of State "bail-out" monies.

Public Affairs Department
July, 1981

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

# SOURCES OF OPERATING FUNDS

## OPERATING BUDGET FY 1980/81

| | |
|---|---|
| $ 105.5 | Million |
| 2.5 | Million Improvement Allowance |
| $ 108.0 | Million |

## SOURCES OF FUNDING

| | |
|---|---|
| $ 45.5 | Million from operating revenue |
| $ 56.6 | Million from 1/2 cent sales tax (75%) |
| $ -0- | Million from 1/2 cent sales tax (25%) |
| $ 3.6* | Million from 5 cent general fund property tax. This tax was authorized by the State Legislature in 1957 for administrative costs. |
| $ 1.7 | Million from Transit Development Act (TDA) funds. This money is administered by the Metropolitan Transportation Commission and is derived from local share of gas tax revenue. |
| $ .5 | Million U. S. Urban Mass Transportation Administration (UMTA), Section 5. |

## TOTAL

$ 107.9 Million, leaving a deficit of $ .1 million

* FY 1980/81 budget includes an estimated $ 1.1 million allocated to BART by the three BART counties in lieu of State "bail-out" monies.

Public Affairs Department
July, 1981

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

# BUDGETED SOURCES OF OPERATING FUNDS
# FY 1981/82

## OPERATING BUDGET FY 1981/82

| | |
|---|---|
| $ 120.2 | Million |
| 2.6 | Million Improvement Allowance |
| $ 122.8 | Million |

BUDGETED

## SOURCES OF FUNDING FY 1981/82

| | |
|---|---|
| $ 51.8 | Million from operating revenue |
| $ 62.7 | Million from 1/2 cent sales tax (75%) |
| $ -0- | Million from 1/2 cent sales tax (25%) |
| $ 3.0 | Million from what, before Proposition 13, was a five-cent general fund property tax. This tax was authorized by the California State Legislature in 1957 for administrative costs. Current estimate reflects reduction in property tax revenue experienced by BART and all other local agencies since Proposition 13. |
| $ 5.3* | Million from Transit Development Act (TDA) funds. This money is administered by the Metropolitan Transportation Commission and is derived from local share of gasoline tax revenue. |
| $ -0- | Million U. S. Urban Mass Transportation Administration (UMTA), Section 5. |

TOTAL

$ 122.8 Million, leaving a deficit of $ 0.04 Million

* Requested from MTC

Public Affairs Department
August, 1981.

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BUDGETED
SOURCES OF OPERATING FUNDS
FY 1981/82

81/82 OPERATING BUDGET FY 1980/81

| | | | |
|---|---|---|---|
| 120.2 | $ 105.5 ✓ | Million | |
| 2.6 | 2.5 ✓ | Million | Improvement Allowance |
| 122.8 | $ 108.0 ✓ | Million | |

SOURCES OF FUNDING

| | | |
|---|---|---|
| 51.8 | $ 45.5 ✓ | Million from operating revenue |
| 62.7 | $ 56.6 ✓ | Million from 1/2 cent sales tax (75%) |
| -0- | $ -0- | Million from 1/2 cent sales tax (25%) |
| 3.0** | $ 3.6* ✓ | Million from .5 cent general fund property tax. This tax was authorized by the State Legislature in 1957 for administrative costs. Prior to Proposition 13 was a OK-L.J. Current estimate reflects reduction in revenue experienced by BART and all other local agencies since Prop. 13. |
| 5.3# | $ 1.7 ✓ | Million from Transit Development Act (TDA) funds. This money is administered by the Metropolitan Transportation Commission and is derived from local share of gas tax revenue. |
| +0- | $ .5 ✓ | Million U. S. Urban Mass Transportation Administration (UMTA), Section 5. |

TOTAL

$ 107.9 ✓ Million, leaving a deficit of $ .1 million ✓

122.8 " " " " " $ 0.04 million

* FY 1980/81 budget includes an estimated $ 1.1 million allocated to BART by the three BART counties in lieu of State "bail-out" monies.

** No "bail out" assumed to be available when budget was prepared, # Requested from MTC.

Public Affairs Department
July, 1981

0?

Form No. 006

# BAY AREA RAPID TRANSIT

## Routing Slip

WB
From

8/3
Date Initiated

| To | Person | Initials | Use Routing Sequence Numbers to Designate Person Concerned |
|---|---|---|---|
| 1 | fyi Member | | |
| 2 | CMA — 1 | | 1 Referred for appropriate action |
| 3 | | | ___ For concurrence |
| 4 | | | ___ For comment |
| 5 | | | ___ For information |
| 6 | | | ___ For approval |
| | | | ___ Please discuss with me |
| | | | ___ Read and retain |
| | | | ___ Return before filing |
| | | | ___ Note & send to central files |
| | | | |

Comments:

Per your request

Note that figures reflect BD approved budget but do not agree with MTC authorized TDA/Section 5 allocation to BART for 81/82

Form No. 0061

BAY AREA RAPID TRANSIT

Routing Slip

Sy Mouber
From

9/1/81
Date Initiated

| To | Person | Initials | Use Routing Sequence Numbers to Designate Person Concerned |
|---|---|---|---|
| 1 | H. Morant | | |
| 2 | Sy Mouber | | ___ Referred for appropriate action |
| 3 | | | ___ For concurrence |
| 4 | | | ___ For comment |
| 5 | | | ___ For information |
| 6 | | | X For approval |
| | | | ___ Please discuss with me |
| | | | ___ Read and retain |
| | | | ___ Return before filing |
| | | | ___ Note & send to central files |

Comments:

The attached is to be included in our "general information [illegible]" we send to interested individuals.

Please review and return to me with your comments or approval.

Please see suggested change on attached i.e.:

" BUDGETED SOURCES OF FUNDING FY 1981/82 "

Mady,

RECEIVED
SEP 2 1981
BUDGET OFFICE

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

# BUDGETED SOURCES OF OPERATING FUNDS
# FY 1981/82

## OPERATING BUDGET FY 1981/82

$ 120.2 Million Operating Expense
2.6 Improvement Allowance

$ 122.8 Million Total Operating Requirements

## BUDGETED SOURCES OF FUNDING FY 1981/82

$ 51.8 Million from operating revenue (fares, advertising revenue, etc.).

$ 62.7 Million from 1/2 cent sales tax (75% BART share).

$ -0- Million from 1/2 cent sales tax (25% regionally allocated share. Available funds allocated by Metropolitan Transportation Commission to other transit operators).

$ 3.0 Million from what, before Propisition 13, was a five-cent general fund property tax. This tax was authorized by the California State Legislature in 1957 for administrative costs. Current estimate reflects reduction in property tax revenue experienced by BART and all other local agencies since Proposition 13.

$ 5.3* Million from Transit Development Act (TDA) funds. This money is administered by the Metropolitan Transportation Commission and is derived from local share of gasoline tax revenue.

$ -0- Million U. S. Urban Mass Transportation Administration (UMTA), Section 5 (available funds allocated by Metropolitan Transportation Commission to other transit operators).

## TOTAL

$ 122.8** Million total operating sources

* Requested from Metropolitan Transportation Commission
** Budgeted deficit of $0.04 Million

Public Affairs Department
August, 1981

CAPITAL IMPROVEMENTS

# CAPITAL IMPROVEMENT PROGRAM

BART is undertaking a major capital improvement program to meet the demands of increased ridership expected in the next decade.

The priority improvements include:

* Purchase of New Cars: A newly designed "C" car that can be used as a lead car or in the middle of a train. Each car is equipped with an operator's compartment at one end, and with "flipper doors" that close off the operator's compartment when it is a lead car and open for through passage when it is in the middle of a train.

  The new design will increase operational flexibility. Trains will no longer have to be taken to a yard to change size. One train can be changed into two trains, or vica versa, without leaving the main line.

  Purchase of 90 new "C" cars will significantly increase seating capacity. The new cars will incorporate all the latest modifications now in progress for the existing fleet of BART cars.

  Each "C" car is expected to cost $1 million. BART is seeking a grant from the U.S. Urban Mass Transit Administration to fund 80% of the cost.

* Integrated Control System: The present central control computers will be replaced by a more efficient Integrated Control System. It will have the capacity to handle up to 75 trains on the system at one time. The present system limits the number of on-line trains to 49.

* New K-E Track: For the first time since BART's construction, a new mainline track is being added to the system. When completed, this will be a 1.5 mile connection through a third tunnel from Washington Street to 23rd Street in downtown Oakland.

  The new track will allow disabled trains to be taken out of service without disturbing the system. It also may function as an alternate route in case a disabled train on the main track cannot be removed immediately. The project includes passenger cross-overs at the 12th and 19th Street stations.

* Daly City Turnback: A new off-line turnback and storage facility at the end of the BART line in Daly City will offer two main advantages. The turnback will allow trains to run at closer headways, and the storage facility will mean that empty trains no longer have to return empty to the East Bay yards after closing hours.

* Wayside Train Control Mods: The final solution to BART's train control problems involves modifications to the wayside train detection circuits in certain areas. When these modifications are completed, trains will be able to operate close to two-minute headways.

Each of these projects is integral to the others, and all must come together within the next five years in order for BART to meet the needs of increased ridership.

Estimated cost of these priority projects: $250 million, for which BART is seeking federal assistance.

# # #

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# # #

Puboic Affairs
October 1981

# CAPITAL IMPROVEMENT PROGRAM

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# # #

Public Information Office
October, 1981

CHRONOLOGY

# BART CHRONOLOGY

(October 17, 1920 - September 11, 1982)

| | |
|---|---|
| October 17, 1920: | "General Goethals, Panama Canal Builder, May Solve Transportation Problem By Transbay Tube Project" - S.F. Chronicle |
| January 1947: | Joint Army-Navy recommends action for underwater transit tube beneath San Francisco Bay. |
| July 25, 1951: | California Legislature creates special commission to study Bay Area transportation problems. |
| January 17, 1957: | Nine-county commission recommends legislation to create Bay Area Rapid Transit District. |
| June 4, 1957: | California Legislature approves creation of five-county Bay Area Rapid Transit District. |
| November 14, 1957: | District officially activated with first Directors' meeting. |
| January 1, 1958: | First District offices established in Flood Building, San Francisco (later moved to 814 Mission Street). |
| July 1, 1958: | First property taxes collected. |
| May 14, 1959: | Parsons, Brinckerhoff-Tudor-Bechtel retained as engineering consultants for system design and construction. |
| July 10, 1959: | State legislature authorized use of Bay Bridge tolls to finance construction of transbay tube. |
| January 20, 1960: | State approves use of Grove-Shafter freeway median for BART transit route. |
| April 12, 1962: | San Mateo County officially withdraws from District program, citing high property tax and the existing Southern Pacific commuter line as reasons. |
| May 17, 1962: | Marin County officially withdraws from District, citing inability of Golden Gate Bridge to carry transit vehicles and prohibitive cost of another underwater tube as reasons. |
| May 24, 1962: | Three-county rapid transit plan adopted by Board of Directors; referred to Alameda County, Contra Costa County and San Francisco County Boards of Supervisors for approval. |
| November 6, 1962: | $792 million General Obligation Bond issue approved by District voters for construction of 75-mile system. |
| June 10, 1963: | Contra Costa County Superior Court rules in favor of District in taxpayers' suit challenging validity of bond election. |

| | |
|---|---|
| July 1, 1963: | Full-scale design engineering begun by District engineering consultants, PB-T-B. |
| June 19, 1964: | U.S. President Lyndon B. Johnson presides at official start of construction in Concord. |
| April 12, 1965: | Diablo Test Track placed in operation between Walnut Creek and Concord. |
| January 24, 1966: | Construction begins in Oakland subway. |
| August 25, 1966: | BART receives first federal construction grant. |
| July 25, 1967: | Construction begins on Market Street subway in San Francisco. |
| November 1968: | DOT grant for $28 million received for development and purchase of rolling stock. |
| March 28, 1969: | State Legislature approves 1/2-cent District sales tax to provide $150 million required to complete system. |
| April 1969: | Last section of transbay tube placed; rail laying begun. |
| July 3, 1969: | BART awards transit vehicle contract to Rohr Corporation, Chula Vista, California. |
| August 1969: | Transbay tube structure complete. |
| February 1970: | BART joins with City of Oakland, Alameda County and Coliseum to study feasibility of linking Coliseum Station to Oakland Airport. |
| April 1970: | BART joins with San Francisco and San Mateo counties to develop plans for extending BART from Daly City to S.F. Airport. |
| June 1970: | Southern Alameda County line energized and lab car testing begun. |
| August 1970: | Arrival of first prototype car and test operations begun on Southern Alameda County line. |
| October 1970: | Prototype of IBM fare collection equipment demonstrated. |
| January 27, 1971: | Final "hole-through" into Montogomery Street Station opens last subway tunnel on system. |
| March 25, 1971: | Another $40 million grant received from DOT for rolling stock. |
| July 23, 1971: | Last rail set into place on Contra Costa line to complete linking of all system mainline trackage. |
| November 5, 1971: | Delivery of first production car for revenue service. |
| December 16, 1971: | District headquarters activated in Oakland. |
| February 1972: | First revenue vehicles received after Rohr strike ended. |

| | |
|---|---|
| April 27, 1972: | Directors voted first priority for revenues from state gasoline taxes to provide express bus feeder service to BART stations from areas in Contra Costa and Alameda counties not served by public transit. |
| May 22, 1972: | San Francisco Muni/BART coordination study underway. |
| June 8, 1972: | BART pre-revenue train testing began on Suthern Alameda line. |
| June 1972: | Livermore-Pleasanton transit extension study underway. |
| July 10, 1972: | BART/AC transit coordination study underway. |
| August 1972: | Pittsburg-Antioch extension study underway. |
| August 1972: | Beginning of San Mateo County Transit Development Project, a joint effort of San Mateo County and the Metropolitan Transportation Commission, with consultation from BART, to plan an extension of rapid transit beyond San Francisco International Airport to Menlo Park. |
| September 11, 1972: | BART opened first 28 miles of system between Fremont and MacArthur stations for revenue service at 12 noon. Ceremonies were held at the 12 opening stations before revenue service started. |
| September 27, 1972: | President Nixon visited BART and rode a train from San Leandro to Lake Merritt Station. |
| October 2, 1972: | A component failure caused a two-car train to run off tracks at Fremont Station. No injuries resulted from first accident since revenue service began. |
| October 11, 1972: | The system was officially dedicated by U.S. Secretary of Transportation John A. Volpe, at Lake Merritt Station. |
| December 12, 1972: | Millionth rider carried under revenue service. |
| December 20, 1972: | Final section of rail fastened down to present system of 160 miles of mainline and yard trackage, along the Daly City Station trackway. |
| January 29, 1973: | Richmond-Berkeley line opened, adding 11 miles to system. |
| May 21, 1973: | Concord line opened, adding 17 miles between MacArthur Station and East Contra Costa County. |
| July 2, 1973: | Employee strike stopped service until August 6. |
| August 10, 1973: | First train traveled through the Transbay Tube to Montgomery Street Station, averaging 70 MPH westward and 80 MPH eastward. |
| September 11, 1973: | First anniversary of revenue service, with 56 miles in operation and 5 million passengers carried. |

| | |
|---|---|
| November 3, 1973: | Ceremonial opening of BART's 7.5-mile San Francisco line serving eight stations. |
| November 5, 1973: | Service begun between Montgomery Street Station and Daly City Station, bringing into operation to date 63.5 miles of the 71.5-mile system. |
| September 16, 1974: | Transbay revenue service opens between San Francisco and Oakland. |
| November 5, 1974: | New nine-member Board of Directors elected to replace previous 12-member appointed Board. |
| December 2, 1974: | Start of express bus service to outlying areas as an interim extension of BART rail service. |
| April 24, 1975: | Board of Directors announced appointment of UMTA Administrator Frank C. Herringer as new Distric General Manager effective July 1, 1975. |
| July 1, 1975: | A 75% fare discount went into effect for the handicapped, an industry first made possible by a BART-administered plan of certification adopted by all other Bay Area transit lines. Also effect this date was a further decrease in senior citizens' fare from 75% to 90%. |
| November 3, 1975: | The first fare increase since the system opened in 1972 went into effect, resulting in an average 21% increase in trip fares. |
| December 1975: | "Bikes on BART," another industry first, was permanently adopted after a successful 12-month program. |
| January 1, 1976: | Permanent night service went into effect, extending revenue service hours from 6 a.m. to 12 midnight. |
| January 30, 1976: | BART selected as one of 200 examples of outstanding community achievement in U.S. as part of American Revolution Bicentennial Administration's "Horizons on Display" program. |
| May 27, 1976: | Embarcadero Station officially opened for revenue service, drawing thousands of San Franciscans to the colorful ceremonies at the 34th system station. |
| July 8, 1976: | District management and labor officials drew wide praise for averting a strike by signing a new three-year collective bargaining contract after extensive negotiations. |
| October 15, 1976: | Oakland officially dedicated its new City Center Plaza, the Harold Paris sculpture and BART's entrance to the plaza. |
| December 31, 1976: | BART, for the first time, operates trains on New Year's Eve until 2:30 a.m. New Year's Day. |
| December 31, 1976: | Patronage at year-end is 133,000 per day, with 30 trains in operation during peak hours. |

January 26, 1977: Hundred millionth passenger enters at Montgomery Street Station. Maria Magdalena De Guzman, of Daly City, received a certificate and gift in honor of the occasion. Since beginning operations on September 11, 1972, BART trains have traveled 1.4 billion passenger miles.

February 1, 1977: BART officially begins bike locker program, providing 648 bike lockers at all stations except downtown Oakland, Berkeley and San Francisco subway stations.

March 9, 1977: Parking for 390 additional parking spaces at South Hayward Station completed, bringing the total spaces at the station to 880.

April 4, 1977: BART Board establishes Committee on Affirmative Action.

April 4, 1977: BART Board awards contract to provide seismic sensor alarms at Concord, Walnut Creek, Rockridge, El Cerrito Del Norte, Bayfair, Fremont, Embarcadero and Daly City stations, at a cost of $220,000.

April 14, 1977: BART Board seeks to toughen transit system's "no smoking" rule by seeking legislation to impose $50 fine.

April 25, 1977: BART adds 573 parking spaces at stations on the Concord line by restriping and providing aggregate surfacing on the upper lot at Lafayette Station (thus providing 300 additional spaces). Cost was approximately $6,000, from Transit Development Act.

May 10, 1977: BART-engineered "electronic testing device" to quickly and accurately test individual performance of various types of special circuit boards used in automatic operation and total integrated electronic units, is unveiled before the District's Engineering Committee. The diagnostic machine, which provides a major breakthrough in support of BART's computer maintenance program with regard to preventative maintenance for transit vehicles, was developed by a team of BART engineers.

May 20, 1977: BART signed first apprenticeship program agreement with the State of California and UPE 390. The program sought to develop apprenticeships in general maintenance for a four-year period beginning in July 1977. It is an outgrowth of the 1976 labor agreement between BART and UPE390. Following the four-year period, persons in the program are eligible for journey-person status as recognized by the State of California.

June 9, 1977: BART receives award from California State Department of Rehabilitation for "outstanding public service" in recognition of the system's accomplishments in making the system accessible to the handicapped.

June 14, 1977: BART adds 300 parking spaces at Fremont Station. Cost is $590,000, with 83 percent covered by Federal Aid Urban Highway (FAU) and 17 percent coming from Transit Development Act funds.

June 25, 1977: BART conducts largest full-scale fire drill to date. Drill includes 200 volunteers plus representatives from hospitals and emergency response agencies.

August 26, 1977: Thirty members of BART Police Officers Association strike, in violation of injunction issued by Alameda County Superior Court. Sixty members of BPD remain on duty. Members of UPE 390 and ATU 1555 honored strike. 75 percent of workforce out.

September 7, 1977: BART and BPOA announced at 2:30 a.m. that a tentative agreement has been reached, ending the 14-day strike by members of BPOA.

September 11, 1977: BART celebrates fifth birthday. To date, 120 million patrons have been carried 1.6 billion passenger miles. Pre-strike patronage is up to 144,400 daily passengers. Patronage at the end of September 1972 was 17,000. Patronage in September 1973 was at the 32,000 level. Patronage had peaked to 80,000 in September 1974. By 1975, patronage was up to the 122,000 level. By September 1976, patronage was up to 132,000.

September 30, 1977: Permanent extension of the one-half percent sales tax to finance regional transit was signed into law by Governor Brown. AB 1107 was authored by Assembly Speaker Leo McCarthy, and provides that 75 percent of the proceeds from the tax levied in Alameda, Contra Costa and San Francisco counties will be earmarked for BART, with the remaining 25 percent to be allocated by the Metropolitan Transportation Commission (MTC) to AC Transit, San Francisco Muni and BART for service improvements. The half-cent sales tax has been in existence since 1970.

October 10, 1977: Three-story parking facility at Daly City Station is opened for BART passenger use. The new structure brings total parking capacity at the station to 1,600. Total cost of the project was approximately $4.2 million, with 91.5 percent funded by the Federal Highway Administration and the balance by TDA funds and the City of Daly City.

October 17, 1977: BART receives "Pioneering Design and Construction" and "Outstanding Civil Engineering Achievement" awards from the American Society of Civil Engineers (ASCE). The awards were presented to BART for its civil engineering accomplishments.

November 28, 1977: BART reaches all-time high for patronage, when approximately 192,000 persons ride BART. This unusually high number reflects increased ridership due to AC Transit strike and persons riding BART to Oakland Raiders game at Coliseum.

January 7, 1978: BART begins permanent Saturday service. On December 6, 1977, the CPUC authorized BART to begin Saturday service on a regular basis beginning January 7. In actuality, Saturday service has been continuous since November 19, 1977, as part of BART's traditional extended service during the holiday season.

January 16, 1978: "El BARTito," a new shuttle service, begins between Hayward BART Station and the Alameda County Hall of Justice. The shuttle is a joint BART/Alameda County project with funding totaling $175,000 for two years. Seventy-five percent of the funding is from a TDA grant; 25 percent is from Alameda County's General Fund.

January 26, 1978: BART Board authorizes a free day on BART, in an effort to make up for passenger inconveniences during the AC Transit strike. In addition, BART authorizes one free month of BART Express Bus service, following the end of the two-month long AC Transit strike.

February 2, 1978: BART offers free day on BART (see January 26, 1978 entry). Ridership on the system reaches a record high of approximately 250,000.

March 8, 1978: BART announces installation of "TTY Telephone" for the deaf. The TTY phone is located in BART's Telephone Information Center, for the convenience of deaf BART patrons who need transit information.

April 7, 1978: BART officials appear before CPUC to seek approval of new operating procedures that will permit the largest improvements in train service and service reliability since the system opened in 1972. The single most significant request was to remove the one-station separation between trains constraint.

April 27, 1978: BART Board authorizes sale of land for United Nations Plaza. The 7,893 square feet of property was sold to the City and County of San Francisco for $325,000, considered a fair market price.

July 2, 1978: BART begins regular Sunday train service. Richmond/Fremont and Concord/San Francisco service will be in effect from 9 a.m. to midnight on Sundays.

September 11, 1978: BART observes sixth birthday. Since 1972, over 160,000,000 riders traveled over two billion passenger miles on BART.

September 15, 1978: BART receives notification of UMTA grant in the amount of $14,729,480. The money will be used for expansion of the Oakland Shops and Storage Complex, transit vehicle traction motors modifications, upgrading of handicapped facilities, cable replacement, and replacement of all the seat cushions in the transit vehicles. The projects are expected to be completed within the next two years.

September 29, 1978: BART Board approves permit parking at Daly City Station for District residents. The permit parking will be in a 250-space auxiliary parking lot, which is expected to be completed in about two months.

October 27, 1978: New parking lot at BART's Fremont Station opens. The new lot adds over 300 spaces to the parking facility.

November 1, 1978: BART patrons using local feeder buses in Walnut Creek will be able to transfer to and from BART express buses. Prior to this policy, express bus riders could transfer only from express buses to local feeder buses.

January 1, 1979: AB 2448 goes into effect, making violators of BART's "No Smoking" rule subject to a citation and fine of up to $50.

January 11, 1979: BART Board votes to appoint Keith Bernard to the position of General Manager, replacing Frank Herringer who resigned effective December 31, 1978.

January 17, 1979: Transbay tube fire.

April 4, 1979: CPUC authorizes resumption of transbay service. BART will resume service through the transbay tube beginning at 6 a.m. on April 5, 1979.

April 30, 1979: BART announces that emergency information posters will be installed in all transit vehicles this week. The posters will contain vital information on safety and emergency evacuation procedures.

August 24, 1979: BART Board authorizes advertising for bids on the construction of a third trackway in downtown Oakland. This project is the 1.5-mile tunnel portion of an eventual 2.5-mile third trackway. The cost is estimated at $4.6 million, with 80 percent funding by UMTA and the balance through MTC of excess bridge tolls.

October 2, 1979: BART announces it will provide limited train service during labor dispute. The service will operate Monday through Friday, 6 a.m. to 6 p.m. between Lafayette Station and 24th Street Station in San Francisco.

October 16, 1979: CPUC hearings continue concerning BART's application to remove requirement that trains operate no closer than one station apart. This would pave the way for implementing direct Richmond/Daly City service in early 1980.

November 21, 1979: BART Board ratifies new contract with ATU 1555 and UPE 390 upon prior ratification by those unions. All stations will be open by Monday, November 26, and it is expected that full train service will resume by Thursday, November 29.

December 3, 1979: Full train service resumes following over three months of limited service due to labor dispute.

November 29, 1979: BART Board authorizes seeking bids for replacing transit vehicle seatcushions and covers for transit vehicle fleet. Cost of replacement program is approximately $4.5 million; BART has federal grant for $2.8 million for this purpose and is seeking additional federal funding for the project. The project is expected to be completed by September 30, 1980.

December 31, 1979: BART, for the first time, operates trains around-the-clock as part of special service on New Year's Eve.

February 25, 1980: Special joint BART/AC Transit committee is established. The committee, whose members are comprised of directors from both agencies, is responsible for improving overall coordination between the two transit agencies.

March 24, 1980: BART begins "BARTpool" parking program at Concord Station. Carpools of three persons or more are permitted special close-in parking in a permit lot.

March 27, 1980: Board of Directors approves entering into agreement with Kaiser Engineers, Inc., of Oakland, to assist BART enginers in the development of a new transit car for the system. BART hopes to eventually purchase 90 of these "C" cars (a car that is a combination "A" car and "B" car) at a cost of $1 million per car.

April 7, 1980: East entrance to Fremont Station officially opens.

April 24, 1980: BART Board adopts extension policy. Part of a 20-year plan, the policy outlines four basic extensions to the system, including 15 miles from Concord Station to the Pittsburg-Antioch area; 4.8 miles from Fremont Station to the Warm Springs area; 9.3 miles from Daly City Station to the San Francisco Airport; and 24 miles from Bayfair Station through Castro Valley to the Livermore-Pleasanton area. Total cost is estimated at $1.7 billion.

April 25, 1980: Work begins on K-E (third track) in Oakland.

June 13, 1980: BART begins three-month phase-in program for "close headways." At 11 a.m. the close headways program began in the Oakland Wye area. Close headways means trains are run more closely together, thus increasing system capacity. This program will pave the way for start-up of direct Richmond-San Francisco service.

June 24, 1980: BART Board adopts $105.5 million operating budget that includes a fare increase. This is the first fare increase since 1975. Under the new fare formula, the average fare will increase 36 percent. The minimum fare is raised from 30 cents to 50 cents. Discount fares for handicapped and children five through 12 has been increased from a 75 percent discount to a 90 percent discount.

June 30, 1980: "Loma Ranger" shuttle van service operating between the Glen Park Station and Mira Loma Park neighborhood begins.

June 30, 1980: New fares go into effect (see June 24, 1980 entry).

July 7, 1980: BART begins direct Richmond-San Francisco service. Total number of trains scheduled to operate during peak periods is 43 (as opposed to 33 trains prior to introduction of close headways). Of these 43, BART has added a train to Concord and Fremont lines.

August 20, 1980: BART awarded 1980 Career Apparel Image Award by the National Association of Uniform Manufacturers for station agent uniforms.

September 11, 1980: BART celebrates eight years in operation. The transit system has carried better than 237 million passengers over 3 billion passenger miles. BART passed the 3 billion mark by the end of June 1980.

October 25, 1980: BART begins four route service on Saturdays; direct Richmond-Daly City service begins.

November 5, 1980: BART announces the completion of its seat replacement program. All seats in the system's operating fleet have been replaced with cushions and covers made of fire resistant material; the cushions are made of lwo-smoke neoprene material and the seat covers are made of 90 percent wool and 10 percent nylon.

December 11, 1980: BART announces that its full-scale fire testing of a BART car is being conducted at the McDonnell-Douglas Corporation testing facility in Southern California.

April 21, 1981: BART's "cut out car" program is approved by the CPUC. The new program will allow the system to continue trains in operation even though there may be a friction brake problem on one of the cars in a train consist. Prior to the decision, a train with a brake problem would have to operate at half-speed, thus slowing down trains behind it. The entire train consist would then be taken out of service.

July 16, 1981: BART Board adopts a 10-year, $1.2 million program of projects designed to improve pedestrian, automobile, bus and carpool access to 21 stations throughout the BART system.

September 3, 1981: BART Board adopts preferred route for the proposed Pittsburg-Antioch extension of the rail system. The preferred route is about 19 miles long and will run from Concord to north Concord along Port Chicago Highway to State Route 4, and along State Route 4 to Antioch.

September 11, 1981: BART celebrates ninth anniversary. The system presently carries approximately 175,000 passengers a day, with 42 trains in operation during peak commute periods.

September 17, 1981: BART unveils major new exhibit entitled, "BART. Going Places." The traveling exhibit makes its debut at Embarcadero Station in San Francisco.

October 21, 1981: BART Board announces that a $6.7 million federal DOT grant that will aid BART in its purchase of new "C" cars has been approved. The $6.7 million federal grant will go toward the purchase of four prototype "C" cars which will undergo extensive testing.

January 7, 1982: BART Board adopts five-year plan designed to upgrade and streamline the transit system's express bus service. The plan calls for gradually phasing out the local service of BART express buses as local community transit service is phased in and gradually increasing the routing of the express bus network, via freeways.

February 1, 1982: BART, for the first time, reduces fares during off-peak hours on weekdays. The fare reduction is a test to determine if patrons can be attracted to use the transit system for other than work-related trips. The 20 percent reduction in fares will continue throughout the entire month of February, between the hours of 10 a.m. and 3 p.m.

February 9, 1982: BART's Engineering and Operations Committee receives scaled-back proposal for replacement of its computer control system. The revised plan calls for a more centralized computer network which initially reduces the number of new computers from the originally planned 90 to 100. This will reduce the hardware cost and still provide for the basic need of increasing system capacity from the current maximum of 49 trains to 75 trains.

February 12, 1982: BART introduces "BART TIMES," a new publication for the transit system's riders. The newsletter is available free of charge and will be published on a bi-monthly basis.

March 24, 1982: Groundbreaking ceremony for start of construction of new Regional Administrative Facility. Declared the "first governmental condominium arrangement in the Bay Area," the facility will house BART, Metropolitan Transportation Commission and Association of Bay Area Governments. Cost is estimated at $12.6 million.

May 21, 1982: BART awards $17.8 million contract to improve the fire resistance of transit vehicles to TODCO, a divison of the Overhead Door Corp..

July 1, 1982: BART Board votes to ratify a new three-year contract with its two major unions, ATU 1555 and UPE 390.

July 13, 1982: BART announces winners in its "Architectural Design Competition." Prizes totaling $16,000 were awarded to graduate student teams from west coast colleges which participated in the contest aimed at focusing on commercial and institutional development potential at Walnut Creek, Oakland West and Coliseum BART stations.

July 27, 1982: BART opens bids on the transit system's proposed new "C" cars. Five bids were received and will undergo careful analysis before a contract is awarded.

August 19, 1982: BART Board authorizes the sale of $65 million in sales tax revenue bonds for the purchase of new transit cars.

August 19, 1982: BART Board approves an agreement with Westinghouse Electric Corporation to develop a new generation of automatic train control equipment for the transit system's new "C" cars.

August 20, 1982: BART announces that a contract to manufacture special fare gate equipment to accommodate a combined BART/Muni "fast pass" has been awarded.

August 20, 1982: BART Board announces new fares will go into effect September 8, 1982. The new fares will raise BART fares on the average by 18.4 percent.

September 8, 1982: New BART fares go into effect (see August 20, 1982 entry).

September 11, 1982: BART celebrates tenth anniversary. The system presently carries approximately 190,000 passengers per weekday and has traveled over 4.5 billion passenger miles since the system began operating in 1972.

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| 1951 - July 25 | - California Legislature creates special commission to study Bay Area transportation problems. |
| 1957 - January 17 | - Nine-county Commission recommends legislation to create Bay Area Rapid Transit District. |
| - June 4 | - California Legislation approves creation of five-county Bay Area Rapid Transit District. |
| - November 14 | - District officially activated with first Directors' meeting. |
| 1958 - January 1 | - First District offices established in Flood Building, San Francisco (later moved to 814 Mission Street). |
| - July 1-30 | - First property taxes collected. |
| 1959 - May 14 | - Parsons, Brinckerhoff-Tudor-Bechtel retained as Engineering consultants for system design and construction. |
| - July 10 | - State Legislation authorized use of Bay Bridge tolls to finance construction of transbay tube. |
| 1960 - January 20 | - State approves use of Grove-Shafter freeway median for BART transit route. |
| 1962 - April 12 | - San Mateo County officially withdraws from District program, citing high property tax and the existing Southern Pacific commuter line as reasons. |
| - May 17 | - Marin County officially withdraws from District, citing inability of Golden Gate Bridge to carry transit vehicles and prohibitive cost of another underwater tube as reasons. |
| - May 24 | - Three-county rapid transit plan adopted by Board of Directors; referred to Alameda, Contra Costa and San Francisco County Boards of Supervisors for approval. |
| - November 6 | - $792 million General Obligation Bond issue approved by District voters for construction of 75-mile system. |

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- August 25 - BART receives first Federal construction grant.

1967 - July 25 - Construction begins on Market Street Subway in San Francisco.

1968 - November - DOT grant for $28 million received for development and purchase of rolling stock.

1969 - March 28 - State Legislature approves 1/2-cent District sales tax to provide $150 million required to complete system.

- April - Last section of transbay tube placed; rail laying begun.

- July 3 - BART awards transit vehicle contract to Rohr Corporation, Chula Vista, California.

- August - Transbay tube structure complete.

1970 - February - BART joins with City of Oakland, Alameda County and Coliseum to study feasibility of linking Coliseum Station to Oakland Airport.

- April - BART joins with San Francisco and San Mateo Counties to develop plans for extending BART from Daly City to S.F. Airport.

- June - Southern Alameda County Line energized and lab car testing begun.

- August - Arrival of first prototype car and test operations begun on Southern Alameda County Line.

- October - Prototype of IBM fare collection equipment demonstrated.

1971 - January 27 - Final "hole-through" into Montgomery Street Station opens last subway tunnel on system.

1971 - March 25 - Another $40 million grant received from DOT for rolling stock.

- July 23 - Last rail set into place on Contra Costa Line to complete linking of all system mainline trackage.

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- May 22 - San Francisco Muni/BART coordination study underway.

- June 8 - BART pre-revenue train testing began on Southern Alameda Line.

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- August - Beginning of San Mateo County Transit Development Project, a joint effort of San Mateo County and the Metropolitan Transportation Commission, with consultation from BART, to plan an extension of rapid transit beyond San Francisco International Airport to Menlo Park.

- September 11 - BART opened first 28 miles of system between Fremont MacArthur stations for revenue service at 12 noon. Ceremonies were held at the 12 opening stations before revenue service started.

- September 27 - President Nixon visited BART and rode a train from San Leandro to Lake Merritt Station.

- October 2 - A component failure caused a two-car train to run off tracks at Fremont Station. No injuries resulted from first accident since revenue service began.

- October 11 - The system was officially dedicated by U.S. Secretary of Transportation John A. Volpe, at Lake Merritt Station.

- November 28 - Northwest San Francisco BART extension project underway.

- December 12 - Millionth rider carried under revenue service.

- December 20 - Final section of rail fastened down on present system of 160 miles of mainline and yard trackage, along the Daly City Station trainway.

1973 - January 29 - Richmond-Berkeley line opened, adding 11 miles to system.

- May 21 - Concord line opened, adding 17 miles between MacArthur Station and East Contra Costa County.

- July 2 - Employee strike stopped service until August 6.

- August 10 - First train traveled through the Transbay Tube to Montgomery Street Station (S.F.), averaging 70 MPH west and 80 MPH eastward.

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- November 3 - Ceremonial opening of BART's 7.5-mile San Francisco line serving 8 stations.

- November 5 - Service begun between Montgomery Street Station in San Francisco and Daly City Station, bringing into operation to date 63.5 miles of the 71-mile system.

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- May 27 - Embarcadero Station officially opened for revenue service, drawing thousands of San Franciscans to the colorful ceremonies at the 34th system station.

- July 8 - District management and labor officials drew wide praise for averting a strike by signing a new three-year collective bargaining contract after extensive negotiations.

- October 15 - Oakland officially dedicated its new City Center Plaza, the Harold Paris sculpture and BART's entrance to the plaza.

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15

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| 1969 - March 28 | - State Legislature approves 1/2-cent District sales tax to provide $150 million required to complete system. |
| - April | - Last section of transbay tube placed; rail laying begun. |
| - July 3 | - BART awards transit vehicle contract to Rohr Corporation, Chula Vista, California. |
| - August | - Transbay tube structure complete. |
| 1970 - February | - BART joins with City of Oakland, Alameda County and Coliseum to study feasibility of linking Coliseum Station to Oakland Airport. |
| - April | - BART joins with San Francisco and San Mateo Counties to develop plans for extending BART from Daly City to S.F. Airport. |
| - June | - Southern Alameda County Line energized and lab car testing begun. |
| - August | - Arrival of first prototype car and test operations begun on Southern Alameda County Line. |
| - October | - Prototype of IBM fare collection equipment demonstrated. |
| 1971 - January 27 | - Final "hole-through" into Montgomery Street Station opens last subway tunnel on system. |

1971 - March 25 - Another $40 million grant received from DOT for rolling stock.

- July 23 - Last rail set into place on Contra Costa Line to complete linking of all system mainline trackage.

- November 5 - Delivery of first production car for revenue service.

- December 16 - District headquarters activated in Oakland.

1972 - February - First revenue vehicles received after Rohr strike ended.

- April 27 - Directors voted first priority for revenues from State gasoline taxes to provide express bus feeder service to BART stations from areas in Contra Costa and Alameda Counties not served by public transit.

- May 22 - San Francisco Muni/BART coordination study underway.

- June 8 - BART pre-revenue train testing began on Southern Alameda Line.

- June - Livermore-Pleasanton transit extension study underway.

- July 10 - BART/AC Transit coordination study underway.

- August - Pittsburg-Antioch extension study underway.

- August - Beginning of San Mateo County Transit Development Project, a joint effort of San Mateo County and the Metropolitan Transportation Commission, with consultation from BART, to plan an extension of rapid transit beyond San Francisco International Airport to Menlo Park.

- September 11 - BART opened first 28 miles of system between Fremont MacArthur stations for revenue service at 12 noon. Ceremonies were held at the 12 opening stations before revenue service started.

- September 27 - President Nixon visited BART and rode a train from San Leandro to Lake Merritt Station.

- October 2 - A component failure caused a two-car train to run off tracks at Fremont Station. No injuries resulted from first accident since revenue service began.

- October 11 - The system was officially dedicated by U.S. Secretary of Transportation John A. Volpe, at Lake Merritt Station.

- November 28 - Northwest San Francisco BART extension project underway.

- December 12 - Millionth rider carried under revenue service.

- December 20 - Final section of rail fastened down on present system of 160 miles of mainline and yard trackage, along the Daly City Station trainway.

1973 - January 29 - Richmond-Berkeley line opened, adding 11 miles to system.

- May 21 - Concord line opened, adding 17 miles between MacArthur Station and East Contra Costa County.

- July 2 - Employee strike stopped service until August 6.

- August 10 - First train traveled through the Transbay Tube to Montgomery Street Station (S.F.), averaging 70 MPH west and 80 MPH eastward.

- September 11 - First anniversary of revenue service, with 56 miles in operation and 5 million passengers carried.

- November 3 - Ceremonial opening of BART's 7.5-mile San Francisco line serving 8 stations.

- November 5 - Service begun between Montgomery Street Station in San Francisco and Daly City Station, bringing into operation to date 63.5 miles of the 71-mile system.

1974 - September 16 - Trans-Bay revenue service opens between San Francisco and Oakland.

- November 5 - New nine member Board of Directors elected to replace previous 12 member appointed Board.

- December 2 - Start of express bus service to outlying areas as an interim extension of BART rail service.

1975 - April 24 - Board of Directors announced appointment of UMTA Administrator Frank C. Herringer as new District General Manager effective July 1, 1975.

- July 1 - A 75% fare discount went into effect for the handicapped, an industry first made possible by a BART-administered plan of certification adopted by all other Bay Area transit lines. Also effective this date was a further decrease in senior citizens' fare from 75% to 90%

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| | - October 23 | - Another key post in the District was filled with the appointment of Robert D. Gallaway as Assistant General Manager of Operations, effective November 3. |
| | - November 3 | - The first fare increase since the system opened in 1972 went into effect, resulting in an average 21% increase in trip fares. |
| | - December | - "Bikes on BART," another industry first, was permanently adopted after a successful 12-month program. |
| 1976 | - January 1 | - Permanent night service went into effect, extending revenue service hours from 6 a.m. to 12 midnight. |
| | - January 30 | - BART selected as one of 200 examples of outstanding community achievement in U.S. as part of American Revolution Bicentennial Administration's "Horizons on Display" program. |
| | - May 27 | - Embarcadero Station officially opened for revenue service, drawing thousands of San Franciscans to the colorful ceremonies at the 34th system station. |
| | - July 8 | - District management and labor officials drew wide praise for averting a strike by signing a new three-year collective bargaining contract after extensive negotiations. |
| | - October 15 | - Oakland officially dedicated its new City Center Plaza, the Harold Paris sculpture and BART's entrance to the plaza. |

Office of Public Information
November 1976

November 15, 1976: Daly City Station parking structure partially opened, providing parking for over 300 autos. Construction began in August 1975 and should be completed in summer 1977 at a cost of $3,945,000.

November 17, 1976: Fire occurs on a single car of a BART train, causing damage estimated at $100,000. A joint team of BART and OFD investigators concludes that the fire was not the result of any technical or mechanical malfunction. Arson is suspected.

December 6, 1976: BART increase commute-hour train lenght on all lines. Concord line will have mostly 10-car trains. Average daily car availability exceeds 300, compared to an average 200 the previous year. Insufficient electrical power throughout the system to drive the longer trains has been corrected by increasing BART's electrical sub-station capacity. BART engineers correct problem associated with the location of an automatic train control circuit just east of the Embarcadero Station.

December 31, 1976: BART, for the first time, operates trains on New Year's Eve until 2:30 a.m. New Year's Day.

December 31, 1976: Patronage at year-end is 133,000 per day, with 30 trains max.

January 26, 1977: Hundred millionth passenger enters at Montgomery Street Station. Maria Magdalena De Guzman, of Daly City, received a certificate and gift in honor of the occassion. Since beginning operations on September 11, 1972, BART trains have traveled 1.4 billion passenger miles.

February 1, 1977: BART officially begins bike locker program, providing 648 bike lockers at all stations except downtown Oakland, Berkeley and San Francisco subway stations.

March 3, 1977: Arbitrator Sam Kagel decided dispute between BART and ATU 1555 regarding the issue of unmanned, remotely staffed stations. Kagel ruled that the Union should lift its ban on station agents working overtime at unmanned stations, and that BART could continue its test period of substituting cameras for agents but required that there be a station agent on the premises while the test of using RSS equipment was in progress.

March 9, 1977: Parking for 390 additional parking spaces at South Hayward Station completed, bringing the total spaces at the station to 880.

April 4, 1977: BART Board establishes Committee on Affirmative Action.

April 4, 1977: BART Board awards contract to provide seismic sensor alarms at Concord, Walnut Creek, Rockridge, El Cerrito Del Norte, BayFair, Fremont, Embarcadero and Daly City stations, at a cost of $22,000.

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| April 14, 1977: | BART Board seeks to toughen transit system's "no smoking" rule by seeking legislation to impose $50 fine. |
| April 25, 1977: | BART adds 573 parking spaces at stations on the Concord line, by restriping and providing aggregate surfacing on the upper lot at Lafayette Station (thus providing 300 additional spaces). Cost was approximately $6,000, from Transit Development Act. |
| May 10, 1977: | BART-engineered "electronic testing device" to quickly and accurately test individual performance of various types of special circuit boards used in automatic operation and total integrated elctronic units, is unveiled before the District's Engineering Committee. The diagnostic machine provides a major breakthrough in support of BART's computer maintenance program with regard to preventative maintenance for transit vehicles. It was developed by a team of BART engineers headed by Ron Tolmei. Other team members were: John Prowznik, Paul Master, Peter Bice, Howard Harcourt and Dean Watson. |
| May 18, 1977: | BART conducts fifth passenger survey to determine such things as who uses BART, trip origin and destination, what means were used to get to and from BART stations, and for what purpose various trips are made. |
| May 20, 1977: | BART signs first apprenticeship program agreement with the State of California and UPE 390. The program seeks to develop apprenticeships in general maintenance for a four-year period beginning in July 1977. It is an outgrowth of the 1976 labor agreement between BART and UPE 390. Following the four year period, persons in the program would be eligible for journey-person status as recognized by the State of California. |
| June 9, 1977: | BART receives award from California State Department of Rehabilitation for "outstanding public service" in recognition of the system's accomplishments in making the system accessible to the handicapped. |
| June 14, 1977: | BART adds 300 parking spaces at Fremont Station. Cost is $590,000, with 83 percent covered by Federal Aid Urban Highway (FAU) and 17 percent coming from Transit Development Act funds. |
| June 25, 1977: | BART conducts largest full scale fire drill to date. Drill includes 200 volunteers plus representatives from hospitals and emergency response agencies. |
| July 8, 1977: | BART train service is disrupted by a walkout staged by train operators with the Amalgamated Transit Union, Local 1555. Limited train service is provided between Daly City and MacArthur Stations, with bus bridges to stations. |

July 18, 1977: BART announces settlement in principle of BART's lawsuit against Barsons Brinckerhoff-Tudor-Bechtel, Rohr and Westinghouse.

July 28, 1977: BART announces completion of installation of special sun shield on the system's trackside electronic control boxes. The sun shields were purchased from A.R. Peterson & Son (low bidder) at a total cost of $43,653. 1,200 shields were installed over a two-month period.

August 26, 1977: Thirty members of BART Police Officers Association strike, in violation of injunction issued by Alameda County Superior Court. Sixty members of BPD remain on duty. Members of UPE 390 and ATU 1555 honored strike. 75% of workforce out.

September 7, 1977: BART and BPOA announce at 2:30 a.m. that a tentative agreement has been reached, ending the 14-day strike by members of BPOA.

September 11, 1977: BART celebrates fifth birthday. To date, 120 million patrons have been carried 1.6 billion passengers miles. Pre-strike patronage is up to 144,400 daily passengers. Patronage at the end of September 1972 was 17,000. Patronage in September 1973 was at the 32,000 level. Patronage had peaked to 80,000 in September 1974. By 1975, patronage was up to the 122,000 level. By September 1976, patronage was up to 132,000.

September 30, 1977: Permanent extension of the one-half percent sales tax to finance regional transit was signed into law by Governor Brown. AB 1107 was authored by Assemby Sepaker Leo McCarthy, and provides that 75 percent of the proceeds from the tax levied in Alameda, Contra Costa dn San Francisco counties will be earmarked for BART, with the remaining 25 percent to be allocated by the Metropolitan Transportation Commission (MTC) to AC Transit, San Francisco Muni and BART for service improvements. The half-cent sales tax has been in existence since 1970.

October 10, 1977: Three-story parking facility at Daly City Station is opened for BART passenger use. The new structure brings total parking capacity at the station to 1,600. Total cost of the project was approximately $4.2 million, with 91.5 percent being funded by the Federal Highway Administration and the balance by TDA funds and the City of Daly City.

October 19, 1977: BART receives "Silver Mailbox award, presented by the Direct Mail/Marketing Association (DMMA) of New York. The award was presented to BART for its "GO BART - GET AWAY KIT" tote bag, which received order requests from over 9,000 people.

October 17, 1977: BART receives Pioneering Design and Construction" and "Outstanding Civil Engineering Achievement" awards from the American Society of Civil Engineers (ASCE). The awards were presented to BART for its civil engineering accomplishments.

November 21, 1977: Thousands of BART Express Bus riders are left without service when AC Transit bus drivers go on strike. BART contracts with AC Transit to provide Express Bus service from outlying regions of Alameda and Contra Costa counties, to BART stations.

November 28, 1977: BART reaches all-time high for patronage, when approximately 192,000 persons ride BART. This unusuallly high number reflects increased ridership due to AC Transit strike and persons riding BART to Oakland Raiders game at Coliseum.

December 8, 1977: BART Board votes to formalize final agreements with Rohr, Westinghouse, Bulova, and Parsons- Brinkerhoff-Tudor-Bechtel, which will settle the District's three-year-old lawsuit. The settlement means a net value to BART of $28.7 million from the defendents; $15 million in cash ($1.3 million of which has already been credited to BART) and the release fo $49.4 million in claims against BART (which have been valued by the District at approximately $14 million). The defendents will also provide BART with access to documents describing the equipment of the system, will make available to BART patent licenses, and will consult with BART on technical matters. Rohr reduces its $15 million claim against BART, for money due under the transit vehicle contract, to $6.2 million; BART has requested UMTA to pay 80 percent ~~and~~ with the remaining balance to be paid by TDA monies.

January 6, 1978: BART announces that a survey taken by Management Information Associates of San Francisco, indicates that BART may gain an additional 1500 riders who were regular AC Transit riders prior to the AC strike.

January 7, 1978: BART begins permanent Saturday service. On December 6, 1977, the CPUC authorized BART to begin Saturday service on a regular basis beginning January 7. In actuality, Saturday service has been continuous since November 19, 1988, as part of BART's traditional extended service during the holiday season.

January 16, 1978: New shuttle service begins between Hayward Station and the Alameda County Hall of Justice. The shuttle is a joint BART/Alameda County project with funding costing $175,000 for two years; 75% of the funding is from a TDA grant, 25% is from Alameda County's general fund.

January 26, 1978: BART Board authorizes offering a free day of BART service, in an effort to make up for passenger inconveniences during the AC Transit strike. In addition, Board authorizes one free month of BART Express Bus service, following the end of the two-month long AC Transit strike.

February 2, 1978: BART offers free day of BART train service (see January 26, 1978 entry). Ridership on the system reaches a record high of approximately 250,000

March 8, 1978: BART announces installation of "TTY Telephone" for the deaf. The TTY phone will be located in BART's Telephone Information Center, for the convenience of deaf BART patrons who need transit information.

April 7, 1978: BART officials appear before CPUC to seek approval of new operating procedures that will permit the largest improvements in train service and service reliability since the system opened in 1972. The single most significant request was to remove the one-station separation between trains constraint.

April 27, 1978: Ashby Station becomes first of eight BART stations to be a Remotely Staffed Station (RSS). The station is monitored by a station agent in Central called "Monitor Center Operator" (MCO). The station is monitored by Closed Circuit Television cameras and fare gates, service gates, elevators and restroom doors are controlled by the MCO.

April 27, 1978: BART Board authorizes sale of land for United Nations Plaza. The 7,893 square feet of property was sold to the City and County of San Francisco for $325,000, considered a fair market price.

June 13, 1978: BART receives CPUC approval to operate regular Sunday train service. Implementation date is scheduled for July 2, 1978.

June 20, 1978: Forty-one management and other non-uion personnel receive notification that their positions were being eliminated, as a result of cut-backs necessary because of Proposition 13 (Jarvis-Gann Initiative). In addition, BART G.M. Frank C. Herringer announced that approximately 150 positions proposed for the 1978/79 BART budget will be eliminated, for a saving of over $5 million. Included in this are 100 union positions.

July 2, 1978: BART begins regular Sunday train service. Richmond/Fremont and Concord/San Francisco service will be in effect from 9 a.m. to midnight.

September 11, 1978: BART observes sixth birthday. Since 1972, over 160,000,000 riders have traveled over two billion passenger miles on BART.

September 15, 1978: BART receives notification of UMTA grant in the amount of $14,729,480. The money will be used for expansion of the Oakland Shops and storage complex, transit vehicle traction motors modifications, upgrading of handicapped facilities, cable replacement, and replacement of all the seat cushions in the transit vehicles. These projects are expected to be completed within the next two years.

September 29, 1978: BART puts additonal cars into service on the Fremont/Daly City line in an effort to help alleviate commute problems due to the Southern Pacific work shoppage.

September 29, 1978: BART Board approves permit parking at Daly City Station for district residents. The permit parking will be in a 250-space auxiliary parking lot, which is expected to be completed in about two months.

October 27, 1978: BART Director John Glenn, of Fremont, presides over ribbon cutting ceremony to dedicate the new parking lot at BART's Fremont Station. The new lot adds over 300 spaces to the parking facility

November 1, 1978: BART patrons using local feeder buses in Walnut Creek will be able to transfer to and from BART Express Buses. Prior to this policy, BART Express Bus riders could transfer only from Express Buses to local feeder buses.

January 1, 1979: AB 2496 goes into effect, making violators of BART's "No Smoking" rule subject to a citation and fine of up to $50.

January 17, 1979: Transbay tube fire

January 18, 1979: BART trains operate on altered schedule due to transbay tube fire. East bay trains operate at 12-minute intervals between Concord and MacArthur stations, and between Richmond and Fremont; in San Francisco, trains will operate at 6-minute intervals between Embarcadero and Daly City stations.

January 19, 1979: CPUC orders temporary moratorium on service through transbay tube.

January 19, 1979: "Board of Inquiry" convenes, to conduct investigation into transbay tube fire. The board will be comprised of Oakland Fire Dept. Cheif Wm. Moore; James Squeri, CPUC; SFFD Deputy Chief Emmet D. Condon; New Jersey PATCO Rbt. Korach; NYC Transit Authority-Thomas Pope; BART Director of Safety Ralph S. Weule, who will act as coordinator. An independent investigation will be conducted by Harold Storey, NTSB; Edward Boyle, UMTA will act as observer to aid in fulfilling UMTA's own investigative responsibilites.

January 20, 1979: BART Board President John Kirkwood calls for special "hot line" to be set up at BART for anyone who was on the train that caught fire in the transbay tube or who has information regarding the tube fire incident.

February 2, 1979: BART receives seven CPUC-recommended conditions for the resumption of transbay service.

February 7, 1979: BART is granted CPUC hearing set for Sunday, February 11, to present testimony for opening the transbay tube for service. BART anticipates that by that date, it will have complied with the CPUC order of January 19 which sut down the tube.

January 8, 1979: BART Board inspects transbay tube.

January 8, 1979: BART performs time/motion study of evacuation drill the measure passenger evacuation time form a disabled train in the tube. The test proves to be successful in meeting the prime objectives.

February 13, 1979: BART announces plans to charge 50¢ for round trip fares on the special transbay bus service. It is estimated that BART loses about $65,000 per day in revenue and expenses due to tube closure.

February 13, 1979: BART G.M. meets with Oakland and San Francisco fire chiefs. representatives for California Occupational Safety and Health Administration (OSHA) and the State Fire Marshall's Office to identify and work out a specific set of tasks toward resumption of transbay service. It is expected to take approximately three weeks before the transit district will be ready to ask the CPUC to resume transbay service.

February 21, 1979: BART holds "smoke test" in transbay tube. Purpose of the drill is to demonstrate a coordinated management of the tube's ventilation and exhaust system for control of smoke.

March 1, 1979: BART Board authorizes advertising for bids for the construction of an additional westside parking lot with a pedestrian underpass connection to the Hayward BART Station. Cost is estimated at $950,000, with 83 percent to be funded by FAU and the balance funded by state TDA funds.

March 6, 1979: BART G.M. receives Board of Inquiry report containing 78 recommedations for improving emergency procedures/fire safety on the system. Report will be presented to the BART Board's Engineering and Operations Committee.

March 15, 1979: BART conducts largest transbay tube evacuation drill, with over 600 volunteers participating. This drill was the last of four transbay tube drills that were held since February 27, 1979. In past drills, 150-250 volunteers have participated.

March 22, 1979: BART Board unanimously endorses a comprehensive emergency preparedness and fire safety program for BART and authorizes the General Manager to hire an outside expert in fire and safety protection.

March 23, 1979: BART requests and is granted CPUC hearing. This is the second hearing before the CPUC on restoration of transbay service; the first hearing, held Februaryll, was adjourned pending the development of further documentation on safety improvements. The hearing date is set for March 29, 1979.

March 29, 1979: BART begins testimony before CPUC for resumption of transbay service.

April 2, 1979: BART concludes presentation of direct evidence and testimony to the CPUC to resume transbay service.

April 4, 1979: CPUC authorizes resumption of transbay service. BART will resume service through the transbay tube beginning at 6 a.m. on April 5, 1979.

April 10, 1979: BART Board directs BART staff to develop plans for a turn-around and storage facility to be located between the Daly City and Balboa Park stations. This plan will serve as an alterna tive to a year-old proposal to construct a 6,000 foot track extension and trans storage tracks beyond the Daly City Station.

April 10, 1979: BART G.M. Keith Bernard recommends to BART Board that the Remotely Staffed Station (RSS) program be discontinued. The recommendation is based on a 51-page report and cites the primary problem is with the Automatic Fare machines not being as reliable as needed to realize BART's goal of saving $1 million annually through the RSS program.

April 30, 1979: BART announces that safety posters will be installed in all transit vehicles this week. The posters will contain vital information on safety and emgergency evacuation procedures.

May 10, 1979: BART announces it will put an 20 additional cars into service in response to the recent surge in ridership. The extra csrs will be added to trains on the Concord/Daly City and Fremont/ Daly City lines during midday hours. BART ridership has increased by 18,000 trips, to a total daily average of over 168,000, as a result of the recent gasoline shortage. BART analysts have determined that most of this ridership increase has occurred during middday hours.

May 10, 1979: BART Board votes to begin direct Richmond/Daly City service in October 1979 or as soon thereafter as possible. The new service will be possible with the implementation of BART's proposed "close headways" program (which needs CPUC approval) or by redistributing the trains presently being used during revenue operation.

May 21, 1979: Permit parking lot opens at Daly City Station. This 250-space auxiliary parking lot is available to BART district residents with permits.

June 1, 1979: Train operators complete special Emergency Procedures Training program. The program is based on new emergency procedures that were developed as a result of the transbay tube fire.

June 28, 1979: BART reports work slowdown in maintenance shops by members of United Public Employees (UPE) Local 390, resulting in a drop in car availability. The normal average of 360 cars available for revenue service in the morning has been steadily declining, reaching a low of 273 cars on this date. Bernard states he believes the slowdown is directly related to current contract negotiations. The ATU 1555 and UPE 390 contract is due to expire at midnight on June 30.

June 2, 1979: BART announces that ATU 1555 and UPE 390 have agreed to work under the old contract on a day-to-day basis while contract talks continue. BART reports that a negotiation-related work slowdown has continued, resulting in a new low of 254 transit vehicles available for revenue service on this date.

July 8, 1979: BART announces its "final offer" of a wage and benefit package for the ATU 1555 and UPE 390 union contract. If offer is not accepted by midnight July 10, the existing contract which has been extended on a day-to-day basis since July 1 will no longer be extended.

July 30, 1979: Members of UPE 390 and ATU 1555 "take over" Concord Shop. Two foreworkers who were trying to protect the facilities were forceably removed by union leaders. BART G.M. orders the indefinite suspension of all employees involved.

August 6, 1979: BART Board votes to appeal portions of a court order issued August 3, 1979 restricting BART from transferring "massive" numbers of employees from one worksite to another and to impose immediate discipline on those employees involved in the seizure of the Concord maintenance shop.

August 8, 1979: BART files appeal of court order pertaining to the takeover of Concord Shop (see above entry).

August 16, 1979: BART reports losses totaling $560,000 since June 1 as a result of lost revenues due to work slowdown affecting number of available cars, and sabotage of district property. Report states that $440,600 ($15,000 per day) has been lost due to decline in patronage during labor dispute; $43,400 has been lost as a result of sabotage of district property.

August 24, 1979: BART Board authorizes advertising for bids on the construction of a third trackway in downtown Oakland. This project is the 1.5 miles tunnel portion of an eventual 2.5 mile third trackway. The cost is estimated at $4.6 million, with 80 percent funding by UMTA and the balance through MTC of excess bridge tolls.

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| August 29, 1979: | BART labor dispute continues with vadalism disabling 34 transit cars at the Concord Shop due to 75 punctured air bags. The car availability is down to 157, allowing for 22 trains maximum rather than the scheduled 32 on line during peak hours. Consequently, BART announces reduced base service schedules; trains will operate at 18-minute intervals instead of 14-minute intervals. |
| August 30, 1979: | BART Director Arthur Shartsis announces he plans to seek special legislation for harsh penalties for vandalism perpetrated on public transit systems. |
| August 31, 1979: | Senator S. I. Hayakawa joins BART Board President John H. Kirkwood in an inspection of vadalized transit vehicles at the Concord Shop. The senator plans to introduce federal legislation to increase penalties for vandalism and sabotage of public transit facilities. |
| August 31, 1979: | A strike by BART employees forces shutdown of the BART system effect at 7 p.m. By 4 p.m. BART was no longer providing rail service between Oakland and Richmond and Concord. A free bus service was put into effect between MacArthur and Concord. |
| September 25, 1979: | BART wins appeal of August 3 court order restricting it from transferring "massive" numbers of employees from one work site to another as needed, and to impose discipline on those employees involved in the Concord Shop takeover. The decision was rendered by the California State Court of Appeal. |
| October 2, 1979: | BART announces it will provide limited train service. The service will operate Monday through Friday, 6 a.m. to 6 p.m. between Lafayette Station and 24th Street Station in San Francisco. |
| October 5, 1979: | BART Board votes to seek legislation for strong penalties in cases of vandalism or sabotage perpetrated on public transit systems. |
| October 16, 1979: | CPUC hearings continue concerning BART's application to remove requirement that trains operate no closer than one station apart. This would pave the way for implementing direct Richmond/Daly City service in early 1980. |
| October 31, 1979: | BART announces it is seeking to resume contract talks with ATU 1555 and UPE 390. Negotiations broke off between the two sides on October 10, 1979. |
| November 19, 1979: | BART, for the first time, offers limited direct Richmond/San Francisco service. Service is offered during commute hours only during period of BART/Unions labor dispute. |

November 21, 1979: BART Board formally ratifies contract with ATU 1555 and UPE 390 upon prior ratification by those unions. All stations will be open by Monday, November 26, and it is expected that full train service will resume by Thursday, November 29.

December 3, 1979: Full train services resumes following over three months of limited service due to labor dispute.

November 29, 1979: BART Board authorizes seeking bids for replacing transit vehicle seat cushions and covers for transit vehicle fleet. Cost of replacement program is approximately $4.5 million; BART has federal grant for $2.8 million for this purpose and is seeking additional federal funding for the project. The project is expected to be completed by September 30, 1980.

December 31, 1979: BART, for the first time, operates trains around-the-clock as part of special service on New Year's Eve.

January 23, 1980: BART announces it has hired Gage-Babcock of Oakland, an engineering firm that specializes in fire investigations and safety, to investigate a fire taht destroyed a BART car on December 12, 1979.

February 14, 1980: BART appears before CPUC for hearing on BART's application requesting an extension (to December 31, 1970) on completion date of replacing transit vehicle seats.

February 25, 1980: Special joint BART/AC Transit committee is established. The committee, whose members are comprised of directors from both agencies, is responsible for improving overall coordination between the two transit agencies.

March 20, 1980: BART announces that Board of Directors has approved awarding contract to C. Overaa & Co. of Richmond for $3,068,076 to construct a third track through downtown Oakland. The new "K-E" track will run about 1.5 miles from Washington Street portal to 23rd Street portal through a third subway tunnel under under downtown Oakland.

March 24, 1980: BART begins "BARTpool" parking program at Concord Station. Carpools of three persons or more are permitted special close-in parking in a permit lot.

March 27, 1980: Board of Directors approves entering into agreement with Kaiser Engineers, Inc., of Oakland, to assist BART engineers in the development of a new transit car for the system. BART hopes to eventually purchase 90 of these "C" cars -- a car that is a combination "A" car and "B" car -- at a cost of $1 million per car.

April 7, 1980: East entrance to Fremont Station officially opens.

April 7, 1980: BART Director Arthur Shartsis, of Oakland, testifies before Assembly Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage

April 7, 1980: BART Director Arthur Shartsis testifies before Assemby Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage BART trains or equipment, with punishment of three to five years in state prison or a fine of up to $5,000 or both.

April 25, 1980: Work begins on K-E track in Oakland.

April 24, 1980: BART Board adopts extension policy. Part of a 20-year plan, the policy outlines four basic extensions to the system, including 15 miles from Concord Station to the Pittsburg-Antioch area; 4.8 miles from Fremont Station to the Warm Springs area; 9.3 miles from Daly City Station to the San Francisco Airport; and 24 miles from Bay Fair Station through Castro Valley to the Livermore-Pleasanton area. Total cost is estimated at $1.7 billion.

May 16, 1980: BART announces that WAM's, Inc., a San Francisco-based firm, is the apparent low bidder on contract to install the new seat cushions in BART cars. Their bid of $118,267 was well below the estimated cost of $200,000 to complete the job. The new fire resistant seat cushions are being manufactured by Art Craft Industries of Milwaukee, Wisconsin, for $4.2 million.

June 24, 1980: BART Board adopts $105.5 million operating budget that includes a fare increase. This is the first fare increase since 1975. Under the new fare formula, the average fare will increase 36 percent. The minimum fare is raised from 30 cents to 50 cents. Discount fares for handicapped and children five through twelve has been increased from a 75 percent discount to a 90 percent discount.

June 13, 1980: BART begins three-month phase-in program for "close headways." At 11 a.m. the close headways program began in the Oakland Wye area. Close headways means trains are run more closely together, thus increasing system capacity. This program will pave the way for start-up of direct Richmond-San Francisco service.

June 30, 1980: "Loma Ranger" shuttle van service operating between the Glen Park Station and Mira Loma Park, begins.

June 30, 1980: New fares go into effect (see June 24, 1980 entry).

July 7, 1980: BART begins direct Richmond-San Francisco service. Total number of trains scheduled to operate during peak periods is 43 (as opposed to 33 trains prior to introduction of close headways). Of these 43, BART has added a train to the Concord line and Fremont line.

July 24, 1980: BART Board approves application to UMTA for 80 percent federal funding of $118 million cost to purchase 90 "C" cars.

August 20, 1980: BART awarded 1980 Career Apparel Image Award by the National Association of Uniform Manufacturers for station agent uniforms.

September 11, 1980: BART celebrates eight years in operation. The transit system has carried better than 237 million passengers over 3 billion passenger miles. BART passed the 3 billion mark by the end of June 1980.

September 12, 1980: BART conducts media tour of transbay tube to inspect water seepage into tube. BART announces that it has contract with Adhesive Engineers of San Carlos to perform grouting work to seal several minor seepage points located approximately 1.7 miles east of San Francisco.

September 12, 1980: BART announces that San Francisco Muni transfers will be available free of charge from transfer machines at the Daly City BART Station. The fifty-cent savings (the current cost of BART/MUNI transfers) will benefit San Francisco residents who have been paying the surcharge on trips taken from the Daly City Station to downtown San Francisco.

October 9, 1980: BART announces modification in its "close headways" program, operating 39 trains maximum instead of the 43 that have been operating during peak hours. Base service will change from 15 to 16 minutes for each line. During peak hours, trains will operate at four-minute intervals in downtown Oakland and Transbay throguh San Francisco and Daly City. The modifications are the result of commute hour service problems encountered during the past three months with the introduction of "close headways."

October 16, 1980: BART Board approves awarding contract to LeeMAH Electronics, Inc., of San Francisco, to manufacture a major new train control modification called, "Manual Cab Signalling" (MCS). The modification will permit train operators to operate the trains manually at normal speeds with full automatic protection. MCS was developed by BART engineers.

October 22, 1980: BART announces it will receive $12.9 million in Federal grants from UMTA for three major improvement programs. The three grants include $3.4 million for a portion of construction of the K-E track, $5.4 million for fire safety improvements, and $4.1 million for reliability improvment projects.

October 25, 1980: BART begins four route service on Saturdays; direct Richmond-Daly City service begins.

November 5, 1980: BART announces the completion of its seat replacement program. All seats in the system's operating fleet have been replaced with cushions and covers made of fire resistant material; the cushions are made of low-smoke neoprene material and the seat covers are made of 90 percent wool and 10 percent nylon.

December 11, 1980: BART announces that its full-scale fire testing of a BART car is being conducted at the McDonnell-Douglas Corporation testing facility in Southern California.

January 5, 1981: BART begins free shuttle service to transport BART patrons who park along Clayton Rd. in Concord to the Concord BART station. The service begins the same day parking restrictions go into effect in the neighborhood surrounding the Concord Station. The new service has been labled the "Concord Super Shuttle Transit" or "Concord SST."

March 3, 1981: BART police arrest four persons on warrants issued by the Contra Costa County District Attorney's Office, in connection with slashing cusions on BART cars. The four were the owner and three employees of Service Systems, Inc., who were under contract with BART to clean and repair the system's transit car cushions.

April 22, 1981: BART begins "WeTip" program, an anonymous witness program aimed at curtailing vandalsim and other crimes committed on the transit system.

April 21, 1981: BART's "cut out car" program is approved by the CPUC. The new program will allow the system to continue trains in operation even though ther may be a friciton brake problem on one of the cars in a train consist.. Prior to the decision, a train with a brake problem would have to operate at half-speed, thus slowing down trains behind it. The entire train consist would then be taken out of service.

May 7, 1981: BART announces it will soon begin cracking down on fare evaders who fraudulently use BART discount tickets, which is estimated at costing BART about $1 million a year in full fare losses.

July 16, 1981: BART Board adopts a 10-year, $1.2 million program of projects designed to improve pedestrian, automobile, bus and car-pool access to 21 stations through the BART system.

September 3, 1981: BART Board adopts preferred route for the proposed Pittsburg-Antioch extension of the rail system. The preferred route is about 19 miles long and will run from Concord to North Concord along Port Chicago Highway to State Route 4, and along State Route 4 to Antioch.

September 8, 1981: BART announces it will be correcting a minor wate seepage problem in the transbay tube which is allowing less than one gallon of water per hour to seep into the tube.

September 11, 1981: BART celebrates ninth anniversary. The system presently carries approximately 175,000 passengers a day, with 42 trains in operation during peak commute periods.

September 17, 1981: BART unveils major new exhibit entitled, "BART. Going Places." The traveling exhibit makes its debut at Embarcadero Station in San Francisco.

October 21, 1981: BART Board announces that a $6.7 million federal DOT grant that will aid BART in its purchase of new "C" cars has been approved. The $6.7 million federal grant will go toward the purchase of four prototype "C" cars which will undergo extensive testing.

October 31, 1981: At 12 midnight a massive switch -- a major element in the construction of BART's K-E track through downtown Oakland -- is installed in the new trackway. The switch is one of eight switches to be installed in the 12,300-foot addition of mainline trackage.

January 7, 1982: BART Board adopts five-year plan designed to upgrade and streamline the transit system's Express Bus service. The plan calls for gradually phasing out the local service of BART Express Buses as local community transit service is phased in and gradaully increasing the routing of the express bus network, via freeways.

January 18, 1982: BART stocks its stations' vending machines with new BART tickets. The tickets are brighter blue in color and display the BART logo.

February 1, 1982: BART, for the first time, reduces fares during off-peak hours on weekdays. The fare reduction is a test to determine if patrons can be attracted to use the transit system for other than work-related trips. The 20 percent reduction in fares will continue throughout the entire month of February, between the hours of 10 a.m. and 3 p.m.

February 9, 1982: BART's Engineering and Operations Committee receives scaled back proposal for replacement of its computer control system. The revised plan calls for a more centralized computer network which initially reduces the number of new computers from the originally planned 90 to 10. THis will reduce the hardware cost and still provide for the basic need of increasing system capacity from the current maximum of 49 trains to 75 trains.

February 12, 1982: BART introduces "BART TIMES," a new publication for the transit system's riders. The newsletter is available free of charge and will be published on a bi-monthly basis.

February 18, 1982: BART Board authorizes going to bid on the system's $19 million transit vehicle fire hardening project. Included in the fire hardening project will be the removal and replacement of the existing interior liners of the cars with fire resistant material, installing "fire-stop" materials in the sidewalls and ceiling to prevent the spread of combustion, coating the interior of the car roof with a fire resistant paint, coating selected floor panel areas with a protective covering, and installing brake gride heat shields.

March 24, 1982: Goundbreaking ceremony for start of construction of new Regional Administrative Facility. Declared the "first governmental condominium arrangement in the Bay Area," the facility will house BART, Metropolitan Transportation Commission and Association of Bay Area Governments. Cost is estimated at $12.6 million.

May 21, 1982: BART awards $17.8 million contract to improve the fire resistance of transit vehicles to TODCO, a division of the Overhead Door Corp.

May 24, 1982: BART awards $1.8 million contract, which will greatly improve radio communications capacity for BART trains, has been awarded to Wismer and Becker, Consulting Engineers, of Sacramento, California. The new system, called RADCOM, is one of the elements in BART's overall wayside control modification program which will aid BART in increasing passenger capacity by allowing more trains to operate on the system at any one time.

July 1, 1982: BART Board votes to ratify a new three-year contract with its two major unions, ATU 1555 and UPE 390.

July 13, 1982: BART announces winners in its "Architectural Design Competition." Prizes totaling $16,000 were awarded to graduate student teams from west coast colleges who participated in the contest aimed at focusing on commercial and institutional development potential at Walnut Creek, Oakland West and Coliseum BART stations.

July 27, 1982: BART opens bids on the transit system's proposed new "C" cars. Five bids were received and will undergo careful analysis before a contract is awarded.

August 19, 1982: BART Board authorizes the sale of $65 million in sales tax revenue bonds for the purchase of new transit cars.

August 19, 1982: BART Board approves an agreement with Westinghouse Electric Corporation to develop a new generation of automatic train control equipment for the transit system's new "C" cars.

August 20, 1982: BART announces the a contract to manufacture special fare gate equipment to accommodate a combined BART/MUNI "fast pass" has been awarded.

August 20, 1982: BART Board announces new fares will go into effect September 8, 1982. The new fares will raise BART fares on the average by 18.4 percent.

November 15, 1976: Daly City Station parking structure partially opened, providing parking for over 300 autos. Construction began in August 1975 and should be completed in summer 1977 at a cost of $3,945,000.

November 17, 1976: Fire occurs on a single car of a BART train, causing damage estimated at $100,000. A joint team of BART and OFD investigators concludes that the fire was not the result of any technical or mechanical malfunction. Arson is suspected.

December 6, 1976: BART increase commute-hour train lenght on all lines. Concord line will have mostly 10-car trains. Average daily car availability exceeds 300, compared to an average 200 the previous year. Insufficient electrical power throughout the system to drive the longer trains has been corrected by increasing BART's electrical sub-station capacity. BART engineers correct problem associated with the location of an automatic train control circuit just east of the Embarcadero Station.

December 31, 1976: BART, for the first time, operates trains on New Year's Eve until 2:30 a.m. New Year's Day.

December 31, 1976: Patronage at year-end is 133,000 per day, with 30 trains max.

January 26, 1977: Hundred millionth passenger enters at Montgomery Street Station. Maria Magdalena De Guzman, of Daly City, received a certificate and gift in honor of the occassion. Since beginning operations on September 11, 1972, BART trains have traveled 1.4 billion passenger miles.

February 1, 1977: BART officially begins bike locker program, providing 648 bike lockers at all stations except downtown Oakland, Berkeley and San Francisco subway stations.

March 3, 1977: Arbitrator Sam Kagel decided dispute between BART and ATU 1555 regarding the issue of unmanned, remotely staffed stations. Kagel ruled that the Union should lift its ban on station agents working overtime at unmanned stations, and that BART could continue its test period of substituting cameras for agents but required that there be a station agent on the premises while the test of using RSS equipment was in progress.

March 9, 1977: Parking for 390 additional parking spaces at South Hayward Station completed, bringing the total spaces at the station to 880.

April 4, 1977: BART Board establishes Committee on Affirmative Action.

April 4, 1977: BART Board awards contract to provide seismic sensor alarms at Concord, Walnut Creek, Rockridge, El Cerrito Del Norte, BayFair, Fremont, Embarcadero and Daly City stations, at a cost of $22,000.

April 14, 1977: BART Board seeks to toughen transit system's "no smoking" rule by seeking legislation to impose $50 fine.

April 25, 1977: BART adds 573 parking spaces at stations on the Concord line, by restriping and providing aggregate surfacing on the upper lot at Lafayette Station (thus providing 300 additional spaces). Cost was approximately $6,000, from Transit Development Act.

May 10, 1977: BART-engineered "electronic testing device" to quickly and accurately test individual performance of various types of special circuit boards used in automatic operation and total integrated elctronic units, is unveiled before the District's Engineering Committee. The diagnostic machine provides a major breakthrough in support of BART's computer maintenance program with regard to preventative maintenance for transit vehicles. It was developed by a team of BART engineers headed by Ron Tolmei. Other team members were: John Prowznik, Paul Master, Peter Bice, Howard Harcourt and Dean Watson.

May 18, 1977: BART conducts fifth passenger survey to determine such things as who uses BART, trip origin and destination, what means were used to get to and from BART stations, and for what purpose various trips are made.

May 20, 1977: BART signs first apprenticeship program agreement with the State of California and UPE 390. The program seeks to develop apprenticeships in general maintenance for a four-year period beginning in July 1977. It is an outgrowth of the 1976 labor agreement between BART and UPE 390. Following the four year period, persons in the program would be eligible for journey-person status as recognized by the State of California.

June 9, 1977: BART receives award from California State Department of Rehabilitation for "outstanding public service" in recognition of the system's accomplishments in making the system accessible to the handicapped.

June 14, 1977: BART adds 300 parking spaces at Fremont Station. Cost is $590,000, with 83 percent covered by Federal Aid Urban Highway (FAU) and 17 percent coming from Transit Development Act funds.

June 25, 1977: BART conducts largest full scale fire drill to date. Drill includes 200 volunteers plus representatives from hospitals and emergency response agencies.

July 8, 1977: BART train service is disrupted by a walkout staged by train operators with the Amalgamated Transit Union, Local 1555. Limited train service is provided between Daly City and MacArthur Stations, with bus bridges to stations.

July 18, 1977: BART announces settlement in principle of BART's lawsuit against Barsons Brinckerhoff-Tudor-Bechtel, Rohr and Westinghouse.

July 28, 1977: BART announces completion of installation of special sun shield on the system's trackside electronic control boxes. The sun shields were purchased from A.R. Peterson & Son (low bidder) at a total cost of $43,653. 1,200 shields were installed over a two-month period.

August 26, 1977: Thirty members of BART Police Officers Association strike, in violation of injunction issued by Alameda County Superior Court. Sixty members of BPD remain on duty. Members of UPE 390 and ATU 1555 honored strike. 75% of workforce out.

September 7, 1977: BART and BPOA announce at 2:30 a.m. that a tentative agreement has been reached, ending the 14-day strike by members of BPOA.

September 11, 1977: BART celebrates fifth birthday. To date, 120 million patrons have been carried 1.6 billion passengers miles. Pre-strike patronage is up to 144,400 daily passengers. Patronage at the end of September 1972 was 17,000. Patronage in September 1973 was at the 32,000 level. Patronage had peaked to 80,000 in September 1974. By 1975, patronage was up to the 122,000 level. By September 1976, patronage was up to 132,000.

September 30, 1977: Permanent extension of the one-half percent sales tax to finance regional transit was signed into law by Governor Brown. AB 1107 was authored by Assemby Sepaker Leo McCarthy, and provides that 75 percent of the proceeds from the tax levied in Alameda, Contra Costa dn San Francisco counties will be earmarked for BART, with the remaining 25 percent to be allocated by the Metropolitan Transportation Commission (MTC) to AC Transit, San Francisco Muni and BART for service improvements. The half-cent sales tax has been in existence since 1970.

October 10, 1977: Three-story parking facility at Daly City Station is opened for BART passenger use. The new structure brings total parking capacity at the station to 1,600. Total cost of the project was approximately $4.2 million, with 91.5 percent being funded by the Federal Highway Administration and the balance by TDA funds and the City of Daly City.

October 19, 1977: BART receives "Silver Mailbox award, presented by the Direct Mail/Marketing Association (DMMA) of New York. The award was presented to BART for its "GO BART - GET AWAY KIT" tote bag, which received order requests from over 9,000 people.

October 17, 1977: BART receives Pioneering Design and Construction" and "Outstanding Civil Engineering Achievement" awards from the American Society of Civil Engineers (ASCE). The awards were presented to BART for its civil engineering accomplishments.

November 21, 1977: Thousands of BART Express Bus riders are left without service when AC Transit bus drivers go on strike. BART contracts with AC Transit to provide Express Bus service from outlying regions of Alameda and Contra Costa counties, to BART stations.

November 28, 1977: BART reaches all-time high for patronage, when approximately 192,000 persons ride BART. This unusuallly high number reflects increased ridership due to AC Transit strike and persons riding BART to Oakland Raiders game at Coliseum.

December 8, 1977: BART Board votes to formalize final agreements with Rohr, Westinghouse, Bulova, and Parsons- Brinkerhoff-Tudor-Bechtel, which will settle the District's three-year-old lawsuit. The settlement means a net value to BART of $28.7 million from the defendents; $15 million in cash ($1.3 million of which has already been credited to BART) and the release fo $49.4 million in claims against BART (which have been valued by the District at approximately $14 million). The defendents will also provide BART with access to documents describing the equipment of the system, will make available to BART patent licenses, and will consult with BART on technical matters. Rohr reduces its $15 million claim against BART, for money due under the transit vehicle contract, to $6.2 million; BART has requested UMTA to pay 80 percent ~~and~~ with the remaining balance to be paid by TDA monies.

January 6, 1978: BART announces that a survey taken by Management Information Associates of San Francisco, indicates that BART may gain an additional 1500 riders who were regular AC Transit riders prior to the AC strike.

January 7, 1978: BART begins permanent Saturday service. On December 6, 1977, the CPUC authorized BART to begin Saturday service on a regular basis beginning January 7. In actuality, Saturday service has been continuous since November 19, 1988, as part of BART's traditional extended service during the holiday season.

January 16, 1978: New shuttle service begins between Hayward Station and the Alameda County Hall of Justice. The shuttle is a joint BART/Alameda County project with funding costing $175,000 for two years; 75% of the funding is from a TDA grant, 25% is from Alameda County's general fund.

January 26, 1978: BART Board authorizes offering a free day of BART service, in an effort to make up for passenger inconveniences during the AC Transit strike. In addition, Board authorizes one free month of BART Express Bus service, following the end of the two-month long AC Transit strike.

February 2, 1978: BART offers free day of BART train service (see January 26, 1978 entry). Ridership on the system reaches a record high of approximately 250,000

March 8, 1978: BART announces installation of "TTY Telephone" for the deaf. The TTY phone will be located in BART's Telephone Information Center, for the convenience of deaf BART patrons who need transit information.

April 7, 1978: BART officials appear before CPUC to seek approval of new operating procedures that will permit the largest improvements in train service and service reliability since the system opened in 1972. The single most significant request was to remove the one-station separation between trains constraint.

April 27, 1978: Ashby Station becomes first of eight BART stations to be a Remotely Staffed Station (RSS). The station is monitored by a station agent in Central called "Monitor Center Operator" (MCO). The station is monitored by Closed Circuit Television cameras and fare gates, service gates, elevators and restroom doors are controlled by the MCO.

April 27, 1978: BART Board authorizes sale of land for United Nations Plaza. The 7,893 square feet of property was sold to the City and County of San Francisco for $325,000, considered a fair market price.

June 13, 1978: BART receives CPUC approval to operate regular Sunday train service. Implementation date is scheduled for July 2, 1978.

June 20, 1978: Forty-one management and other non-uion personnel receive notification that their positions were being eliminated, as a result of cut-backs necessary because of Proposition 13 (Jarvis-Gann Initiative). In addition, BART G.M. Frank C. Herringer announced that approximately 150 positions proposed for the 1978/79 BART budget will be eliminated, for a saving of over $5 million. Included in this are 100 union positions.

July 2, 1978: BART begins regular Sunday train service. Richmond/Fremont and Concord/San Francisco service will be in effect from 9 a.m. to midnight.

September 11, 1978: BART observes sixth birthday. Since 1972, over 160,000,000 riders have traveled over two billion passenger miles on BART.

September 15, 1978: BART receives notification of UMTA grant in the amount of $14,729,480. The money will be used for expansion of the Oakland Shops and storage complex, transit vehicle traction motors modifications, upgrading of handicapped facilities, cable replacement, and replacement of all the seat cushions in the transit vehicles. These projects are expected to be completed within the next two years.

September 29, 1978: BART puts additonal cars into service on the Fremont/Daly City line in an effort to help alleviate commute problems due to the Southern Pacific work shoppage.

September 29, 1978: BART Board approves permit parking at Daly City Station for district residents. The permit parking will be in a 250-space auxiliary parking lot, which is expected to be completed in about two months.

October 27, 1978: BART Director John Glenn, of Fremont, presides over ribbon cutting ceremony to dedicate the new parking lot at BART's Fremont Station. The new lot adds over 300 spaces to the parking facility

November 1, 1978: BART patrons using local feeder buses in Walnut Creek will be able to transfer to and from BART Express Buses. Prior to this policy, BART Express Bus riders could transfer only from Express Buses to local feeder buses.

January 1, 1979: AB 2417 goes into effect, making violators of BART's "No Smoking" rule subject to a citation and fine of up to $50.

January 17, 1979: Transbay tube fire

January 18, 1979: BART trains operate on altered schedule due to transbay tube fire. east bay trains operate at 12-minute intervals between Concord and MacArthur stations, and between Richmond and Fremont; in San Francisco, trains will operate at 6-minute intervals between Embarcadero and Daly City stations.

January 19, 1979: CPUC orders temporary moratorium on service through transbay tube.

January 19, 1979: "Board of Inquiry" convenes, to conduct investigation into transbay tube fire. The board will be comprised of Oakland Fire Dept. Cheif Wm. Moore; James Squeri, CPUC; SFFD Deputy Chief Emmet D. Condon; New Jersey PATCO Rbt. Korach; NYC Transit Authority-Thomas Pope; BART Director of Safety Ralph S. Weule, who will act as coordinator. An independent investigation will be conducted by Harold Storey, NTSB; Edward Boyle, UMTA will act as observer to aid in fulfilling UMTA's own investigative responsibilites.

January 20, 1979: BART Board President John Kirkwood calls for special "hot line" to be set up at BART for anyone who was on the train that caught fire in the transbay tube or who has information regarding the tube fire incident.

January 25, 1979: BART Board authorizes direct Concord/Fremont service until transbay service is restored.

February 2, 1979: BART receives seven CPUC-recommended conditions for the resumption of transbay service.

February 7, 1979: BART is granted CPUC hearing set for Sunday, February 11, to present testimony for opening the transbay tube for service. BART anticipates that by that date, it will have complied with the CPUC order of January 19 which sut down the tube.

January 8, 1979: BART Board inspects transbay tube.

January 8, 1979: BART performs time/motion study of evacuation drill the measure passenger evacuation time form a disabled train in the tube. The test proves to be successful in meeting the prime objectives.

February 13, 1979: BART announces plans to charge 50¢ for round trip fares on the special transbay bus service. It is estimated that BART loses about $65,000 per day in revenue and expenses due to tube closure.

February 13, 1979: BART G.M. meets with Oakland and San Francisco fire chiefs. representatives for California Occupational Safety and Health Administration (OSHA) and the State Fire Marshall's Office to identify and work out a specific set of tasks toward resumption of transbay service. It is expected to take approximately three weeks before the transit district will be ready to ask the CPUC to resume transbay service.

February 21, 1979: BART holds "smoke test" in transbay tube. Purpose of the drill is to demonstrate a coordinated management of the tube's ventilation and exhaust system for control of smoke.

March 1, 1979: BART Board authorizes advertising for bids for the construction of an additional westside parking lot with a pedestrian underpass connection to the Hayward BART Station. Cost is estimated at $950,000, with 83 percent to be funded by FAU and the balance funded by state TDA funds.

March 6, 1979: BART G.M. receives Board of Inquiry report containing 78 recommedations for improving emergency procedures/fire safety on the system. Report will be presented to the BART Board's Engineering and Operations Committee.

March 15, 1979: BART conducts largest transbay tube evacuation drill, with over 600 volunteers participating. This drill was the last of four transbay tube drills that were held since February 27, 1979. In past drills, 150-250 volunteers have participated.

March 22, 1979: BART Board unanimously endorses a comprehensive emergency preparedness and fire safety program for BART and authorizes the General Manager to hire an outside expert in fire and safety protection.

March 23, 1979: BART requests and is granted CPUC hearing. This is the second hearing before the CPUC on restoration of transbay service; the first hearing, held Februaryll, was adjourned pending the development of further documentation on safety improvements. The hearing date is set for March 29, 1979.

March 29, 1979: BART begins testimony before CPUC for resumption of transbay service.

April 2, 1979: BART concludes presentation of direct evidence and testimony to the CPUC to resume transbay service.

April 4, 1979: CPUC authorizes resumption of transbay service. BART will resume service through the transbay tube beginning at 6 a.m. on April 5, 1979.

April 10, 1979: BART Board directs BART staff to develop plans for a turn-around and storage facility to be located between the Daly City and Balboa Park stations. This plan will serve as an alterna tive to a year-old proposal to construct a 6,000 foot track extension and trans storage tracks beyond the Daly City Station.

April 10, 1979: BART G.M. Keith Bernard recommends to BART Board that the Remotely Staffed Station (RSS) program be discontinued. The recommendation is based on a 51-page report and cites the primary problem is with the Automatic Fare machines not being as reliable as needed to realize BART's goal of saving $1 million annually through the RSS program.

April 30, 1979: BART announces that safety posters will be installed in all transit vehicles this week. The posters will contain vital information on safety and emgergency evacuation procedures.

May 10, 1979: BART announces it will put an 20 additional cars into service in response to the recent surge in ridership. The extra csrs will be added to trains on the Concord/Daly City and Fremont/ Daly City lines during midday hours. BART ridership has increased by 18,000 trips, to a total daily average of over 168,000, as a result of the recent gasoline shortage. BART analysts have determined that most of this ridership increase has occurred during middday hours.

May 10, 1979: BART Board votes to begin direct Richmond/Daly City service in October 1979 or as soon thereafter as possible. The new service will be possible with the implementation of BART's proposed "close headways" program (which needs CPUC approval) or by redistributing the trains presently being used during revenue operation.

May 21, 1979: Permit parking lot opens at Daly City Station. This 250-space auxiliary parking lot is available to BART district residents with permits.

June 1, 1979: Train operators complete special Emergency Procedures Training program. The program is based on new emergency procedures that were developed as a result of the transbay tube fire.

June 28, 1979: BART reports work slowdown in maintenance shops by members of United Public Employees (UPE) Local 390, resulting in a drop in car availability. The normal average of 360 cars available for revenue service in the morning has been steadily declining, reaching a low of 273 cars on this date. Bernard states he believes the slowdown is directly related to current contract negotiations. The ATU 1555 and UPE 390 contract is due to expire at midnight on June 30.

June 2, 1979: BART announces that ATU 1555 and UPE 390 have agreed to work under the old contract on a day-to-day basis while contract talks continue. BART reports that a negotiation-related work slowdown has continued, resulting in a new low of 254 transit vehicles available for revenue service on this date.

July 8, 1979: BART announces its "final offer" of a wage and benefit package for the ATU 1555 and UPE 390 union contract. If offer is not accepted by midnight July 10, the existing contract which has been extended on a day-to-day basis since July 1 will no longer be extended.

July 30, 1979: Members of UPE 390 and ATU 1555 "take over" Concord Shop. Two foreworkers who were trying to protect the facilities were forceably removed by union leaders. BART G.M. orders the indefinite suspension of all employees involved.

August 6, 1979: BART Board votes to appeal portions of a court order issued August 3, 1979 restricting BART from transferring "massive" numbers of employees from one worksite to another and to impose immediate discipline on those employees involved in the seizure of the Concord maintenance shop.

August 8, 1979: BART files appeal of court order pertaining to the takeover of Concord Shop (see above entry).

August 16, 1979: BART reports losses totaling $560,000 since June 1 as a result of lost revenues due to work slowdown affecting number of available cars, and sabotage of district property. Report states that $440,600 ($15,000 per day) has been lost due to decline in patronage during labor dispute; $43,400 has been lost as a result of sabotage of district property.

August 24, 1979: BART Board authorizes advertising for bids on the construction of a third trackway in downtown Oakland. This project is the 1.5 miles tunnel portion of an eventual 2.5 mile third trackway. The cost is estimated at $4.6 million, with 80 percent funding by UMTA and the balance through MTC of excess bridge tolls.

August 29, 1979: BART labor dispute continues with vadalism disabling 34 transit cars at the Concord Shop due to 75 punctured air bags. The car availability is down to 157, allowing for 22 trains maximum rather than the scheduled 32 on line during peak hours. Consequently, BART announces reduced base service schedules; trains will operate at 18-minute intervals instead of 14-minute intervals.

August 30, 1979: BART Director Arthur Shartsis announces he plans to seek special legislation for harsh penalties for vandalism perpetrated on public transit systems.

August 31, 1979: Senator S. I. Hayakawa joins BART Board President John H. Kirkwood in an inspection of vadalized transit vehicles at the Concord Shop. The senator plans to introduce federal legislation to increase penalties for vandalism and sabotage of public transit facilities.

August 31, 1979: A strike by BART employees forces shutdown of the BART system effect at 7 p.m. By 4 p.m. BART was no longer providing rail service between Oakland and Richmond and Concord. A free bus service was put into effect between MacArthur and Concord.

September 25, 1979: BART wins appeal of August 3 court order restricting it from transferring "massive" numbers of employees from one work site to another as needed, and to impose discipline on those employees involved in the Concord Shop takeover. The decision was rendered by the California State Court of Appeal.

October 2, 1979: BART announces it will provide limited train service. The service will operate Monday through Friday, 6 a.m. to 6 p.m. between Lafayette Station and 24th Street Station in San Francisco.

October 5, 1979: BART Board votes to seek legislation for strong penalties in cases of vandalism or sabotage perpetrated on public transit systems.

October 16, 1979: CPUC hearings continue concerning BART's application to remove requirement that trains operate no closer than one station apart. This would pave the way for implementing direct Richmond/Daly City service in early 1980.

October 31, 1979: BART announces it is seeking to resume contract talks with ATU 1555 and UPE 390. Negotiations broke off between the two sides on October 10, 1979.

November 19, 1979: BART, for the first time, offers limited direct Richmond/San Francisco service. Service is offered during commute hours only during period of BART/Unions labor dispute.

November 21, 1979: BART Board formally ratifies contract with ATU 1555 and UPE 390 upon prior ratification by those unions. All stations will be open by Monday, November 26, and it is expected that full train service will resume by Thursday, November 29.

December 3, 1979: Full train services resumes following over three months of limited service due to labor dispute.

November 29, 1979: BART Board authorizes seeking bids for replacing transit vehicle seat cushions and covers for transit vehicle fleet. Cost of replacement program is approximately $4.5 million; BART has federal grant for $2.8 million for this purpose and is seeking additional federal funding for the project. The project is expected to be completed by September 30, 1980.

December 31, 1979: BART, for the first time, operates trains around-the-clock as part of special service on New Year's Eve.

January 23, 1980: BART announces it has hired Gage-Babcock of Oakland, an engineering firm that specializes in fire investigations and safety, to investigate a fire taht destroyed a BART car on December 12, 1979.

February 14, 1980: BART appears before CPUC for hearing on BART's application requesting an extension (to December 31, 1970) on completion date of replacing transit vehicle seats.

February 25, 1980: Special joint BART/AC Transit committee is established. The committee, whose members are comprised of directors from both agencies, is responsible for improving overall coordination between the two transit agencies.

March 20, 1980: BART announces that Board of Directors has approved awarding contract to C. Overaa & Co. of Richmond for $3,068,076 to construct a third track through downtown Oakland. The new "K-E" track will run about 1.5 miles from Washington Street portal to 23rd Street portal through a third subway tunnel under under downtown Oakland.

March 24, 1980: BART begins "BARTpool" parking program at Concord Station. Carpools of three persons or more are permitted special close-in parking in a permit lot.

March 27, 1980: Board of Directors approves entering into agreement with Kaiser Engineers, Inc., of Oakland, to assist BART engineers in the development of a new transit car for the system. BART hopes to eventually purchase 90 of these "C" cars -- a car that is a combination "A" car and "B" car -- at a cost of $1 million per car.

April 7, 1980: East entrance to Fremont Station officially opens.

April 7, 1980: BART Director Arthur Shartsis, of Oakland, testifies before Assembly Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage

April 7, 1980: BART Director Arthur Shartsis testifies before Assemby Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage BART trains or equipment, with punishment of three to five years in state prison or a fine of up to $5,000 or both.

April 25, 1980: Work begins on K-E track in Oakland.

April 24, 1980: BART Board adopts extension policy. Part of a 20-year plan, the policy outlines four basic extensions to the system, including 15 miles from Concord Station to the Pittsburg-Antioch area; 4.8 miles from Fremont Station to the Warm Springs area; 9.3 miles from Daly City Station to the San Francisco Airport; and 24 miles from Bay Fair Station through Castro Valley to the Livermore-Pleasanton area. Total cost is estimated at $1.7 billion.

May 16, 1980: BART announces that WAM's, Inc., a San Francisco-based firm, is the apparent low bidder on contract to install the new seat cushions in BART cars. Their bid of $118,267 was well below the estimated cost of $200,000 to complete the job. The new fire resistant seat cushions are being manufactured by Art Craft Industries of Milwaukee, Wisconsin, for $4.2 million.

June 24, 1980: BART Board adopts $105.5 million operating budget that includes a fare increase. This is the first fare increase since 1975. Under the new fare formula, the average fare will increase 36 percent. The minimum fare is raised from 30 cents to 50 cents. Discount fares for handicapped and children five through twelve has been increased from a 75 percent discount to a 90 percent discount.

June 13, 1980: BART begins three-month phase-in program for "close headways." At 11 a.m. the close headways program began in the Oakland Wye area. Close headways means trains are run more closely together, thus increasing system capacity. This program will pave the way for start-up of direct Richmond-San Francisco service.

June 30, 1980: "Loma Ranger" shuttle van service operating between the Glen Park Station and Mira Loma Park, begins.

June 30, 1980: New fares go into effect (see June 24, 1980 entry).

July 7, 1980: BART begins direct Richmond-San Francisco service. Total number of trains scheduled to operate during peak periods is 43 (as opposed to 33 trains prior to introduction of close headways). Of these 43, BART has added a train to the Concord line and Fremont line.

July 24, 1980: BART Board approves application to UMTA for 80 percent federal funding of $118 million cost to purchase 90 "C" cars.

August 20, 1980: BART awarded 1980 Career Apparel Image Award by the National Association of Uniform Manufacturers for station agent uniforms.

September 11, 1980: BART celebrates eight years in operation. The transit system has carried better than 237 million passengers over 3 billion passenger miles. BART passed the 3 billion mark by the end of June 1980.

September 12, 1980: BART conducts media tour of transbay tube to inspect water seepage into tube. BART announces that it has contract with Adhesive Engineers of San Carlos to perform grouting work to seal several minor seepage points located approximately 1.7 miles east of San Francisco.

September 12, 1980: BART announces that San Francisco Muni transfers will be available free of charge from transfer machines at the Daly City BART Station. The fifty-cent savings (the current cost of BART/MUNI transfers) will benefit San Francisco residents who have been paying the surcharge on trips taken from the Daly City Station to downtown San Francisco.

October 9, 1980: BART announces modification in its "close headways" program, operating 39 trains maximum instead of the 43 that have been operating during peak hours. Base service will change from 15 to 16 minutes for each line. During peak hours, trains will operate at four-minute intervals in downtown Oakland and Transbay throguh San Francisco and Daly City. The modifications are the result of commute hour service problems encountered during the past three months with the introduction of "close headways."

October 16, 1980: BART Board approves awarding contract to LeeMAH Electronics, Inc., of San Francisco, to manufacture a major new train control modification called, "Manual Cab Signalling" (MCS). The modification will permit train operators to operate the trains manually at normal speeds with full automatic protection. MCS was develope by BART engineers.

October 22, 1980: BART announces it will receive $12.9 million in Federal grants from UMTA for three major improvement programs. The three grants include $3.4 million for a portion of construction of the K-E track, $5.4 million for fire safety improvements, and $4.1 millior for reliability improvment projects.

October 25, 1980: BART begins four route service on Saturdays; direct Richmond-Daly City service begins.

November 5, 1980: BART announces the completion of its seat replacement program. All seats in the system's operating fleet have been replaced with cushions and covers made of fire resistant material; the cushions are made of low-smoke neoprene material and the seat covers are made of 90 percent wool and 10 percent nylon.

December 11, 1980: BART announces that its full-scale fire testing of a BART car is being conducted at the McDonnell-Douglas Corporation testing facility in Southern California.

January 5, 1981: BART begins free shuttle service to transport BART patrons who park along Clayton Rd. in Concord to the Concord BART station. The service begins the same day parking restrictions go into effect in the neighborhood surrounding the Concord Station. The new service has been labled the "Concord Super Shuttle Transit" or "Concord SST."

March 3, 1981: BART police arrest four persons on warrants issued by the Contra Costa County District Attorney's Office, in connection with slashing cusions on BART cars. The four were the owner and three employees of Service Systems, Inc., who were under contract with BART to clean and repair the system's transit car cushions.

April 22, 1981: BART begins "WeTip" program, an anonymous witness program aimed at curtailing vandalsim and other crimes committed on the transit system.

April 21, 1981: BART's "cut out car" program is approved by the CPUC. The new program will allow the system to continue trains in operation even though ther may be a friciton brake problem on one of the cars in a train consist.. Prior to the decision, a train with a brake problem would have to operate at half-speed, thus slowing down trains behind it. The entire train consist would then be taken out of service.

May 7, 1981: BART announces it will soon begin cracking down on fare evaders who fraudulently use BART discount tickets, which is estimated at costing BART about $1 million a year in full fare losses.

July 16, 1981: BART Board adopts a 10-year, $1.2 million program of projects designed to improve pedestrian, automobile, bus and car-pool access to 21 stations through the BART system.

September 3, 1981: BART Board adopts preferred route for the proposed Pittsburg-Antioch extension of the rail system. The preferred route is about 19 miles long and will run from Concord to North Concord along Port Chicago Highway to State Route 4, and along State Route 4 to Antioch.

September 8, 1981: BART announces it will be correcting a minor wate seepage problem in the transbay tube which is allowing less than one gallon of water per hour to seep into the tube.

September 11, 1981: BART celebrates ninth anniversary. The system presently carries approximately 175,000 passengers a day, with 42 trains in operation during peak commute periods.

September 17, 1981: BART unveils major new exhibit entitled, "BART. Going Places." The traveling exhibit makes its debut at Embarcadero Station in San Francisco.

October 21, 1981: BART Board announces that a $6.7 million federal DOT grant that will aid BART in its purchase of new "C" cars has been approved. The $6.7 million federal grant will go toward the purchase of four prototype "C" cars which will undergo extensive testing.

October 31, 1981: At 12 midnight a massive switch -- a major element in the construction of BART's K-E track through downtown Oakland -- is installed in the new trackway. The switch is one of eight switches to be installed in the 12,300-foot addition of mainline trackage.

January 7, 1982: BART Board adopts five-year plan designed to upgrade and streamline the transit system's Express Bus service. The plan calls for gradually phasing out the local service of BART Express Buses as local community transit service is phased in and gradaully increasing the routing of the express bus network, via freeways.

January 18, 1982: BART stocks its stations' vending machines with new BART tickets. The tickets are brighter blue in color and display the BART logo.

February 1, 1982: BART, for the first time, reduces fares during off-peak hours on weekdays. The fare reduction is a test to determine if patrons can be attracted to use the transit system for other than work-related trips. The 20 percent reduction in fares will continue throughout the entire month of February, between the hours of 10 a.m. and 3 p.m

February 9, 1982: BART's Engineering and Operations Committee receives scaled back proposal for replacement of its computer control system. The revised plan calls for a more centralized computer network which initially reduces the number of new computers from the originally planned 90 to 10. THis will reduce the hardware cost and still provide for the basic need of increasing system capacity from the current maximum of 49 trains to 75 trains.

February 12, 1982: BART introduces "BART TIMES," a new publication for the transit system's riders. The newsletter is available free of charge and will be published on a bi-monthly basis.

February 18, 1982: BART Board authorizes going to bid on the system's $19 million transit vehicle fire hardening project. Included in the fire hardening project will be the removal and replacement of the existing interior liners of the cars with fire resistant material, installing "fire-stop" materials in the sidewalls and ceiling to prevent the spread of combustion, coating the interior of the car roof with a fire resistant paint, coating selected floor panel areas with a protective covering, and installing brake gride heat shields.

March 24, 1982: Goundbreaking ceremony for start of construction of new Regional Administrative Facility. Declared the "first governmental condominium arrangement in the Bay Area," the facility will house BART, Metropolitan Transportation Commission and Association of Bay Area Governments. Cost is estimated at $12.6 million.

May 21, 1982: BART awards $17.8 million contract to improve the fire resistance of transit vehicles to TODCO, a division of the Overhead Door Corp.

May 24, 1982: BART awards $1.8 million contract, which will greatly improve radio communications capacity for BART trains, has been awarded to Wismer and Becker, Consulting Engineers, of Sacramento, California. The new system, called RADCOM, is one of the elements in BART's overall wayside control modification program which will aid BART in increasing passenger capacity by allowing more trains to operate on the system at any one time.

July 1, 1982: BART Board votes to ratify a new three-year contract with its two major unions, ATU 1555 and UPE 390.

July 13, 1982: BART announces winners in its "Architectural Design Competition." Prizes totaling $16,000 were awarded to graduate student teams from west coast colleges who participated in the contest aimed at focusing on commercial and institutional development potential at Walnut Creek, Oakland West and Coliseum BART stations.

July 27, 1982: BART opens bids on the transit system's proposed new "C" cars. Five bids were received and will undergo careful analysis before a contract is awarded.

August 19, 1982: BART Board authorizes the sale of $65 million in sales tax revenue bonds for the purchase of new transit cars.

August 19, 1982: BART Board approves an agreement with Westinghouse Electric Corporation to develop a new generation of automatic train control equipment for the transit system's new "C" cars.

August 20, 1982: BART announces the a contract to manufacture special fare gate equipment to accommodate a combined BART/MUNI "fast pass" has been awarded.

August 20, 1982: BART Board announces new fares will go into effect September 8, 1982. The new fares will raise BART fares on the average by 18.4 percent.

October 13, 1976: BART Board approves proposal that the District negotiate an agreement with the City of Berkeley to lease to the City, BART-owned property along Hearst Avenue, known as the "Hearst Strip."

October 25, 1976: "Ride BART Home Free" program continues, with Liberty House sponsoring.

October 27, 1976: BART Makes Changes in U-Line Express Bus Route to Improve Access

November 4, 1976: BART names Richard P. Demko as Director of Maintenance & Rolling Stock, filling the position vacated in September 1976 as a result of organization reassignments.

November 11, 1976: BART Board approves agreement with the City of Berkeley to lease to the City, a two-block portion of property (between Grove and McGee streets) for $1.00 per year for ten years, in exchange for air rights over the North Berkeley Station. This exchange represents a trade-back based on the original 1964 agreement.

November 15, 1976: Daly City Station parking structure partially opened, providing parking for over 300 autos. Construction began in August 1975 and should be completed in summer 1977 at a cost of $3,945,000.

November 16, 1976: BART announces possibility of providing 10-car trains as part of regular service. BART has successfully run 10-car test trains during off-peak and commute hours for the past three weeks. Presently, during peak hours, BART operates 9-car trains on the Concord line, 5-7 car trains on the Fremont/Daly City line and 4-5 car trains on the Richmond/Fremont line. Average daily patronage is 134,000 trips.

November 17, 1976: Fire occurs on a single car of a BART train, causing damage estimated at $100,000. A joint team of BART and OFD investigators concludes that the fire was not the result of any technical or mechanical malfunction. Arson is suspected.

December 6, 1976: BART increase commute-hour train lenght on all lines. Concord line will have mostly 10-car trains. Average daily car availability exceeds 300, compared to an average 200 the previous year. Insufficient electrical power throughout the system to drive the longer trains has been corrected by increasing BART's electrical sub-station capacity. BART engineers correct problem associated with the location of an automatic train control circuit just east of the Embarcadero Station. Because the train control element was installed too close to the end of the platform, the long trains did not always adequately trigger the proper computer response to allow a train to move from the platform after stopping.

December 31, 1976: BART, for the first time, operates trains on New Year's Eve until 2:30 a.m. New Year's Day.

December 31, 1976: Patronage at year-end is 133,000 per day, with 30 trains max.

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January 26, 1977: Hundred millionth passenger enters at Montgomery Street Station. Maria Magdalena De Guzman, of Daly City, received a certificate and gift in honor of the occassion. Since beginning operations on September 11, 1972, BART trains have traveled 1.4 billion passenger miles.

February 1, 1977: BART officially begins bike locker program, providing 648 bike lockers at all stations except downtown Oakland, Berkeley and San Francisco subway stations.

February 1, 1977 BART announces new spur track activated this past week just north of the Daly City Station. The new track will hold a 10-car train, which will provide increased operating flexibility with regard to train removals.

February 14, 1977: Daly City bound train moved through misrouted switch, causing the front wheels of the lead car to go around, "splitting the switch." Investigation of this incident headed by Ralph Weule, in cooperation with the National Transportation Safety Board and the PUC.

March 3, 1977: Arbitrator Sam Kagel decided dispute between BART and ATU 1555 regarding the issue of unmanned, remotely staffed stations. Kagel ruled that the Union should lift its ban on station agents working overtime at unmanned stations, and that BART could continue its test period of substituting cameras for agents but required that there be a station agent on the premises while the test of using RSS equipment was in progress.

March 9, 1977: Parking for 390 additional parking spaces at South Hayward Station completed, bringing the total spaces at the station to 880.

March 10, 1977: BART Board appoints Eugene Garfinkle to Board, representing District 8 in San Francisco. Garfinkle replaced Elmer Cooper, who resigned for personal business reasons, on January 21, 1977.

March 30, 1977: BART Board approves bide submitted by A.R. Peterson & Son of Hayward to supply special sun shields for trackside electronic control boxes, at a cost of $43,653 for 1,300 shields.

April 4, 1977: BART Board establishes Committee on Affirmative Action.

April 4, 1977: BART Board awards contract to provide seismic sensor alarms at Concord, Walnut Creek, Rockridge, El Cerrito Del Norte, BayFair, Fremont, Embarcadero and Daly City stations, at a cost of $22,000.

April 6, 1977: Construction begins at Fremont Station for 300 additional parking spaces at at cost of $590,605.

April 14, 1977: BART Board seeks to toughen transit system's "no smoking" rule by seeking legislation to impose $50 fine.

April 14, 1977: BART seeks to cut power costs by turning off power on storage tracks during non-operating hours.

CHRONOLOGY

April 25, 1977: BART adds 573 parking spaces at stations on the Concord line, by restriping and providing aggregate surfacing on the upper lot at Lafayette Station (thus providing 300 additional spaces). Cost was approximately $6,000, from Transit Development Act.

May 4, 1977: This past week, contracts were awarded to three companies to supply BART with 670 "thyristor components," used to control various electrical functions of transit vehicles (such as dynamic braking and traction propulsion power). Cost for the 670 components is $103,305, as opposed to a cost of $193,305 for the same parts had they been bid as a sole source procurement. This saved the District $90,000.

May 10, 1977: BART-engineered "electronic testing device" to quickly and accurately test individual performance of various types of special circuit boards used in automatic operation and total integrated elctronic units, is unveiled before the District's Engineering Committee. The diagnostic machine provides a major breakthrough in support of BART's computer maintenance program with regard to preventative maintenance for transit vehicles. It was developed by a team of BART engineers headed by Ron Tolmei. Other team members were: John Prowznik, Paul Master, Peter Bice, Howard Harcourt and Dean Watson.

May 18, 1977: BART conducts fifth passenger survey to determine such things as who uses BART, trip origin and destination, what means were used to get to and from BART stations, and for what purpose various trips are made.

May 20, 1977: BART signs first apprenticeship program agreement with the State of California and UPE 390. The program seeks to develop apprenticeships in general maintenance for a four-year period beginning in July 1977. It is an outgrowth of the 1976 labor agreement between BART and UPE 390. Following the four year period, persons in the program would be eligible for journey-person status as recognized by the State of California.

June 9, 1977: BART receives award from California State Department of Rehabilitation for "outstanding public service" in recognition of the system's accomplishments in making the system accessible to the handicapped.

June 13, 1977: BART announces the acquisition of "split disk" brakes for transit vehicles, reducing the time it takes to replace the brake from 24 man hours to 4 man hours. The new brake will also cost less and last longer than the present "single piece" disk.

June 14, 1977: BART adds 300 parking spaces at Fremont Station. Cost is $590,000, with 83 percent covered by Federal Aid Urban Highway (FAU) and 17 percent coming from Transit Development Act funds.

CHRONOLOGY

June 21, 1977: BART G.M., Frank C. Herringer, appoints Lawrence A. Williams to the position of Director of Employee Relations.

June 25, 1977: BART conducts largest full scale fire drill to date. Drill includes 200 volunteers plus representatives from hospitals and emergency response agencies.

July 8, 1977: BART train service is disrupted by a walkout staged by train operators with the Amalgamated Transit Union, Local 1555. Limited train service is provided between Daly City and MacArthur Stations, with bus bridges to stations.

July 18, 1977: BART announces settlement in principle of BART's lawsuit against Barsons Brinckerhoff-Tudor-Bechtel, Rohr and Westinghouse.

July 28, 1977: BART announces completion of installation of special sun shield on the system's trackside electronic control boxes. The sun shields were purchased from A.R. Peterson & Son (low bidder) at a total cost of $43,653. 1,200 shields were installed over a two-month period.

August 3, 1977: BART District files greivance with ATU 1555 in an effort to recover $250,000 in damages caused by the strike of union members on July 8, 1977.

August 26, 1977: Thirty members of BART Police Officers Association strike, in violation of injunction issued by Alameda County Superior Court. Sixty members of BPD remain on duty. Members of UPD 390 and ATU 1555 honored strike. 75% of workforce out.

September 7, 1977: BART and BPOS announce at 2:30 a.m. that a tentative agreement has been reached, ending the 14-day strike by members of BPOA.

September 11, 1977: BART celebrates fifth birthday. To date, 120 million patrons have been carried 1.6 billion passengers miles. Pre-strike patronage is up to 144,400 daily passengers. Patronage at the end of September 1972 was 17,000. Patronage in September 1973 was at the 32,000 level. Patronage had peaked to 80,000 in September 1974. By 1975, patronage was up to the 122,000 level. By September 1976, patronage was up to 132,000.

CHRONOLOGY

September 30, 1977: Permanent extension of the one-half percent sales tax to finance regional transit was signed into law by Governor Brown. AB 1107 was authored by Assemby Sepaker Leo McCarthy, and provides that 75 percent of the proceeds from the tax levied in Alameda, Contra Costa dn San Francisco counties will be earmarked for BART, with the remaining 25 percent to be allocated by the Metropolitan Transportation Commission (MTC) to AC Transit, San Francisco Muni and BART for service improvements. The half-cent sales tax has been in existence since 1970.

October 10, 1977: Three-story parking facility at Daly City Station is opened for BART passenger use. The new structure brings total parking capacity at the station to 1,600. Total cost of the project was approximately $4.2 million, with 91.5 percent being funded by the Federal Highway Administration and the balance by TDA funds and the City of Daly City.

October 19, 1977: BART receives "Silver Mailbox award, presented by the Direct Mail/Marketing Association (DMMA) of New York. The award was presented to BART for its "GO BART - GET AWAY KIT" tote bag, which received order requests from over 9,000 people.

October 17, 1977: BART receives Pioneering Design and Construction" and "Outstanding Civil Engineering Achievement" awards from the American Society of Civil Engineers (ASCE). The awards were presented to BART for its civil engineering accomplishments.

November 21, 1977: Thousands of BART Express Bus riders are left without service when AC Transit bus drivers go on strike. BART contracts with AC Transit to provide Express Bus service from outlying regions of Alameda and Contra Costa counties, to BART stations.

November 28, 1977: BART reaches all-time high for patronage, when approximately 192,000 persons ride BART. This unusuallly high number reflects increased ridership due to AC Transit strike and persons riding BART to Oakland Raiders game at Coliseum.

December 8, 1977: BART Board votes to formalize final agreements with Rohr, Westinghouse, Bulova, and Parsons- Brinkerhoff-Tudor-Bechtel, which will settle the District's three-year-old lawsuit. The settlement means a net value to BART of $28.7 million from the defendents; $15 million in cash ($1.3 million of which has already been credited to BART) and the release fo $49.4 million in claims against BART (which have been valued by the District at approximately $14 million). The defendents will also provide BART with access to documents describing the equipment of the system, will make available to BART patent licenses, and will consult with BART on technical matters. Rohr reduces its $15 million claim against BART, for money due under the transit vehicle contract, to $6.2 million; BART has requested UMTA to pay 80 percent ~~and~~ with the remaining balance to be paid by TDA monies.

CHRONOLOGY

January 6, 1978: BART announces that a survey taken by Management Information Associates of San Francisco, indicates that BART may gain an additional 1500 riders who were regular AC Transit riders prior to the AC strike.

January 7, 1978: BART begins permanent Saturday service. On December 6, 1977, the CPUC authorized BART to begin Saturday service on a regular basis beginning January 7. In actuality, Saturday service has been continuous since November 19, 1988, as part of BART's traditional extended service during the holiday season.

January 16, 1978: New shuttle service begins between Hayward Station and the Alameda County Hall of Justice. The shuttle is a joint BART/Alameda County project with funding costing $175,000 for two years; 75% of the funding is from a TDA grant, 25% is from Alameda County's general fund.

January 26, 1978: BART Board authorizes offering a free day of BART service, in an effort to make up for passenger inconveniences during the AC Transit strike. In addition, Board authorizes one free month of BART Express Bus service, following the end of the two-month long AC Transit strike.

January 30, 1978: First day of one month of free BART Express Bus service (see January 26, 1978 entry).

February 2, 1978: BART offers free day of BART train service (see January 26, 1978 entry). Ridership on the system reaches a record high of approximately 250,000

February 21, 1978: BART Board votes to select Roslyn L. Baltimore of San Francisso to replace Director Ella Hill Hutch, who resigned to assume her new position on the San Francisco Board of Supervisors.

March 8, 1978: BART announces installation of "TTY Telephone" for the deaf. The TTY phone will be located in BART's Telephone Information Center, for the convenience of deaf BART patrons who need transit information.

April 7, 1978: BART officials appear before CPUC to seek approval of new operating procedures that will permit the largest improvements in train service and service reliability since the system opened in 1972. The single most significant request was to remove the one-station separation between trains constraint.

April 27, 1978: Ashby Station becomes first of eight BART stations to be a Remotely Staffed Station (RSS). The station is monitored by a station agent in Central called "Monitor Center Operator" (MCO). The station is monitored by Closed Circuit Television cameras and fare gates, service gates, elevators and restroom doors are controlled by the MCO.

CHRONOLOGY

April 27, 1978: BART Board authorizes sale of land for United Nations Plaza. The 7,893 square feet of property was sold to the City and County of San Francisco for $325,000, considered a fair market price.

June 13, 1978: BART receives CPUC approval to operate regular Sunday train service. Implementation date is scheduled for July 2, 1978.

June 20, 1978: Forty-one management and other non-uion personnel receive notification that their positions were being eliminated, as a result of cut-backs necessary because of Proposition 13 (Jarvis-Gann Initiative). In addition, BART G.M. Frank C. Herringer announced that approximately 150 positions proposed for the 1978/79 BART budget will be eliminated, for a saving of over $5 million. Included in this are 100 union positions.

July 2, 1978: BART begins regular Sunday train service. Richmond/Fremont and Concord/San Francisco service will be in effect from 9 a.m. to midnight.

September 11, 1978: BART observes sixth birthday. Since 1972, over 160,000,000 riders have traveled over two billion passenger miles on BART.

September 14, 1978: BART Board appoints Phillip O. Ormsbee to position of District Secretary. Mr. Ormsbee replaces Richard J. Shephard, who passed away in July 1978.

September 15, 1978: BART receives notification of UMTA grant in the amount of $14,729,480. The money will be used for expansion of the Oakland Shops and storage complex, transit vehicle traction motors modifications, upgrading of handicapped facilities, cable replacement, and replacement of all the seat cushions in the transit vehicles. These projects are expected to be completed within the next two years.

September 29, 1978: BART puts additonal cars into service on the Fremont/Daly City line in an effort to help alleviate commute problems due to the Southern Pacific work shoppage.

September 29, 1978: BART Board approves permit parking at Daly City Station for district residents. The permit parking will be in a 250-space auxiliary parking lot, which is expected to be completed in about two months.

October 27, 1978: BART Director John Glenn, of Fremont, presides over ribbon cutting ceremony to dedicate the new parking lot at BART's Fremont Station. The new lot adds over 300 spaces to the parking facility

November 1, 1978: BART patrons using local feeder buses in Walnut Creek will be able to transfer to and from BART Express Buses. Prior to this policy, BART Express Bus riders could transfer only from Express Buses to local feeder buses.

CHRONOLOGY

January 1, 1979: AB 2478 goes into effect, making violators of BART's "No Smoking" rule subject to a citation and fine of up to $50.

January 11, 1979: BART Board votes to appoint Keith Bernard to the position of General Manager, replacing Frank Herringer.

January 17, 1979: Transbay tube fire

January 18, 1979: BART trains operate on altered schedule due to transbay tube fire. East bay trains operate at 12-minute intervals between Concord and MacArthur stations, and between Richmond and Fremont; in San Francisco, trains will operate at 6-minute intervals between Embarcadero and Daly City stations.

January 19, 1979: CPUC orders temporary moratorium on service through transbay tube.

January 19, 1979: "Board of Inquiry" convenes, to conduct investigation into transbay tube fire. The board will be comprised of Oakland Fire Dept. Chief Wm. Moore; James Squeri, CPUC; SFFD Deputy Chief Emmet D. Condon; New Jersey PATCO Rbt. Korach; NYC Transit Authority-Thomas Pope; BART Director of Safety Ralph S. Weule, who will act as coordinator. An independent investigation will be conducted by Harold Storey, NTSB; Edward Boyle, UMTA will act as observer to aid in fulfilling UMTA's own investigative responsibilites.

January 20, 1979: BART Board President John Kirkwood calls for special "hot line" to be set up at BART for anyone who was on the train that caught fire in the transbay tube or who has information regarding the tube fire incident.

January 23, 1979: BART provides limited direct service between Concord and Fremont on a trial basis until transbay service is restored.

January 25, 1979: BART Board authorizes direct Concord/Fremont service until transbay service is restored.

February 2, 1979: BART receives seven CPUC-recommended conditions for the resumption of transbay service.

February 7, 1979: BART is granted CPUC hearing set for Sunday, February 11, to present testimony for opening the transbay tube for service. BART anticipates that by that date, it will have complied with the CPUC order of January 19 which sut down the tube.

January 8, 1979: BART Board inspects transbay tube.

January 8, 1979: BART performs time/motion study of evacuation drill the measure passenger evacuation time form a disabled train in the tube. The test proves to be successful in meeting the prime objectives.

February 13, 1979: BART announces plans to charge 50¢ for round trip fares on the special transbay bus service. It is estimated that BART loses about $65,000 per day in revenue and expenses due to tube closure.

CHRONOLOGY

February 13, 1979: BART G.M. meets with Oakland and San Francisco fire chiefs. representatives for California Occupational Safety and Health Administration (OSHA) and the State Fire Marshall's Office to identify and work out a specific set of tasks toward resumption of transbay service. It is expected to take approximately three weeks before the transit district will be ready to ask the CPUC to resume transbay service.

February 21, 1979: BART holds "smoke test" in transbay tube. Purpose of the drill is to demonstrate a coordinated management of the tube's ventilation and exhaust system for control of smoke.

March 1, 1979: BART Board authorizes advertising for bids for the construction of an additional westside parking lot with a pedestrian underpass connection to the Hayward BART Station. Cost is estimated at $950,000, with 83 percent to be funded by FAU and the balance funded by state TDA funds.

March 6, 1979: BART G.M. receives Board of Inquiry report containing 78 recommedations for improving emergency procedures/fire safety on the system. Report will be presented to the BART Board's Engineering and Operations Committee.

March 15, 1979: BART conducts largest transbay tube evacuation drill, with over 600 volunteers participating. This drill was the last of four transbay tube drills that were held since February 27, 1979. In past drills, 150-250 volunteers have participated.

March 22, 1979: BART Board unanimously endorses a comprehensive emergency preparedness and fire safety program for BART and authorizes the General Manager to hire an outside expert in fire and safety protection.

March 23, 1979: BART requests and is granted CPUC hearing. This is the second hearing before the CPUC on restoration of transbay service; the first hearing, held February11, was adjourned pending the development of further documentation on safety improvements. The hearing date is set for March 29, 1979.

March 29, 1979: BART begins testimony before CPUC for resumption of transbay service.

April 2, 1979: BART concludes presentation of direct evidence and testimony to the CPUC to resume transbay service.

April 4, 1979: CPUC authorizes resumption of transbay service. BART will resume service through the transbay tube beginning at 6 a.m. on April 5, 1979.

April 10, 1979: BART Board directs BART staff to develop plans for a turnaround and storage facility to be located between the Daly City and Balboa Park stations. This plan will serve as an alternative to a year-old proposal to construct a 6,000 foot track extension and trans storage tracks beyond the Daly City Station.

CHRONOLOGY

April 10, 1979: BART G.M. Keith Bernard recommends to BART Board that the Remotely Staffed Station (RSS) program be discontinued. The recommendation is based on a 51-page report and cites the primary problem is with the Automatic Fare machines not being as reliable as needed to realize BART's goal of saving $1 million annually through the RSS program.

April 16, 1979: Harold Taylor is named Chief of Police for BART, by G.M. Keith Bernard. Taylor replaces Chief William B. Runford Jr., who resigned in November 1978.

April 30, 1979: BART announces that safety posters will be installed in all transit vehicles this week. The posters will contain vital information on safety and emgergency evacuation procedures.

May 4, 1979: BART G.M. announces new organizational structure that will result in a projected savings of more than $200,000 annually, with improved effectiveness and efficiency of BART management. The reorganization is a result of initial work by the management consultant firm of Booz-Allen & Hamilton, Inc., in San Francisco.

May 10, 1979: BART announces it will put an 20 additional cars into service in response to the recent surge in ridership. The extra csrs will be added to trains on the Concord/Daly City and Fremont/Daly City lines during midday hours. BART ridership has increased by 18,000 trips, to a total daily average of over 168,000, as a result of the recent gasoline shortage. BART analysts have determined that most of this ridership increase has occurred during middday hours.

May 10, 1979: BART Board votes to begin direct Richmond/Daly City service in October 1979 or as soon thereafter as possible. The new service will be possible with the implementation of BART's proposed "close headways" program (which needs CPUC approval) or by redistributing the trains presently being used during revenue operation.

May 21, 1979: Permit parking lot opens at Daly City Station. This 250-space auxiliary parking lot is available to BART district residents with permits.

June 1, 1979: Train operators comple special Emergency Procedures Training program. The program is based on new emergency procedures that were developed as a result of the transbay tube fire.

June 28, 1979: BART reports work slowdown in maintenance shops by members of United Public Employees (UPE) Local 390, resulting in a drop in car availability. The normal average of 360 cars available for revenue service in the morning has been steadily declining, reaching a low of 273 cars on this date. Bernard states he believes the slowdown is directly related to current contract negotiations. The ATU 1555 and UPE 390 contract is due to expire at midnight on June 30.

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June 2, 1979: BART announces that ATU 1555 and UPE 390 have agreed to work under the old contract on a day-to-day basis while contract talks continue. BART reports that a negotiation-related work slowdown has continued, resulting in a new low of 254 transit vehicles available for revenue service on this date.

July 8, 1979: BART announces its "final offer" of a wage and benefit package for the ATU 1555 and UPE 390 union contract. If offer is not accepted by midnight July 10, the existing contract which has been extended on a day-to-day basis since July 1 will no longer be extended.

July 30, 1979: Members of UPE 390 and ATU 1555 "take over" Concord Shop. Two foreworkers who were trying to protect the facilities were forceably removed by union leaders. BART G.M. orders the indefinite suspension of all employees involved.

August 6, 1979: BART Board votes to appeal portions of a court order issued August 3, 1979 restricting BART from transferring "massive" numbers of employees from one worksite to another and to impose immediate discipline on those employees involved in the seizure of the Concord maintenance shop.

August 8, 1979: BART files appeal of court order pertaining to the takeover of Concord Shop (see above entry).

August 16, 1979: BART reports losses totaling $560,000 since June 1 as a result of lost revenues due to work slowdown affecting number of available cars, and sabotage of district property. Report states that $440,600 ($15,000 per day) has been lost due to decline in patronage during labor dispute; $43,400 has been lost as a result of sabotage of district property.

August 24, 1979: BART Board authorizes advertising for bids on the construction of a third trackway in downtown Oakland. This project is the 1.5 miles tunnel portion of an eventual 2.5 mile third trackway. The cost is estimated at $4.6 million, with 80 percent funding by UMTA and the balance through MTC of excess bridge tolls.

August 29, 1979: BART labor dispute continues with vadalism disabling 34 transit cars at the Concord Shop due to 75 punctured air bags. The car availability is down to 157, allowing for 22 trains maximum rather than the scheduled 32 on line during peak hours. Consequently, BART announces reduced base service schedules; trains will operate at 18-minute intervals instead of 14-minute intervals.

August 30, 1979: BART Director Arthur Shartsis announces he plans to seek special legislation for harsh penalties for vandalism perpetrated on public transit systems.

CHRONOLOGY

August 31, 1979: Senator S. I. Hayakawa joins BART Board President John H. Kirkwood in an inspection of vadalized transit vehicles at the Concord Shop. The senator plans to introduce federal legislation to increase penalties for vandalism and sabotage of public transit facilities.

August 31, 1979: A strike by BART employees horces shutdown of the BART system effect at 7 p.m. By 4 p.m. BART was no longer providing rail service between Oakland and Richmond and Concord. A free bus service was put into effect between MacArthur and Concord.

September 25, 1979: BART wins appeal of August 3 court order restricting it from transferring "massive" numbers of employees from one work site to another as needed, and to impose discipline on those employees involved in the Concord Shop takeover. The decision was rendered by the California State Court of Appeal.

October 2, 1979: BART announces it will provide limited train service. The service will operate Monday through Friday, 6 a.m. to 6 p.m. between Lafayette Station and 24th Street Station in San Francisco.

October 5, 1979: BART Board votes to seek legislation for strong penalties in cases of vandalism or sabotage perpetrated on public transit systems.

October 16, 1979: CPUC hearings continue concerning BART's application to remove requirement that trains operate no closer than one station apart. This would pave the way for implementing direct Richmond/Daly City service in early 1980.

October 31, 1979: BART announces it is seeking to resume contract talks with ATU 1555 and UPE 390. Negotiations broke off between the two sides on October 10, 1979.

November 19, 1979: BART, for the first time, offers limited direct Richmond/San Francisco service. Service is offered during commute hours only during period of BART/Unions labor dispute.

November 21, 1979: BART Board formally ratifies contract with ATU 1555 and UPE 390 upon prior ratification by those unions. All stations will be open by Monday, November 26, and it is expected that full train service will resume by Thursday, November 29.

December 3, 1979: Full train services resumes following over three months of limited service due to labor dispute.

November 29, 1979: BART Board authorizes seeking bids for replacing transit vehicle seat cushions and covers for transit vehicle fleet. Cost of replacement program is approximately $4.5 million; BART has federal grant for $2.8 million for this purpose and is seeking additional federal funding for the project. The project is expected to be completed by September 30, 1980.

CHRONOLOGY

December 31, 1979: BART, for the first time, operates trains around-the-clock as part of special service on New Year's Eve.

January 1, 1980: Two passengers, Randy SMith of Union City and Alan Young of Oakland, along with train operatro Edmund Bally, assist in reporting and extinguishing fire set by arsonists on 4-car Fremont-bound train at 6:30 a.m. Young and Bally detain arson suspect until BPD arrives.

January 11, 1980: BART advertises for bids on $4.5 million transit vehicle seat replacement program. (see November 29, 1979 entry)

January 16, 1980: BART rewards Randy Smith, Alan Young and Edmund Bally (see January 1, 1980 entry) for theri efforts in averting as arson fire on train. The three split a $1000 reward.

January 23, 1980: BART announces it has hired Gage-Babcock of Oakland, an engineering firm that specializes in fire investigations and safety, to investigate a fire taht destroyed a BART car on December 12, 1979.

February 14, 1980: BART appears before CPUC for hearing on BART's application requesting an extension (to December 31, 1970) on completion date of replacing transit vehicle seats.

February 25, 1980: Special joint BART/AC Transit committee is established. The committee, whose members are comprised of directors from both agencies, is responsible for improving overall coordination between the two transit agencies.

March 20, 1980: BART announces that Board of Directors has approved awarding contract to C. Overaa & Co. of Richmond for $3,068,076 to construct a third track through downtown Oakland. The new "K-E" track will run about 1.5 miles from Washington Street portal to 23rd Street portal through a third subway tunnel under under downtown Oakland.

March 24, 1980: BART begins "BARTpool" parking program at Concord Station. Carpools of three persons or more are permitted special close-in parking in a permit lot.

March 27, 1980: Board of Directors approves entering into agreement with Kaiser Engineers, Inc., of Oakland, to assist BART engineers in the development of a new transit car for the system. BART hopes to eventually purchase 90 of these "C" cars -- a car that is a combination "A" car and "B" car -- at a cost of $1 million per car.

April 7, 1980: East entrance to Fremont Station officially opens.

April 7, 1980: BART Director Arthur Shartsis, of Oakland, testifies before Assembly Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage

CHRONOLOGY

April 7, 1980: BART Director Arthur Shartsis testifies before Assemby Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage BART trains or equipment, with punishment of three to five years in state prison or a fine of up to $5,000 or both.

April 25, 1980: Work begins on K-E track in Oakland.

April 24, 1980: BART Board adopts extension policy. Part of a 20-year plan, the policy outlines four basic extensions to the system, including 15 miles from Concord Station to the Pittsburg-Antioch area; 4.8 miles from Fremont Station to the Warm Springs area; 9.3 miles from Daly City Station to the San Francisco Airport; and 24 miles from Bay Fair Station through Castro Valley to the Livermore-Pleasanton area. Total cost is estimated at $1.7 billion.

May 16, 1980: BART announces that WAM's, Inc., a San Francisco-based firm, is the apparent low bidder on contract to install the new seat cushions in BART cars. Their bid of $118,267 was well below the estimated cost of $200,000 to complete the job. The new fire resistant seat cushions are being manufactured by Art Craft Industries of Milwaukee, Wisconsin, for $4.2 million.

June 24, 1980: BART Board adopts $105.5 million operating budget that includes a fare increase. This is the first fare increase since 1975. Under the new fare formula, the average fare will increase 36 percent. The minimum fare is raised from 30 cents to 50 cents. Discount fares for handicapped and children five through twelve has been increased from a 75 percent discount to a 90 percent discount.

June 13, 1980: BART begins three-month phase-in program for "close headways." At 11 a.m. the close headways program began in the Oakland Wye area. Close headways means trains are run more closely together, thus increasing system capacity. This program will pave the way for start-up of direct Richmond-San Francisco service.

June 30, 1980: "Loma Ranger" shuttle van service operating between the Glen Park Station and Mira Loma Park, begins.

June 30, 1980: New fares go into effect (see June 24, 1980 entry).

July 7, 1980: BART begins direct Richmond-San Francisco service. Total number of trains scheduled to operate during peak periods is 43 (as opposed to 33 trains prior to introduction of close headways). Of these 43, BART has added a train to the Concord line and Fremont line.

July 24, 1980: BART Board approves application to UMTA for 80 percent federal funding of $118 million cost to purchase 90 "C" cars.

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August 20, 1980: BART awarded 1980 Career Apparel Image Award by the National Association of Uniform Manufacturers for station agent uniforms.

September 4, 1980: Vice-President Walter Mondale rides BART from Oakland's 12th Street Station to Powell Street Station in San Francisco.

September 5, 1980: Margaret Pryor sworn in as BART Director representing District 4. Pryor was appointed by Board to replace vacancy created when Director Harvey Glasser resigned on August 1, 1980. The appointment is iterim; Pryor must stand for election in November 1980 to complete Glasser's term that expires in November 1982.

September 11, 1980: BART celebrates eight years in operation. The transit system has carried better than 237 million passengers over 3 billion passenger miles. BART passed the 3 billion mark by the end of June 1980.

September 12, 1980: BART conducts media tour of transbay tube to inspect water seepage into tube. BART announces that it has contract with Adhesive Engineers of San Carlos to perform grouting work to seal several minor seepage points located approximately 1.7 miles east of San Francisco.

September 12, 1980: BART announces that San Francisco Muni transfers will be available free of charge from transfer machines at the Daly City BART Station. The fifty-cent savings (the current cost of BART/MUNI transfers) will benefit San Francisco residents who have been paying the surcharge on trips taken from the Daly City Station to downtown San Francisco.

October 9, 1980: BART announces modification in its "close headways" program, operating 39 trains maximum instead of the 43 that have been operating during peak hours. Base service will change from 15 to 16 minutes for each line. During peak hours, trains will operate at four-minute intervals in downtown Oakland and Transbay throguh San Francisco and Daly City. The modifications are the result of commute hour service problems encountered during the past three months with the introduction of "close headways."

October 16, 1980: BART Board approves awarding contract to LeeMAH Electronics, Inc., of San Francisco, to manufacture a major new train control modification called, "Manual Cab Signalling" (MCS). The modification will permit train operators to operate the trains manually at normal speeds with full automatic protection. MCS was developed by BART engineers.

October 22, 1980: BART announces it will receive $12.9 million in Federal grants from UMTA for three major improvement programs. The three grants include $3.4 million for a portion of construction of the K-E track, $5.4 million for fire safety improvements, and $4.1 million for reliability improvment projects.

October 25, 1980: BART begins four route service on Saturdays; direct Richmond-Daly City service begins.

CHRONOLOGY

November 5, 1980: BART announces the completion of its seat replacement program. All seats in the system's operating fleet have been replaced with cushions and covers made of fire resistant material; the cushions are made of low-smoke neoprene material and the seat covers are made of 90 percent wool and 10 percent nylon.

December 11, 1980: BART announces that its full-scale fire testing of a BART car is being conducted at the McDonnell-Douglas Corporation testing facility in Southern California.

January 5, 1981: BART begins free shuttle service to transport BART patrons who park along Clayton Rd. in Concord to the Concord BART station. The service begins the same day parking restrictions go into effect in the neighborhood surrounding the Concord Station. The new service has been labled the "Concord Super Shuttle Transit" or "Concord SST."

March 3, 1981: BART police arrest four persons on warrants issued by the Contra Costa County District Attorney's Office, in connection with slashing cusions on BART cars. The four were the owner and three employees of Service Systems, Inc., who were under contract with BART to clean and repair the system's transit car cushions.

April 22, 1981: BART begins "WeTip" program, an anonymous witness program aimed at curtailing vandalsim and other crimes committed on the transit system.

April 21, 1981: BART's "cut out car" program is approved by the CPUC. The new program will allow the system to continue trains in operation even though ther may be a friciton brake problem on one of the cars in a train consist.. Prior to the decision, a train with a brake problem would have to operate at half-speed, thus slowing down trains behind it. The entire train consist would then be taken out of service.

May 7, 1981: BART announces it will soon begin cracking down on fare evaders who fraudulently use BART discount tickets, which is estimated at costing BART about $1 million a year in full fare losses.

July 16, 1981: BART Board adopts a 10-year, $1.2 million program of projects designed to improve pedestrian, automobile, bus and car-pool access to 21 stations through the BART system.

September 3, 1981: BART Board adopts preferred route for the proposed Pittsburg-Antioch extension of the rail system. The preferred route is about 19 miles long and will run from Concord to North Concord along Port Chicago Highway to State Route 4, and along State Route 4 to Antioch.

September 8, 1981: BART announces it will be correcting a minor wate seepage problem in the transbay tube which is allowing less than one gallon of water per hour to seep into the tube.

CHRONOLOGY

September 11, 1981: BART celebrates ninth anniversary. The system presently carries approximately 175,000 passengers a day, with 42 trains in operation during peak commute periods.

September 17, 1981: BART unveils major new exhibit entitled, "BART. Going Places." The traveling exhibit makes its debut at Embarcadero Station in San Francisco.

October 21, 1981: BART Board announces that a $6.7 million federal DOT grant that will aid BART in its purchase of new "C" cars has been approved. The $6.7 million federal grant will go toward the purchase of four prototype "C" cars which will undergo extensive testing.

October 31, 1981: At 12 midnight a massive switch -- a major element in the construction of BART's K-E track through downtown Oakland -- is installed in the new trackway. The switch is one of eight switches to be installed in the 12,300-foot addition of mainline trackage.

January 7, 1982: BART Board adopts five-year plan designed to upgrade and streamline the transit system's Express Bus service. The plan calls for gradually phasing out the local service of BART Express Buses as local community transit service is phased in and gradaully increasing the routing of the express bus network, via freeways.

January 18, 1982: BART stocks its stations' vending machines with new BART tickets. The tickets are brighter blue in color and display the BART logo.

February 1, 1982: BART, for the first time, reduces fares during off-peak hours on weekdays. The fare reduction is a test to determine if patrons can be attracted to use the transit system for other than work-related trips. The 20 percent reduction in fares will continue throughout the entire month of February, between the hours of 10 a.m. and 3 p.m.

February 9, 1982: BART's Engineering and Operations Committee receives scaled back proposal for replacement of its computer control system. The revised plan calls for a more centralized computer network which initially reduces the number of new computers from the originally planned 90 to 10. THis will reduce the hardware cost and still provide for the basic need of increasing system capacity from the current maximum of 49 trains to 75 trains.

February 12, 1982: BART introduces "BART TIMES," a new publication for the transit system's riders. The newsletter is available free of charge and will be published on a bi-monthly basis.

February 18, 1982: BART Board authorizes going to bid on the system's $19 million transit vehicle fire hardening project. Included in the fire hardening project will be the removal and replacement of the existing interior liners of the cars with fire resistant material, installing "fire-stop" materials in the sidewalls and ceiling to prevent the spread of combustion, coating the interior of the car roof with a fire resistant paint, coating selected floor panel areas with a protective covering, and installing brake gride heat shields.

CHRONOLOGY

March 16, 1982: BART seeks bids on $19 million fire hardening project (see February 18, 1982 entry).

March 24, 1982: Goundbreaking ceremony for start of construction of new Regional Administrative Facility. Declared the "first governmental condominium arrangement in the Bay Area," the facility will house BART, Metropolitan Transportation Commission and Association of Bay Area Governments. Cost is estimated at $12.6 million.

May 21, 1982: BART awards $17.8 million contract to improve the fire resistance of transit vehicles to TODCO, a division of the Overhead Door Corp.

May 24, 1982: BART awards $1.8 million contract, which will greatly improve radio communications capacity for BART trains, has been awarded to Wismer and Becker, Consulting Engineers, of Sacramento, California. The new system, called RADCOM, is one of the elements in BART's overall wayside control modification program which will aid BART in increasing passenger capacity by allowing more trains to operate on the system at any one time.

July 1, 1982: BART Board votes to ratify a new three-year contract with its two major unions, ATU 1555 and UPE 390.

July 13, 1982: BART announces winners in its "Architectural Design Competition." Prizes totaling $16,000 were awarded to graduate student teams from west coast colleges who participated in the contest aimed at focusing on commercial and institutional development potential at Walnut Creek, Oakland West and Coliseum BART stations.

July 27, 1982: BART opens bids on the transit system's proposed new "C" cars. Five bids were received and will undergo careful analysis before a contract is awarded.

August 3, 1982: BART General Manager Keith Bernard receives first phone call transmitted via Pacific Telephone's new "fibre optic cable," which has been installed in the gallery of BART's transbay tube.

August 19, 1982: BART Board authorizes the sale of $65 million in sales tax revenue bonds for the purchase of new transit cars.

August 19, 1982: BART Board approves an agreement with Westinghouse Electric Corporation to develop a new generation of automatic train control equipment for the transit system's new "C" cars.

August 20, 1982: BART announces the a contract to manufacture special fare gate equipment to accommodate a combined BART/MUNI "fast pass" has been awarded.

August 20, 1982: BART Board announces new fares will go into effect September 8, 1982. The new fares will raise BART fares on the average by 18.4 percent.

October 13, 1976: BART Board approves proposal that the District negotiate an agreement with the City of Berkeley to lease to the City, BART-owned property along Hearst Avenue, known as the "Hearst Strip."

October 25, 1976: "Ride BART Home Free" program continues, with Liberty House sponsoring

October 27, 1976: BART Makes Changes in U-Line Express Bus Route to Improve Access

November 4, 1976: BART names Richard P. Demko as Director of Maintenance & Rolling Stock, filling the position vacated in September 1976 as a result of organization reassignments.

November 11, 1976: BART Board approves agreement with the City of Berkeley to lease to the City, a two-block portion of property (between Grove and McGee streets) for $1.00 per year for ten years, in exchange for air rights over the North Berkeley Station. This exchange represents a trade-back based on the original 1964 agreement.

November 15, 1976: Daly City Station parking structure partially opened, providing parking for over 300 autos. Construction began in August 1975 and should be completed in summer 1977 at a cost of $3,945,000.

November 16, 1976: BART announces possibility of providing 10-car trains as part of regular service. BART has successfully run 10-car test trains during off-peak and commute hours for the past three weeks. Presently, during peak hours, BART operates 9-car trains on the Concord line, 5-7 car trains on the Fremont/Daly City line and 4-5 car trains on the Richmond/Fremont line. Average daily patronage is 134,000 trips.

November 17, 1976: Fire occurs on a single car of a BART train, causing damage estimated at $100,000. A joint team of BART and OFD investigators concludes that the fire was not the result of any technical or mechanical malfunction. Arson is suspected.

December 6, 1976: BART increase commute-hour train lenght on all lines. Concord line will have mostly 10-car trains. Average daily car availability exceeds 300, compared to an average 200 the previous year. Insufficient electrical power throughout the system to drive the longer trains has been corrected by increasing BART's electrical sub-station capacity. BART engineers correct problem associated with the location of an automatic train control circuit just east of the Embarcadero Station. Because the train contral element was installed too close to the end of the platform, the long trains did not always adequately trigger the proper computer response to allow a train to move from the platform after stopping.

December 31, 1976: BART, for the first time, operates trains on New Year's Eve until 2:30 a.m. New Year's Day.

December 31, 1976: Patronage at year-end is 133,000 per day, with 80 trains max.

CHRONOLOGY

January 26, 1977: Hundred millionth passenger enters at Montgomery Street Station. Maria Magdalena De Guzman, of Daly City, received a certificate and gift in honor of the occassion. Since beginning operations on September 11, 1972, BART trains have traveled 1.4 billion passenger miles.

February 1, 1977: BART officially begins bike locker program, providing 648 bike lockers at all stations except downtown Oakland, Berkeley and San Francisco subway stations.

February 1, 1977 BART announces new spur track activated this past week just north of the Daly City Station. The new track will hold a 10-car train, which will provide increased operating flexibility with regard to train removals.

February 14, 1977: Daly City bound train moved through misrouted switch, causing the front wheels of the lead car to go around, "splitting the switch." Investigation of this incident headed by Ralph Weule, in cooperation with the National Transportation Safety Board and the PUC.

March 3, 1977: Arbitrator Sam Kagel decided dispute between BART and ATU 1555 regarding the issue of unmanned, remotely staffed stations. Kagel ruled that the Union should lift its ban on station agents working overtime at unmanned stations, and that BART could continue its test period of substituting cameras for agents but required that there be a station agent on the premises while the test of using RSS equipment was in progress.

March 9, 1977: Parking for 390 additional parking spaces at South Hayward Station completed, bringing the total spaces at the station to 880.

March 10, 1977: BART Board appoints Eugene Garfinkle to Board, representing District 8 in San Francisco. Garfinkle replaced Elmer Cooper, who resigned for personal business reasons, on January 21, 1977.

March 30, 1977: BART Board approves bide submitted by A.R. Peterson & Son of Hayward to supply special sun shields for trackside electronic control boxes, at a cost of $43,653 for 1,300 shields.

April 4, 1977: BART Board establishes Committee on Affirmative Action.

April 4, 1977: BART Board awards contract to provide seismic sensor alarms at Concord, Walnut Creek, Rockridge, El Cerrito Del Norte, BayFair, Fremont, Embarcadero and Daly City stations, at a cost of $22,000.

April 6, 1977: Construction begins at Fremont Station for 300 additional parking spaces at at cost of $590,605.

April 14, 1977: BART Board seeks to toughen transit system's "no smoking" rule by seeking legislation to impose $50 fine.

April 14, 1977: BART seeks to cut power costs by turning off power on storage tracks during non-operating hours.

CHRONOLOGY

April 25, 1977: BART adds 573 parking spaces at stations on the Concord line, by restriping and providing aggregate surfacing on the upper lot at Lafayette Station (thus providing 300 additional spaces). Cost was approximately $6,000, from Transit Development Act.

May 4, 1977: This past week, contracts were awarded to three companies to supply BART with 670 "thyristor components," used to control various electrical functions of transit vehicles (such as dynamic braking and traction propulsion power). Cost for the 670 components is $103,305, as opposed to a cost of $193,305 for the same parts had they been bid as a sole source procurement. This saved the District $90,000.

May 10, 1977: BART-engineered "electronic testing device" to quickly and accurately test individual performance of various types of special circuit boards used in automatic operation and total integrated elctronic units, is unveiled before the District's Engineering Committee. The diagnostic machine provides a major breakthrough in support of BART's computer maintenance program with regard to preventative maintenance for transit vehicles. It was developed by a team of BART engineers headed by Ron Tolmei. Other team members were: John Prowznik, Paul Master, Peter Bice, Howard Harcourt and Dean Watson.

May 18, 1977: BART conducts fifth passenger survey to determine such things as who uses BART, trip origin and destination, what means were used to get to and from BART stations, and for what purpose various trips are made.

May 20, 1977: BART signs first apprenticeship program agreement with the State of California and UPE 390. The program seeks to develop apprenticeships in general maintenance for a four-year period beginning in July 1977. It is an outgrowth of the 1976 labor agreement between BART and UPE 390. Following the four year period, persons in the program would be eligible for journey-person status as recognized by the State of California.

June 9, 1977: BART receives award from California State Department of Rehabilitation for "outstanding public service" in recognition of the system's accomplishments in making the system accessible to the handicapped.

June 13, 1977: BART announces the acquisition of "split disk" brakes for transit vehicles, reducing the time it takes to replace the brake from 24 man hours to 4 man hours. The new brake will also cost less and last longer than the present "single piece" disk.

June 14, 1977: BART adds 300 parking spaces at Fremont Station. Cost is $590,000, with 83 percent covered by Federal Aid Urban Highway (FAU) and 17 percent coming from Transit Development Act funds.

CHRONOLOGY

June 21, 1977: BART G.M., Frank C. Herringer, appoints Lawrence A. Williams to the position of Director of Employee Relations.

June 25, 1977: BART conducts largest full scale fire drill to date. Drill includes 200 volunteers plus representatives from hospitals and emergency response agencies.

July 8, 1977: BART train service is disrupted by a walkout staged by train operators with the Amalgamated Transit Union, Local 1555. Limited train service is provided between Daly City and MacArthur Stations, with bus bridges to stations.

July 18, 1977: BART announces settlement in principle of BART's lawsuit against Parsons Brinckerhoff-Tudor-Bechtel, Rohr and Westinghouse.

July 28, 1977: BART announces completion of installation of special sun shield on the system's trackside electronic control boxes. The sun shields were purchased from A.R. Peterson & Son (low bidder) at a total cost of $43,653. 1,200 shields were installed over a two-month period.

August 3, 1977: BART District files greivance with ATU 1555 in an effort to recover $250,000 in damages caused by the strike of union members on July 8, 1977.

August 26, 1977: Thirty members of BART Police Officers Association strike, in violation of injunction issued by Alameda County Superior Court. Sixty members of BPD remain on duty. Members of UPE 390 and ATU 1555 honored strike. 75% of workforce out.

September 7, 1977: BART and BPOS announce at 2:30 a.m. that a tentative agreement has been reached, ending the 14-day strike by members of BPOA.

September 11, 1977: BART celebrates fifth birthday. To date, 120 million patrons have been carried 1.6 billion passengers miles. Pre-strike patronage is up to 144,400 daily passengers. Patronage at the end of September 1972 was 17,000. Patronage in September 1973 was at the 32,000 level. Patronage had peaked to 80,000 in September 1974. By 1975, patronage was up to the 122,000 level. By September 1976, patronage was up to 132,000.

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September 30, 1977: Permanent extension of the one-half percent sales tax to finance regional transit was signed into law by Governor Brown. AB 1107 was authored by Assemby Sepaker Leo McCarthy, and provides that 75 percent of the proceeds from the tax levied in Alameda, Contra Costa dn San Francisco counties will be earmarked for BART, with the remaining 25 percent to be allocated by the Metropolitan Transportation Commission (MTC) to AC Transit, San Francisco Muni and BART for service improvements. The half-cent sales tax has been in existence since 1970.

October 10, 1977: Three-story parking facility at Daly City Station is opened for BART passenger use. The new structure brings total parking capacity at the station to 1,600. Total cost of the project was approximately $4.2 million, with 91.5 percent being funded by the Federal Highway Administration and the balance by TDA funds and the City of Daly City.

October 19, 1977: BART receives "Silver Mailbox award, presented by the Direct Mail Marketing Association (DMMA) of New York. The award was presented to BART for its "GO BART - GET AWAY KIT" tote bag, which received order requests from over 9,000 people.

October 17, 1977: BART receives Pioneering Design and Construction" and "Outstanding Civil Engineering Achievement" awards from the American Society of Civil Engineers (ASCE). The awards were presented to BART for its civil engineering accomplishments.

November 21, 1977: Thousands of BART Express Bus riders are left without service when AC Transit bus drivers go on strike. BART contracts with AC Transit to provide Express Bus service from outlying regions of Alameda and Contra Costa counties, to BART stations.

November 28, 1977: BART reaches all-time high for patronage, when approximately 192,000 persons ride BART. This unusuallly high number reflects increased ridership due to AC Transit strike and persons riding BART to Oakland Raiders game at Coliseum.

December 8, 1977: BART Board votes to formalize final agreements with Rohr, Westinghouse, Bulova, and Parsons- Brinkerhoff-Tudor-Bechtel, which will settle the District's three-year-old lawsuit. The settlement means a net value to BART of $28.7 million from the defendents; $15 million in cash ($1.3 million of which has already been credited to BART) and the release fo $49.4 million in claims against BART (which have been valued by the District at approximately $14 million). The defendents will also provide BART with access to documents describing the equipment of the system, will make available to BART patent licenses, and will consult with BART on technical matters. Rohr reduces its $15 million claim against BART, for money due under the transit vehicle contract, to $6.2 million; BART has requested UMTA to pay 80 percent and the remaining balance to be paid by TDA monies.

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CHRONOLOGY

January 6, 1978: BART announces that a survey taken by Management Information Associates of San Francisco, indicates that BART may gain an additional 1500 riders who were regular AC Transit riders prior to the AC strike.

January 7, 1978: BART begins permanent Saturday service. On December 6, 1977, the CPUC authorized BART to begin Saturday service on a regular basis beginning January 7. In actuality, Saturday service has been continuous since November 19, 1988, as part of BART's traditional extended service during the holiday season.

January 16, 1978: New shuttle service begins between Hayward Station and the Alameda County Hall of Justice. The shuttle is a joint BART/Alameda County project with funding costing $175,000 for two years; 75% of the funding is from a TDA grant, 25% is from Alameda County's general fund.

January 26, 1978: BART Board authorizes offering a free day of BART service, in an effort to make up for passenger inconveniences during the AC Transit strike. In addition, Board authorizes one free month of BART Express Bus service, following the end of the two-month long AC Transit strike.

January 30, 1978: First day of one month of free BART Express Bus service (see January 26, 1978 entry).

February 2, 1978: BART offers free day of BART train service (see January 26, 1978 entry). Ridership on the system reaches a record high of approximately 250,000

February 21, 1978: BART Board votes to select Roslyn L. Baltimore of San Francisso to replace Director Ella Hill Hutch, who resigned to assume her new position on the San Francisco Board of Supervisors.

March 8, 1978: BART announces installation of "TTY Telephone" for the deaf. The TTY phone will be located in BART's Telephone Information Center, for the convenience of deaf BART patrons who need transit information.

April 7, 1978: BART officials appear before CPUC to seek approval of new operating procedures that will permit the largest improvements in train service and service reliability since the system opened in 1972. The single most significant request was to remove the one-station separation between trains constraint.

April 27, 1978: Ashby Station becomes first of eight BART stations to be a Remotely Staffed Station (RSS). The station is monitored by a station agent in Central called "Monitor Center Operator" (MCO). The station is monitored by Closed Circuit Television cameras and fare gates, service gates, elevators and restroom doors are controlled by the MCO.

CHRONOLOGY

April 27, 1978: BART Board authorizes sale of land for United Nations Plaza. The 7,893 square feet of property was sold to the City and County of San Francisco for $325,000, considered a fair market price.

June 13, 1978: BART receives CPUC approval to operate regular Sunday train service. Implementation date is scheduled for July 2, 1978.

June 20, 1978: Forty-one management and other non-uion personnel receive notification that their positions were being eliminated, as a result of cut-backs necessary because of Proposition 13 (Jarvis-Gann Initiative). In addition, BART G.M. Frank C. Herringer announced that approximately 150 positions proposed for the 1978/79 BART budget will be eliminated, for a saving of over $5 million. Included in this are 100 union positions.

July 2, 1978: BART begins regular Sunday train service. Richmond/Fremont and Concord/San Francisco service will be in effect from 9 a.m. to midnight.

September 11, 1978: BART observes sixth birthday. Since 1972, over 160,000,000 riders have traveled over two billion passenger miles on BART.

September 14, 1978: BART Board appoints Phillip O. Ormsbee to position of District Secretary. Mr. Ormsbee replaces Richard J. Shephard, who passed away in July 1978.

September 15, 1978: BART receives notification of UMTA grant in the amount of $14,729,480. The money will be used for expansion of the Oakland Shops and storage complex, transit vehicle traction motors modifications, upgrading of handicapped facilities, cable replacement, and replacement of all the seat cushions in the transit vehicles. These projects are expected to be completed within the next two years.

September 29, 1978: BART puts additonal cars into service on the Fremont/Daly City line in an effort to help alleviate commute problems due to the Southern Pacific work stoppage.

September 29, 1978: BART Board approves permit parking at Daly City Station for district residents. The permit parking will be in a 250-space auxiliary parking lot, which is expected to be completed in about two months.

October 27, 1978: BART Director John Glenn, of Fremont, presides over ribbon cutting ceremony to dedicate the new parking lot at BART's Fremont Station. The new lot adds over 300 spaces to the parking facility.

November 1, 1978: BART patrons using local feeder buses in Walnut Creek will be able to transfer to and from BART Express Buses. Prior to this policy, BART Express Bus riders could transfer only from Express Buses to local feeder buses.

CHRONOLOGY

January 1, 1979: AB 2942 goes into effect, making violators of BART's "No Smoking" rule subject to a citation and fine of up to $50.

January 11, 1979: BART Board votes to appoint Keith Bernard to the position of General Manager, replacing Frank Herringer. Mr. Herringer resigned effective December 31, 1978

January 17, 1979: Transbay tube fire

January 18, 1979: BART trains operate on altered schedule due to transbay tube fire. East bay trains operate at 12-minute intervals between Concord and MacArthur stations, and between Richmond and Fremont; in San Francisco, trains will operate at 6-minute intervals between Embarcadero and Daly City stations.

January 19, 1979: CPUC orders temporary moratorium on service through transbay tube. (Jan 19) BART Convenes Board of Inquiry to Mission fire safety, progress commences.

January 19, 1979: "Board of Inquiry" convenes, to conduct investigation into transbay tube fire. The board will be comprised of Oakland Fire Dept. Cheif Wm. Moore; James Squeri, CPUC; SFFD Deputy Chief Emmet D. Condon; New Jersey PATCO Rbt. Korach; NYC Transit Authority-Thomas Pope; BART Director of Safety Ralph S. Weule, who will act as coordinator. An independent investigation will be conducted by Harold Storey, NTSB; Edward Boyle, UMTA will act as observer to aid in fulfilling UMTA's own investigative responsibilites.

January 20, 1979: BART Board President John Kirkwood calls for special "hot line" to be set up at BART for anyone who was on the train that caught fire in the transbay tube or who has information regarding the tube fire incident.

January 23, 1979: BART provides limited direct service between Concord and Fremont on a trial basis until transbay service is restored.

January 25, 1979: BART Board authorizes direct Concord/Fremont service until transbay service is restored.

February 2, 1979: BART receives seven CPUC-recommended conditions for the resumption of transbay service.

February 7, 1979: BART is granted CPUC hearing set for Sunday, February 11, to present testimony for opening the transbay tube for service. BART anticipates that by that date, it will have complied with the CPUC order of January 19 which sut down the tube.

January 8, 1979: BART Board inspects transbay tube.

January 8, 1979: BART performs time/motion study of evacuation drill the measure passenger evacuation time form a disabled train in the tube. The test proves to be successful in meeting the prime objectives.

February 13, 1979: BART announces plans to charge 50¢ for round trip fares on the special transbay bus service. It is estimated that BART loses about $65,000 per day in revenue and expenses due to tube closure.

CHRONOLOGY

February 13, 1979: BART G.M. meets with Oakland and San Francisco fire chiefs, representatives for California Occupational Safety and Health Administration (OSHA) and the State Fire Marshall's Office to identify and work out a specific set of tasks toward resumption of transbay service. It is expected to take approximately three weeks before the transit district will be ready to ask the CPUC to resume transbay service.

February 21, 1979: BART holds "smoke test" in transbay tube. Purpose of the drill is to demonstrate a coordinated management of the tube's ventilation and exhaust system for control of smoke.

March 1, 1979: BART Board authorizes advertising for bids for the construction of an additional westside parking lot with a pedestrian underpass connection to the Hayward BART Station. Cost is estimated at $950,000, with 83 percent to be funded by FAU and the balance funded by state TDA funds.

March 6, 1979: BART G.M. receives Board of Inquiry report containing 78 recommedations for improving emergency procedures/fire safety on the system. Report will be presented to the BART Board's Engineering and Operations Committee.

March 15, 1979: BART conducts largest transbay tube evacuation drill, with over 600 volunteers participating. This drill was the last of four transbay tube drills that were held since February 27, 1979. In past drills, 150-250 volunteers have participated.

March 22, 1979: BART Board unanimously endorses a comprehensive emergency preparedness and fire safety program for BART and authorizes the General Manager to hire an outside expert in fire and safety protection.

March 23, 1979: BART requests and is granted CPUC hearing. This is the second hearing before the CPUC on restoration of transbay service; the first hearing, held February 11, was adjourned pending the development of further documentation on safety improvements. The hearing date is set for March 29, 1979.

March 29, 1979: BART begins testimony before CPUC for resumption of transbay service.

April 2, 1979: BART concludes presentation of direct evidence and testimony to the CPUC to resume transbay service.

April 4, 1979: CPUC authorizes resumption of transbay service. BART will resume service through the transbay tube beginning at 6 a.m. on April 5, 1979.

April 10, 1979: BART Board directs BART staff to develop plans for a turn-around and storage facility to be located between the Daly City and Balboa Park stations. This plan will serve as an alternative to a year-old proposal to construct a 6,000 foot track extension and trans storage tracks beyond the Daly City Station.

CHRONOLOGY

April 10, 1979: BART G.M. Keith Bernard recommends to BART Board that the Remotely Staffed Station (RSS) program be discontinued. The recommendation is based on a 51-page report and cites the primary problem is with the Automatic Fare machines not being as reliable as needed to realize BART's goal of saving $1 million annually through the RSS program.

April 16, 1979: Harold Taylor is named Chief of Police for BART, by G.M. Keith Bernard. Taylor replaces Chief William B. Runford Jr., who resigned in November 1978.

April 30, 1979: BART announces that safety posters will be installed in all transit vehicles this week. The posters will contain vital information on safety and emgergency evacuation procedures.

May 4, 1979: BART G.M. announces new organizational structure that will result in a projected savings of more than $200,000 annually, with improved effectiveness and efficiency of BART management. The reorganization is a result of initial work by the management consultant firm of Booz-Allen & Hamilton, Inc., in San Francisco.

May 10, 1979: BART announces it will put an 20 additional cars into service in response to the recent surge in ridership. The extra cars will be added to trains on the Concord/Daly City and Fremont/Daly City lines during midday hours. BART ridership has increased by 18,000 trips, to a total daily average of over 168,000, as a result of the recent gasoline shortage. BART analysts have determined that most of this ridership increase has occurred during middday hours.

May 10, 1979: BART Board votes to begin direct Richmond/Daly City service in October 1979 or as soon thereafter as possible. The new service will be possible with the implementation of BART's proposed "close headways" program (which needs CPUC approval) or by redistributing the trains presently being used during revenue operation.

May 21, 1979: Permit parking lot opens at Daly City Station. This 250-space auxiliary parking lot is available to BART district residents with permits.

June 1, 1979: Train operators complete special Emergency Procedures Training program. The program is based on new emergency procedures that were developed as a result of the transbay tube fire.

June 28, 1979: BART reports work slowdown in maintenance shops by members of United Public Employees (UPE) Local 390, resulting in a drop in car availability. The normal average of 360 cars available for revenue service in the morning has been steadily declining, reaching a low of 273 cars on this date. Bernard states he believes the slowdown is directly related to current contract negotiations. The ATU 1555 and UPE 390 contract is due to expire at midnight on June 30.

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June 2, 1979: BART announces that ATU 1555 and UPE 390 have agreed to work under the old contract on a day-to-day basis while contract talks continue. BART reports that a negotiation-related work slowdown has continued, resulting in a new low of 254 transit vehicles available for revenue service on this date.

July 8, 1979: BART announces its "final offer" of a wage and benefit package for the ATU 1555 and UPE 390 union contract. If offer is not accepted by midnight July 10, the existing contract which has been extended on a day-to-day basis since July 1 will no longer be extended.

July 30, 1979: Members of UPE 390 and ATU 1555 "take over" Concord Shop. Two foreworkers who were trying to protect the facilities were forceably removed by union leaders. BART G.M. orders the indefinite suspension of all employees involved.

August 6, 1979: BART Board votes to appeal portions of a court order issued August 3, 1979 restricting BART from transferring "massive" numbers of employees from one worksite to another and to impose immediate discipline on those employees involved in the seizure of the Concord maintenance shop.

August 8, 1979: BART files appeal of court order pertaining to the takeover of Concord Shop (see above entry).

August 16, 1979: BART reports losses totaling $560,000 since June 1 as a result of lost revenues due to work slowdown affecting number of available cars, and sabotage of district property. Report states that $440,600 ($15,000 per day) has been lost due to decline in patronage during labor dispute; $43,400 has been lost as a result of sabotage of district property.

August 24, 1979: BART Board authorizes advertising for bids on the construction of a third trackway in downtown Oakland. This project is the 1.5 miles tunnel portion of an eventual 2.5 mile third trackway. The cost is estimated at $4.6 million, with 80 percent funding by UMTA and the balance through MTC of excess bridge tolls.

August 29, 1979: BART labor dispute continues with vadalism disabling 34 transit cars at the Concord Shop due to 75 punctured air bags. The car availability is down to 157, allowing for 22 trains maximum rather than the scheduled 32 on line during peak hours. Consequently, BART announces reduced base service schedules; trains will operate at 18-minute intervals instead of 14-minute intervals.

August 30, 1979: BART Director Arthur Shartsis announces he plans to seek special legislation for harsh penalties for vandalism perpetrated on public transit systems.

CHRONOLOGY

August 31, 1979: Senator S. I. Hayakawa joins BART Board President John H. Kirkwood in an inspection of vandalized transit vehicles at the Concord Shop. The senator plans to introduce federal legislation to increase penalties for vandalism and sabotage of public transit facilities.

August 31, 1979: ~~A strike by BART employees forces~~ Shutdown of the BART system effective at 7 p.m. ~~By 4 p.m. BART was no longer providing rail service between Oakland and Richmond and Concord. A free bus service was put into effect between MacArthur and Concord.~~

September 25, 1979: ~~BART wins appeal of August 3 court order restricting it from~~ transferring "massive" numbers of employees from one work site to another as needed, and to impose discipline on those employees involved in the Concord Shop takeover. The decision was rendered by the California State Court of Appeal.

October 2, 1979: BART announces it will provide limited train service. The service will operate Monday through Friday, 6 a.m. to 6 p.m. between Lafayette Station and 24th Street Station in San Francisco.

October 5, 1979: BART Board votes to seek legislation for strong penalties in cases of vandalism or sabotage perpetrated on public transit systems.

October 16, 1979: CPUC hearings continue concerning BART's application to remove requirement that trains operate no closer than one station apart. This would pave the way for implementing direct Richmond/Daly City service in early 1980.

October 31, 1979: ~~BART announces it is seeking to resume contract talks with ATU 1555 and UPE 390. Negotiations broke off between the two sides on October 10, 1979.~~

November 19, 1979: ~~BART, for the first time, offers limited direct Richmond/San Francisco service. Service is offered during commute hours only during period of BART/Unions labor dispute.~~

November 21, 1979: BART Board ~~formally~~ ratifies contract with ATU 1555 and UPE 390 upon prior ratification by those unions. All stations will be open by Monday, November 26, and it is expected that full train service will resume by Thursday, November 29.

December 3, 1979: Full train services resumes following over three months of limited service due to labor dispute.

November 29, 1979: BART Board authorizes seeking bids for replacing transit vehicle seat cushions and covers for transit vehicle fleet. Cost of replacement program is approximately $4.5 million; BART has federal grant for $2.8 million for this purpose and is seeking additional federal funding for the project. The project is expected to be completed by September 30, 1980.

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December 31, 1979: BART, for the first time, operates trains around-the-clock as part of special service on New Year's Eve.

January 1, 1980: Two passengers, Randy SMith of Union City and Alan Young of Oakland, along with train operatro Edmund Bally, assist in reporting and extinguishing fire set by arsonists on 4-car Fremont-bound train at 6:30 a.m. Young and Bally detain arson suspect until BPD arrives.

January 11, 1980: BART advertises for bids on $4.5 million transit vehicle seat replacement program. (see November 29, 1979 entry)

January 16, 1980: BART rewards Randy Smith, Alan Young and Edmund Bally (see January 1, 1980 entry) for theri efforts in averting as arson fire on train. The three split a $1000 reward.

January 23, 1980: BART announces it has hired Gage-Babcock of Oakland, an engineering firm that specializes in fire investigations and safety, to investigate a fire taht destroyed a BART car on December 12, 1979.

February 14, 1980: BART appears before CPUC for hearing on BART's application requesting an extension (to December 31, 1970) on completion date of replacing transit vehicle seats.

February 25, 1980: Special joint BART/AC Transit committee is established. The committee, whose members are comprised of directors from both agencies, is responsible for improving overall coordination between the two transit agencies.

March 20, 1980: BART announces that Board of Directors has approved awarding contract to C. Overaa & Co. of Richmond for $3,068,076 to construct a third track through downtown Oakland. The new "K-E" track will run about 1.5 miles from Washington Street portal to 23rd Street portal through a third subway tunnel under under downtown Oakland.

March 24, 1980: BART begins "BARTpool" parking program at Concord Station. Carpools of three persons or more are permitted special close-in parking in a permit lot.

March 27, 1980: Board of Directors approves entering into agreement with Kaiser Engineers, Inc., of Oakland, to assist BART engineers in the development of a new transit car for the system. BART hopes to eventually purchase 90 of these "C" cars -- a car that is a combination "A" car and "B" car -- at a cost of $1 million per car.

April 7, 1980: East entrance to Fremont Station officially opens.

April 7, 1980: BART Director Arthur Shartsis, of Oakland, testifies before Assembly Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage

CHRONOLOGY

April 7, 1980: BART Director Arthur Shartsis testifies before Assemby Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage BART trains or equipment, with punishment of three to five years in state prison or a fine of up to $5,000 or both.

April 25, 1980: Work begins on K-E track in Oakland.

April 24, 1980: BART Board adopts extension policy. Part of a 20-year plan, the policy outlines four basic extensions to the system, including 15 miles from Concord Station to the Pittsburg-Antioch area; 4.8 miles from Fremont Station to the Warm Springs area; 9.3 miles from Daly City Station to the San Francisco Airport; and 24 miles from Bay Fair Station through Castro Valley to the Livermore-Pleasanton area. Total cost is estimated at $1.7 billion.

May 16, 1980: BART announces that WAM's, Inc., a San Francisco-based firm, is the apparent low bidder on contract to install the new seat cushions in BART cars. Their bid of $118,267 was well below the estimated cost of $200,000 to complete the job. The new fire resistant seat cushions are being manufactured by Art Craft Industries of Milwaukee, Wisconsin, for $4.2 million.

June 24, 1980: BART Board adopts $105.5 million operating budget that includes a fare increase. This is the first fare increase since 1975. Under the new fare formula, the average fare will increase 36 percent. The minimum fare is raised from 30 cents to 50 cents. Discount fares for handicapped and children five through twelve has been increased from a 75 percent discount to a 90 percent discount.

June 13, 1980: BART begins three-month phase-in program for "close headways." At 11 a.m. the close headways program began in the Oakland Wye area. Close headways means trains are run more closely together, thus increasing system capacity. This program will pave the way for start-up of direct Richmond-San Francisco service.

June 30, 1980: "Loma Ranger" shuttle van service operating between the Glen Park Station and Mira Loma Park, begins.

June 30, 1980: New fares go into effect (see June 24, 1980 entry).

July 7, 1980: BART begins direct Richmond-San Francisco service. Total number of trains scheduled to operate during peak periods is 43 (as opposed to 33 trains prior to introduction of close headways). Of these 43, BART has added a train to the Concord line and Fremont line.

July 24, 1980: BART Board approves application to UMTA for 80 percent federal funding of $118 million cost to purchase 90 "C" cars.

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August 20, 1980: BART awarded 1980 Career Apparel Image Award by the National Association of Uniform Manufacturers for station agent uniforms.

September 4, 1980: Vice-President Walter Mondale rides BART from Oakland's 12th Street Station to Powell Street Station in San Francisco.

September 5, 1980: Margaret Pryor sworn in as BART Director representing District 4. Pryor was appointed by Board to replace vacancy created when Director Harvey Glasser resigned on August 1, 1980. The appointment is iterim; Pryor must stand for election in November 1980 to complete Glasser's term that expires in November 1982.

September 11, 1980: BART celebrates eight years in operation. The transit system has carried better than 237 million passengers over 3 billion passenger miles. BART passed the 3 billion mark by the end of June 1980.

September 12, 1980: BART conducts media tour of transbay tube to inspect water seepage into tube. BART announces that it has contract with Adhesive Engineers of San Carlos to perform grouting work to seal several minor seepage points located approximately 1.7 miles east of San Francisco.

September 12, 1980: BART announces that San Francisco Muni transfers will be available free of charge from transfer machines at the Daly City BART Station. The fifty-cent savings (the current cost of BART/MUNI transfers) will benefit San Francisco residents who have been paying the surcharge on trips taken from the Daly City Station to downtown San Francisco.

October 9, 1980: BART announces modification in its "close headways" program, operating 39 trains maximum instead of the 43 that have been operating during peak hours. Base service will change from 15 to 16 minutes for each line. During peak hours, trains will operate at four-minute intervals in downtown Oakland and Transbay throguh San Francisco and Daly City. The modifications are the result of commute hour service problems encountered during the past three months with the introduction of "close headways."

October 16, 1980: BART Board approves awarding contract to LeeMAH Electronics, Inc., of San Francisco, to manufacture a major new train control modification called, "Manual Cab Signalling" (MCS). The modification will permit train operators to operate the trains manually at normal speeds with full automatic protection. MCS was developed by BART engineers.

October 22, 1980: BART announces it will receive $12.9 million in Federal grants from UMTA for three major improvement programs. The three grants include $3.4 million for a portion of construction of the K-E track, $5.4 million for fire safety improvements, and $4.1 million for reliability improvment projects.

October 25, 1980: BART begins four route service on Saturdays; direct Richmond-Daly City service begins.

CHRONOLOGY

November 5, 1980: BART announces the completion of its seat replacement program. All seats in the system's operating fleet have been replaced with cushions and covers made of fire resistant material; the cushions are made of low-smoke neoprene material and the seat covers are made of 90 percent wool and 10 percent nylon.

December 11, 1980: BART announces that its full-scale fire testing of a BART car is being conducted at the McDonnell-Douglas Corporation testing facility in Southern California.

January 5, 1981: BART begins free shuttle service to transport BART patrons who park along Clayton Rd. in Concord to the Concord BART station. The service begins the same day parking restrictions go into effect in the neighborhood surrounding the Concord Station. The new service has been labled the "Concord Super Shuttle Transit" or "Concord SST."

March 3, 1981: BART police arrest four persons on warrants issued by the Contra Costa County District Attorney's Office, in connection with slashing cusions on BART cars. The four were the owner and three employees of Service Systems, Inc., who were under contract with BART to clean and repair the system's transit car cushions.

April 22, 1981: BART begins "WeTip" program, an anonymous witness program aimed at curtailing vandalsim and other crimes committed on the transit system.

April 21, 1981: BART's "cut out car" program is approved by the CPUC. The new program will allow the system to continue trains in operation even though ther may be a friciton brake problem on one of the cars in a train consist.. Prior to the decision, a train with a brake problem would have to operate at half-speed, thus slowing down trains behind it. The entire train consist would then be taken out of service.

May 7, 1981: BART announces it will soon begin cracking down on fare evaders who fraudulently use BART discount tickets, which is estimated at costing BART about $1 million a year in full fare losses.

July 16, 1981: BART Board adopts a 10-year, $1.2 million program of projects designed to improve pedestrian, automobile, bus and car-pool access to 21 stations through the BART system.

September 3, 1981: BART Board adopts preferred route for the proposed Pittsburg-Antioch extension of the rail system. The preferred route is about 19 miles long and will run from Concord to North Concord along Port Chicago Highway to State Route 4, and along State Route 4 to Antioch.

September 8, 1981: BART announces it will be correcting a minor wate seepage problem in the transbay tube which is allowing less than one gallon of water per hour to seep into the tube.

CHRONOLOGY

September 11, 1981: BART celebrates ninth anniversary. The system presently carries approximately 175,000 passengers a day, with 42 trains in operation during peak commute periods.

September 17, 1981: BART unveils major new exhibit entitled, "BART. Going Places." The traveling exhibit makes its debut at Embarcadero Station in San Francisco.

October 21, 1981: BART Board announces that a $6.7 million federal DOT grant that will aid BART in its purchase of new "C" cars has been approved. The $6.7 million federal grant will go toward the purchase of four prototype "C" cars which will undergo extensive testing.

October 31, 1981: At 12 midnight a massive switch -- a major element in the construction of BART's K-E track through downtown Oakland -- is installed in the new trackway. The switch is one of eight switches to be installed in the 12,300-foot addition of mainline trackage.

January 7, 1982: BART Board adopts five-year plan designed to upgrade and streamline the transit system's Express Bus service. The plan calls for gradually phasing out the local service of BART Express Buses as local community transit service is phased in and gradaully increasing the routing of the express bus network, via freeways.

January 18, 1982: BART stocks its stations' vending machines with new BART tickets. The tickets are brighter blue in color and display the BART logo.

February 1, 1982: BART, for the first time, reduces fares during off-peak hours on weekdays. The fare reduction is a test to determine if patrons can be attracted to use the transit system for other than work-related trips. The 20 percent reduction in fares will continue throughout the entire month of February, between the hours of 10 a.m. and 3 p.m.

February 9, 1982: BART's Engineering and Operations Committee receives scaled back proposal for replacement of its computer control system. The revised plan calls for a more centralized computer network which initially reduces the number of new computers from the originally planned 90 to 10. THis will reduce the hardware cost and still provide for the basic need of increasing system capacity from the current maximum of 49 trains to 75 trains.

February 12, 1982: BART introduces "BART TIMES," a new publication for the transit system's riders. The newsletter is available free of charge and will be published on a bi-monthly basis.

February 18, 1982: BART Board authorizes going to bid on the system's $19 million transit vehicle fire hardening project. Included in the fire hardening project will be the removal and replacement of the existing interior liners of the cars with fire resistant material, installing "fire-stop" materials in the sidewalls and ceiling to prevent the spread of combustion, coating the interior of the car roof with a fire resistant paint, coating selected floor panel areas with a protective covering, and installing brake gride heat shields.

CHRONOLOGY

March 16, 1982: BART seeks bids on $19 million fire hardening project (see February 18, 1982 entry).

March 24, 1982: Goundbreaking ceremony for start of construction of new Regional Administrative Facility. Declared the "first governmental condominium arrangement in the Bay Area," the facility will house BART, Metropolitan Transportation Commission and Association of Bay Area Governments. Cost is estimated at $12.6 million.

May 21, 1982: BART awards $17.8 million contract to improve the fire resistance of transit vehicles to TODCO, a division of the Overhead Door Corp.

May 24, 1982: BART awards $1.8 million contract which will greatly improve radio communications capacity for BART trains, has been awarded to Wismer and Becker, Consulting Engineers, of Sacramento, California. The new system, called RADCOM, is one of the elements in BART's overall wayside control modification program which will aid BART in increasing passenger capacity by allowing more trains to operate on the system at any one time.

July 1, 1982: BART Board votes to ratify a new three-year contract with its two major unions, ATU 1555 and UPE 390.

July 13, 1982: BART announces winners in its "Architectural Design Competition." Prizes totaling $16,000 were awarded to graduate student teams from west coast colleges who participated in the contest aimed at focusing on commercial and institutional development potential at Walnut Creek, Oakland West and Coliseum BART stations.

July 27, 1982: BART opens bids on the transit system's proposed new "C" cars. Five bids were received and will undergo careful analysis before a contract is awarded.

August 3, 1982: BART General Manager Keith Bernard receives first phone call transmitted via Pacific Telephone's new "fibre optic cable," which has been installed in the gallery of BART's transbay tube.

August 19, 1982: BART Board authorizes the sale of $65 million in sales tax revenue bonds for the purchase of new transit cars.

August 19, 1982: BART Board approves an agreement with Westinghouse Electric Corporation to develop a new generation of automatic train control equipment for the transit system's new "C" cars.

August 20, 1982: BART announces the a contract to manufacture special fare gate equipment to accommodate a combined BART/MUNI "fast pass" has been awarded.

August 20, 1982: BART Board announces new fares will go into effect September 8, 1982. The new fares will raise BART fares on the average by 18.4 percent.

# CHRONOLOGY

October 13, 1976: BART Board approves proposal that the District negotiate an agreement with the City of Berkeley to lease to the City, BART-owned property along Hearst Avenue, known as the "Hearst Strip."

October 25, 1976: "Ride BART Home Free" program continues, with Liberty House sponsoring

October 27, 1976: BART Makes Changes in U-Line Express Bus Route to Improve Access

November 4, 1976: BART names Richard P. Demko as Director of Maintenance & Rolling Stock, filling the position vacated in September 1976 as a result of organization reassignments.

November 11, 1976: BART Board approves agreement with the City of Berkeley to lease to the City, a two-block portion of property (between Grove and McGee streets) for $1.00 per year for ten years, in exchange for air rights over the North Berkeley Station. This exchange represents a trade-back based on the original 1964 agreement.

November 15, 1976: Daly City Station parking structure partially opened, providing parking for over 300 autos. Construction began in August 1975 and should be completed in summer 1977 at a cost of $3,945,000.

November 16, 1976: BART announces possibility of providing 10-car trains as part of regular service. BART has successfully run 10-car test trains during off-peak and commute hours for the past three weeks. Presently, during peak hours, BART operates 9-car trains on the Concord line, 5-7 car trains on the Fremont/Daly City line and 4-5 car trains on the Richmond/Fremont line. Average daily patronage is 134,000 trips.

November 17, 1976: Fire occurs on a single car of a BART train, causing damage estimated at $100,000. A joint team of BART and OFD investigators concludes that the fire was not the result of any technical or mechanical malfunction. Arson is suspected.

December 6, 1976: BART increase commute-hour train lenght on all lines. Concord line will have mostly 10-car trains. Average daily car availability exceeds 300, compared to an average 200 the previous year. Insufficient electrical power throughout the system to drive the longer trains has been corrected by increasing BART's electrical sub-station capacity. BART engineers correct problem associated with the location of an automatic train control circuit just east of the Embarcadero Station. Because the train contral element was installed too close to the end of the platform, the long trains did not always adequately trigger the proper computer response to allow a train to move from the platform after stopping.

December 31, 1976: BART, for the first time, operates trains on New Year's Eve until 2:30 a.m. New Year's Day.

December 31, 1976: Patronage at year-end is 133,000 per day, with 30 trains max.

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January 26, 1977: Hundred millionth passenger enters at Montgomery Street Station. Maria Magdalena De Guzman, of Daly City, received a certificate and gift in honor of the occassion. Since beginning operations on September 11, 1972, BART trains have traveled 1.4 billion passenger miles.

February 1, 1977: BART officially begins bike locker program, providing 648 bike lockers at all stations except downtown Oakland, Berkeley and San Francisco subway stations.

February 1, 1977 BART announces new spur track activated this past week just north of the Daly City Station. The new track will hold a 10-car train, which will provide increased operating flexibility with regard to train removals.

February 14, 1977: Daly City bound train moved through misrouted switch, causing the front wheels of the lead car to go around, "splitting the switch." Investigation of this incident headed by Ralph Weule, in cooperation with the National Transportation Safety Board and the PUC.

March 3, 1977: Arbitrator Sam Kagel decided dispute between BART and ATU 1555 regarding the issue of unmanned, remotely staffed stations. Kagel ruled that the Union should lift its ban on station agents working overtime at unmanned stations, and that BART could continue its test period of substituting cameras for agents but required that there be a station agent on the premises while the test of using RSS equipment was in progress.

March 9, 1977: Parking for 390 additional parking spaces at South Hayward Station completed, bringing the total spaces at the station to 880.

March 10, 1977: BART Board appoints Eugene Garfinkle to Board, representing District 8 in San Francisco. Garfinkle replaced Elmer Cooper, who resigned for personal business reasons, on January 21, 1977.

March 30, 1977: BART Board approves bide submitted by A.R. Peterson & Son of Hayward to supply special sun shields for trackside electronic control boxes, at a cost of $43,653 for 1,300 shields.

April 4, 1977: BART Board establishes Committee on Affirmative Action.

April 4, 1977: BART Board awards contract to provide seismic sensor alarms at Concord, Walnut Creek, Rockridge, El Cerrito Del Norte, BayFair, Fremont, Embarcadero and Daly City stations, at a cost of $22,000.

April 6, 1977: Construction begins at Fremont Station for 300 additional parking spaces at at cost of $590,605.

April 14, 1977: BART Board seeks to toughen transit system's "no smoking" rule by seeking legislation to impose $50 fine.

April 14, 1977: BART seeks to cut power costs by turning off power on storage tracks during non-operating hours.

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April 25, 1977: BART adds 573 parking spaces at stations on the Concord line, by restriping and providing aggregate surfacing on the upper lot at Lafayette Station (thus providing 300 additional spaces). Cost was approximately $6,000, from Transit Development Act.

May 4, 1977: This past week, contracts were awarded to three companies to supply BART with 670 "thyristor components," used to control various electrical functions of transit vehicles (such as dynamic braking and traction propulsion power). Cost for the 670 components is $103,305, as opposed to a cost of $193,305 for the same parts had they been bid as a sole source procurement. This saved the District $90,000.

May 10, 1977: BART-engineered "electronic testing device" to quickly and accurately test individual performance of various types of special circuit boards used in automatic operation and total integrated elctronic units, is unveiled before the District's Engineering Committee. The diagnostic machine provides a major breakthrough in support of BART's computer maintenance program with regard to preventative maintenance for transit vehicles. It was developed by a team of BART engineers headed by Ron Tolmei. Other team members were: John Prowznik, Paul Master, Peter Bice, Howard Harcourt and Dean Watson.

May 18, 1977: BART conducts fifth passenger survey to determine such things as who uses BART, trip origin and destination, what means were used to get to and from BART stations, and for what purpose various trips are made.

May 20, 1977: BART signs first apprenticeship program agreement with the State of California and UPE 390. The program seeks to develop apprenticeships in general maintenance for a four-year period beginning in July 1977. It is an outgrowth of the 1976 labor agreement between BART and UPE 390. Following the four year period, persons in the program would be eligible for journey-person status as recognized by the State of California.

June 9, 1977: BART receives award from California State Department of Rehabilitation for "outstanding public service" in recognition of the system's accomplishments in making the system accessible to the handicapped.

June 13, 1977: BART announces the acquisition of "split disk" brakes for transit vehicles, reducing the time it takes to replace the brake from 24 man hours to 4 man hours. The new brake will also cost less and last longer than the present "single piece" disk.

June 14, 1977: BART adds 300 parking spaces at Fremont Station. Cost is $590,000, with 83 percent covered by Federal Aid Urban Highway (FAU) and 17 percent coming from Transit Development Act funds.

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June 21, 1977: BART G.M., Frank C. Herringer, appoints Lawrence A. Williams to the position of Director of Employee Relations.

June 25, 1977: BART conducts largest full scale fire drill to date. Drill includes 200 volunteers plus representatives from hospitals and emergency response agencies.

July 8, 1977: BART train service is disrupted by a walkout staged by train operators with the Amalgamated Transit Union, Local 1555. Limited train service is provided between Daly City and MacArthur Stations, with bus bridges to stations.

July 18, 1977: BART announces settlement in principle of BART's lawsuit against Barsons Brinckerhoff-Tudor-Bechtel, Rohr and Westinghouse.

July 28, 1977: BART announces completion of installation of special sun shield on the system's trackside electronic control boxes. The sun shields were purchased from A.R. Peterson & Son (low bidder) at a total cost of $43,653. 1,200 shields were installed over a two-month period.

August 3, 1977: BART District files greivance with ATU 1555 in an effort to recover $250,000 in damages caused by the strike of union members on July 8, 1977.

August 26, 1977: Thirty members of BART Police Officers Association strike, in violation of injunction issued by Alameda County Superior Court. Sixty members of BPD remain on duty. Members of UPD 390 and ATU 1555 honored strike. 75% of workforce out.

September 7, 1977: BART and BPOS announce at 2:30 a.m. that a tentative agreement has been reached, ending the 14-day strike by members of BPOA.

September 11, 1977: BART celebrates fifth birthday. To date, 120 million patrons have been carried 1.6 billion passengers miles. Pre-strike patronage is up to 144,400 daily passengers. Patronage at the end of September 1972 was 17,000. Patronage in September 1973 was at the 32,000 level. Patronage had peaked to 80,000 in September 1974. By 1975, patronage was up to the 122,000 level. By September 1976, patronage was up to 132,000.

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September 30, 1977: Permanent extension of the one-half percent sales tax to finance regional transit was signed into law by Governor Brown. AB 1107 was authored by Assemby Sepaker Leo McCarthy, and provides that 75 percent of the proceeds from the tax levied in Alameda, Contra Costa dn San Francisco counties will be earmarked for BART, with the remaining 25 percent to be allocated by the Metropolitan Transportation Commission (MTC) to AC Transit, San Francisco Muni and BART for service improvements. The half-cent sales tax has been in existence since 1970.

October 10, 1977: Three-story parking facility at Daly City Station is opened for BART passenger use. The new structure brings total parking capacity at the station to 1,600. Total cost of the project was approximately $4.2 million, with 91.5 percent being funded by the Federal Highway Administration and the balance by TDA funds and the City of Daly City.

October 19, 1977: BART receives "Silver Mailbox award, presented by the Direct Mail/Marketing Association (DMMA) of New York. The award was presented to BART for its "GO BART - GET AWAY KIT" tote bag, which received order requests from over 9,000 people.

October 17, 1977: BART receives Pioneering Design and Construction" and "Outstanding Civil Engineering Achievement" awards from the American Society of Civil Engineers (ASCE). The awards were presented to BART for its civil engineering accomplishments.

November 21, 1977: Thousands of BART Express Bus riders are left without service when AC Transit bus drivers go on strike. BART contracts with AC Transit to provide Express Bus service from outlying regions of Alameda and Contra Costa counties, to BART stations.

November 28, 1977: BART reaches all-time high for patronage, when approximately 192,000 persons ride BART. This unusuallly high number reflects increased ridership due to AC Transit strike and persons riding BART to Oakland Raiders game at Coliseum.

December 8, 1977: BART Board votes to formalize final agreements with Rohr, Westinghouse, Bulova, and Parsons- Brinkerhoff-Tudor-Bechtel, which will settle the District's three-year-old lawsuit. The settlement means a net value to BART of $28.7 million from the defendents; $15 million in cash ($1.3 million of which has already been credited to BART) and the release fo $49.4 million in claims against BART (which have been valued by the District at approximately $14 million). The defendents will also provide BART with access to documents describing the equipment of the system, will make available to BART patent licenses, and will consult with BART on technical matters. Rohr reduces its $15 million claim against BART, for money due under the transit vehicle contract, to $6.2 million; BART has requested UMTA to pay 80 percent ~~and~~ with the remaining balance to be paid by TDA monies.

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January 6, 1978: BART announces that a survey taken by Management Information Associates of San Francisco, indicates that BART may gain an additional 1500 riders who were regular AC Transit riders prior to the AC strike.

January 7, 1978: BART begins permanent Saturday service. On December 6, 1977, the CPUC authorized BART to begin Saturday service on a regular basis beginning January 7. In actuality, Saturday service has been continuous since November 19, 1988, as part of BART's traditional extended service during the holiday season.

January 16, 1978: New shuttle service begins between Hayward Station and the Alameda County Hall of Justice. The shuttle is a joint BART/Alameda County project with funding costing $175,000 for two years; 75% of the funding is from a TDA grant, 25% is from Alameda County's general fund.

January 26, 1978: BART Board authorizes offering a free day of BART service, in an effort to make up for passenger inconveniences during the AC Transit strike. In addition, Board authorizes one free month of BART Express Bus service, following the end of the two-month long AC Transit strike.

January 30, 1978: First day of one month of free BART Express Bus service (see January 26, 1978 entry).

February 2, 1978: BART offers free day of BART train service (see January 26, 1978 entry). Ridership on the system reaches a record high of approximately 250,000

February 21, 1978: BART Board votes to select Roslyn L. Baltimore of San Francisso to replace Director Ella Hill Hutch, who resigned to assume her new position on the San Francisco Board of Supervisors.

March 8, 1978: BART announces installation of "TTY Telephone" for the deaf. The TTY phone will be located in BART's Telephone Information Center, for the convenience of deaf BART patrons who need transit information.

April 7, 1978: BART officials appear before CPUC to seek approval of new operating procedures that will permit the largest improvements in train service and service reliability since the system opened in 1972. The single most significant request was to remove the one-station separation between trains constraint.

April 27, 1978: Ashby Station becomes first of eight BART stations to be a Remotely Staffed Station (RSS). The station is monitored by a station agent in Central called "Monitor Center Operator" (MCO). The station is monitored by Closed Circuit Television cameras and fare gates, service gates, elevators and restroom doors are controlled by the MCO.

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April 27, 1978: BART Board authorizes sale of land for United Nations Plaza. The 7,893 square feet of property was sold to the City and County of San Francisco for $325,000, considered a fair market price.

June 13, 1978: BART receives CPUC approval to operate regular Sunday train service. Implementation date is scheduled for July 2, 1978.

June 20, 1978: Forty-one management and other non-uion personnel receive notification that their positions were being eliminated, as a result of cut-backs necessary because of Proposition 13 (Jarvis-Gann Initiative). In addition, BART G.M. Frank C. Herringer announced that approximately 150 positions proposed for the 1978/79 BART budget will be eliminated, for a saving of over $5 million. Included in this are 100 union positions.

July 2, 1978: BART begins regular Sunday train service. Richmond/Fremont and Concord/San Francisco service will be in effect from 9 a.m. to midnight.

September 11, 1978: BART observes sixth birthday. Since 1972, over 160,000,000 riders have traveled over two billion passenger miles on BART.

September 14, 1978: BART Board appoints Phillip O. Ormsbee to position of District Secretary. Mr. Ormsbee replaces Richard J. Shephard, who passed away in July 1978.

September 15, 1978: BART receives notification of UMTA grant in the amount of $14,729,480. The money will be used for expansion of the Oakland Shops and storage complex, transit vehicle traction motors modifications, upgrading of handicapped facilities, cable replacement, and replacement of all the seat cushions in the transit vehicles. These projects are expected to be completed within the next two years.

September 29, 1978: BART puts additonal cars into service on the Fremont/Daly City line in an effort to help alleviate commute problems due to the Southern Pacific work shoppage.

September 29, 1978: BART Board approves permit parking at Daly City Station for district residents. The permit parking will be in a 250-space auxiliary parking lot, which is expected to be completed in about two months.

October 27, 1978: BART Director John Glenn, of Fremont, presides over ribbon cutting ceremony to dedicate the new parking lot at BART's Fremont Station. The new lot adds over 300 spaces to the parking facility

November 1, 1978: BART patrons using local feeder buses in Walnut Creek will be able to transfer to and from BART Express Buses. Prior to this policy, BART Express Bus riders could transfer only from Express Buses to local feeder buses.

CHRONOLOGY

January 1, 1979: AB 2442 goes into effect, making violators of BART's "No Smoking" rule subject to a citation and fine of up to $50.

January 11, 1979: BART Board votes to appoint Keith Bernard to the position of General Manager, replacing Frank Herringer.

January 17, 1979: Transbay tube fire

January 18, 1979: BART trains operate on altered schedule due to transbay tube fire. East bay trains operate at 12-minute intervals between Concord and MacArthur stations, and between Richmond and Fremont; in San Francisco, trains will operate at 6-minute intervals between Embarcadero and Daly City stations.

January 19, 1979: CPUC orders temporary moratorium on service through transbay tube.

January 19, 1979: "Board of Inquiry" convenes, to conduct investigation into transbay tube fire. The board will be comprised of Oakland Fire Dept. Cheif Wm. Moore; James Squeri, CPUC; SFFD Deputy Chief Emmet D. Condon; New Jersey PATCO Rbt. Korach; NYC Transit Authority-Thomas Pope; BART Director of Safety Ralph S. Weule, who will act as coordinator. An independent investigation will be conducted by Harold Storey, NTSB; Edward Boyle, UMTA will act as observer to aid in fulfilling UMTA's own investigative responsibilites.

January 20, 1979: BART Board President John Kirkwood calls for special "hot line" to be set up at BART for anyone who was on the train that caught fire in the transbay tube or who has information regarding the tube fire incident.

January 23, 1979: BART provides limited direct service between Concord and Fremont on a trial basis until transbay service is restored.

January 25, 1979: BART Board authorizes direct Concord/Fremont service until transbay service is restored.

February 2, 1979: BART receives seven CPUC-recommended conditions for the resumption of transbay service.

February 7, 1979: BART is granted CPUC hearing set for Sunday, February 11, to present testimony for opening the transbay tube for service. BART anticipates that by that date, it will have complied with the CPUC order of January 19 which sut down the tube.

January 8, 1979: BART Board inspects transbay tube.

January 8, 1979: BART performs time/motion study of evacuation drill the measure passenger evacuation time form a disabled train in the tube. The test proves to be successful in meeting the prime objectives.

February 13, 1979: BART announces plans to charge 50¢ for round trip fares on the special transbay bus service. It is estimated that BART loses about $65,000 per day in revenue and expenses due to tube closure.

CHRONOLOGY

February 13, 1979: BART G.M. meets with Oakland and San Francisco fire chiefs. representatives for California Occupational Safety and Health Administration (OSHA) and the State Fire Marshall's Office to identify and work out a specific set of tasks toward resumption of transbay service. It is expected to take approximately three weeks before the transit district will be ready to ask the CPUC to resume transbay service.

February 21, 1979: BART holds "smoke test" in transbay tube. Purpose of the drill is to demonstrate a coordinated management of the tube's ventilation and exhaust system for control of smoke.

March 1, 1979: BART Board authorizes advertising for bids for the construction of an additional westside parking lot with a pedestrian underpass connection to the Hayward BART Station. Cost is estimated at $950,000, with 83 percent to be funded by FAU and the balance funded by state TDA funds.

March 6, 1979: BART G.M. receives Board of Inquiry report containing 78 recommedations for improving emergency procedures/fire safety on the system. Report will be presented to the BART Board's Engineering and Operations Committee.

March 15, 1979: BART conducts largest transbay tube evacuation drill, with over 600 volunteers participating. This drill was the last of four transbay tube drills that were held since February 27, 1979. In past drills, 150-250 volunteers have participated.

March 22, 1979: BART Board unanimously endorses a comprehensive emergency preparedness and fire safety program for BART and authorizes the General Manager to hire an outside expert in fire and safety protection.

March 23, 1979: BART requests and is granted CPUC hearing. This is the second hearing before the CPUC on restoration of transbay service; the first hearing, held February11, was adjourned pending the development of further documentation on safety improvements. The hearing date is set for March 29, 1979.

March 29, 1979: BART begins testimony before CPUC for resumption of transbay service.

April 2, 1979: BART concludes presentation of direct evidence and testimony to the CPUC to resume transbay service.

April 4, 1979: CPUC authorizes resumption of transbay service. BART will resume service through the transbay tube beginning at 6 a.m. on April 5, 1979.

April 10, 1979: BART Board directs BART staff to develop plans for a turnaround and storage facility to be located between the Daly City and Balboa Park stations. This plan will serve as an alterna tive to a year-old proposal to construct a 6,000 foot track extension and trans storage tracks beyond the Daly City Station.

CHRONOLOGY

April 10, 1979: BART G.M. Keith Bernard recommends to BART Board that the Remotely Staffed Station (RSS) program be discontinued. The recommendation is based on a 51-page report and cites the primary problem is with the Automatic Fare machines not being as reliable as needed to realize BART's goal of saving $1 million annually through the RSS program.

April 16, 1979: Harold Taylor is named Chief of Police for BART, by G.M. Keith Bernard. Taylor replaces Chief William B. Runford Jr., who resigned in November 1978.

April 30, 1979: BART announces that safety posters will be installed in all transit vehicles this week. The posters will contain vital information on safety and emgergency evacuation procedures.

May 4, 1979: BART G.M. announces new organizational structure that will result in a projected savings of more than $200,000 annually, with improved effectiveness and efficiency of BART management. The reorganization is a result of initial work by the management consultant firm of Booz-Allen & Hamilton, Inc., in San Francisco.

May 10, 1979: BART announces it will put an 20 additional cars into service in response to the recent surge in ridership. The extra csrs will be added to trains on the Concord/Daly City and Fremont/Daly City lines during midday hours. BART ridership has increased by 18,000 trips, to a total daily average of over 168,000, as a result of the recent gasoline shortage. BART analysts have determined that most of this ridership increase has occurred during middday hours.

May 10, 1979: BART Board votes to begin direct Richmond/Daly City service in October 1979 or as soon thereafter as possible. The new service will be possible with the implementation of BART's proposed "close headways" program (which needs CPUC approval) or by redistributing the trains presently being used during revenue operation.

May 21, 1979: Permit parking lot opens at Daly City Station. This 250-space auxiliary parking lot is available to BART district residents with permits.

June 1, 1979: Train operators comple special Emergency Procedures Training program. The program is based on new emergency procedures that were developed as a result of the transbay tube fire.

June 28, 1979: BART reports work slowdown in maintenance shops by members of United Public Employees (UPE) Local 390, resulting in a drop in car availability. The normal average of 360 cars available for revenue service in the morning has been steadily declining, reaching a low of 273 cars on this date. Bernard states he believes the slowdown is directly related to current contract negotiations. The ATU 1555 and UPE 390 contract is due to expire at midnight on June 30.

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June 2, 1979: BART announces that ATU 1555 and UPE 390 have agreed to work under the old contract on a day-to-day basis while contract talks continue. BART reports that a negotiation-related work slowdown has continued, resulting in a new low of 254 transit vehicles available for revenue service on this date.

July 8, 1979: BART announces its "final offer" of a wage and benefit package for the ATU 1555 and UPE 390 union contract. If offer is not accepted by midnight July 10, the existing contract which has been extended on a day-to-day basis since July 1 will no longer be extended.

July 30, 1979: Members of UPE 390 and ATU 1555 "take over" Concord Shop. Two foreworkers who were trying to protect the facilities were forceably removed by union leaders. BART G.M. orders the indefinite suspension of all employees involved.

August 6, 1979: BART Board votes to appeal portions of a court order issued August 3, 1979 restricting BART from transferring "massive" numbers of employees from one worksite to another and to impose immediate discipline on those employees involved in the seizure of the Concord maintenance shop.

August 8, 1979: BART files appeal of court order pertaining to the takeover of Concord Shop (see above entry).

August 16, 1979: BART reports losses totaling $560,000 since June 1 as a result of lost revenues due to work slowdown affecting number of available cars, and sabotage of district property. Report states that $440,600 ($15,000 per day) has been lost due to decline in patronage during labor dispute; $43,400 has been lost as a result of sabotage of district property.

August 24, 1979: BART Board authorizes advertising for bids on the construction of a third trackway in downtown Oakland. This project is the 1.5 miles tunnel portion of an eventual 2.5 mile third trackway. The cost is estimated at $4.6 million, with 80 percent funding by UMTA and the balance through MTC of excess bridge tolls.

August 29, 1979: BART labor dispute continues with vadalism disabling 34 transit cars at the Concord Shop due to 75 punctured air bags. The car availability is down to 157, allowing for 22 trains maximum rather than the scheduled 32 on line during peak hours. Consequently, BART announces reduced base service schedules; trains will operate at 18-minute intervals instead of 14-minute intervals.

August 30, 1979: BART Director Arthur Shartsis announces he plans to seek special legislation for harsh penalties for vandalism perpetrated on public transit systems.

CHRONOLOGY

August 31, 1979: Senator S. I. Hayakawa joins BART Board President John H. Kirkwood in an inspection of vadalized transit vehicles at the Concord Shop. The senator plans to introduce federal legislation to increase penalties for vandalism and sabotage of public transit facilities.

August 31, 1979: A strike by BART employees horces shutdown of the BART system effect at 7 p.m. By 4 p.m. BART was no longer providing rail service between Oakland and Richmond and Concord. A free bus service was put into effect between MacArthur and Concord.

September 25, 1979: BART wins appeal of August 3 court order restricting it from transferring "massive" numbers of employees from one work site to another as needed, and to impose discipline on those employees involved in the Concord Shop takeover. The decision was rendered by the California State Court of Appeal.

October 2, 1979: BART announces it will provide limited train service. The service will operate Monday through Friday, 6 a.m. to 6 p.m. between Lafayette Station and 24th Street Station in San Francisco.

October 5, 1979: BART Board votes to seek legislation for strong penalties in cases of vandalism or sabotage perpetrated on public transit systems.

October 16, 1979: CPUC hearings continue concerning BART's application to remove requirement that trains operate no closer than one station apart. This would pave the way for implementing direct Richmond/Daly City service in early 1980.

October 31, 1979: BART announces it is seeking to resume contract talks with ATU 1555 and UPE 390. Negotiations broke off between the two sides on October 10, 1979.

November 19, 1979: BART, for the first time, offers limited direct Richmond/San Francisco service. Service is offered during commute hours only during period of BART/Unions labor dispute.

November 21, 1979: BART Board formally ratifies contract with ATU 1555 and UPE 390 upon prior ratification by those unions. All stations will be open by Monday, November 26, and it is expected that full train service will resume by Thursday, November 29.

December 3, 1979: Full train services resumes following over three months of limited service due to labor dispute.

November 29, 1979: BART Board authorizes seeking bids for replacing transit vehicle seat cushions and covers for transit vehicle fleet. Cost of replacement program is approximately $4.5 million; BART has federal grant for $2.8 million for this purpose and is seeking additional federal funding for the project. The project is expected to be completed by September 30, 1980.

CHRONOLOGY

December 31, 1979: BART, for the first time, operates trains around-the-clock as part of special service on New Year's Eve.

January 1, 1980: Two passengers, Randy SMith of Union City and Alan Young of Oakland, along with train operatro Edmund Bally, assist in reporting and extinguishing fire set by arsonists on 4-car Fremont-bound train at 6:30 a.m. Young and Bally detain arson suspect until BPD arrives.

January 11, 1980: BART advertises for bids on $4.5 million transit vehicle seat replacement program. (see November 29, 1979 entry)

January 16, 1980: BART rewards Randy Smith, Alan Young and Edmund Bally (see January 1, 1980 entry) for theri efforts in averting as arson fire on train. The three split a $1000 reward.

January 23, 1980: BART announces it has hired Gage-Babcock of Oakland, an engineering firm that specializes in fire investigations and safety, to investigate a fire taht destroyed a BART car on December 12, 1979.

February 14, 1980: BART appears before CPUC for hearing on BART's application requesting an extension (to December 31, 1970) on completion date of replacing transit vehicle seats.

February 25, 1980: Special joint BART/AC Transit committee is established. The committee, whose members are comprised of directors from both agencies, is responsible for improving overall coordination between the two transit agencies.

March 20, 1980: BART announces that Board of Directors has approved awarding contract to C. Overaa & Co. of Richmond for $3,068,076 to construct a third track through downtown Oakland. The new "K-E" track will run about 1.5 miles from Washington Street portal to 23rd Street portal through a third subway tunnel under under downtown Oakland.

March 24, 1980: BART begins "BARTpool" parking program at Concord Station. Carpools of three persons or more are permitted special close-in parking in a permit lot.

March 27, 1980: Board of Directors approves entering into agreement with Kaiser Engineers, Inc., of Oakland, to assist BART engineers in the development of a new transit car for the system. BART hopes to eventually purchase 90 of these "C" cars -- a car that is a combination "A" car and "B" car -- at a cost of $1 million per car.

April 7, 1980: East entrance to Fremont Station officially opens.

April 7, 1980: BART Director Arthur Shartsis, of Oakland, testifies before Assembly Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage

CHRONOLOGY

April 7, 1980: BART Director Arthur Shartsis testifies before Assemby Criminal Justice Committee in support of proposed AB 3410, authored by Walter Ingalls (D-Riverside). The bill is an anti-vandalism measure, making it a felony to sabotage BART trains or equipment, with punishment of three to five years in state prison or a fine of up to $5,000 or both.

April 25, 1980: Work begins on K-E track in Oakland.

April 24, 1980: BART Board adopts extension policy. Part of a 20-year plan, the policy outlines four basic extensions to the system, including 15 miles from Concord Station to the Pittsburg-Antioch area; 4.8 miles from Fremont Station to the Warm Springs area; 9.3 miles from Daly City Station to the San Francisco Airport; and 24 miles from Bay Fair Station through Castro Valley to the Livermore-Pleasanton area. Total cost is estimated at $1.7 billion.

May 16, 1980: BART announces that WAM's, Inc., a San Francisco-based firm, is the apparent low bidder on contract to install the new seat cushions in BART cars. Their bid of $118,267 was well below the estimated cost of $200,000 to complete the job. The new fire resistant seat cushions are being manufactured by Art Craft Industries of Milwaukee, Wisconsin, for $4.2 million.

June 24, 1980: BART Board adopts $105.5 million operating budget that includes a fare increase. This is the first fare increase since 1975. Under the new fare formula, the average fare will increase 36 percent. The minimum fare is raised from 30 cents to 50 cents. Discount fares for handicapped and children five through twelve has been increased from a 75 percent discount to a 90 percent discount.

June 13, 1980: BART begins three-month phase-in program for "close headways." At 11 a.m. the close headways program began in the Oakland Wye area. Close headways means trains are run more closely together, thus increasing system capacity. This program will pave the way for start-up of direct Richmond-San Francisco service.

June 30, 1980: "Loma Ranger" shuttle van service operating between the Glen Park Station and Mira Loma Park, begins.

June 30, 1980: New fares go into effect (see June 24, 1980 entry).

July 7, 1980: BART begins direct Richmond-San Francisco service. Total number of trains scheduled to operate during peak periods is 43 (as opposed to 33 trains prior to introduction of close headways). Of these 43, BART has added a train to the Concord line and Fremont line.

July 24, 1980: BART Board approves application to UMTA for 80 percent federal funding of $118 million cost to purchase 90 "C" cars.

CHRONOLOGY

August 20, 1980: BART awarded 1980 Career Apparel Image Award by the National Association of Uniform Manufacturers for station agent uniforms.

September 4, 1980: Vice-President Walter Mondale rides BART from Oakland's 12th Street Station to Powell Street Station in San Francisco.

September 5, 1980: Margaret Pryor sworn in as BART Director representing District 4. Pryor was appointed by Board to replace vacancy created when Director Harvey Glasser resigned on August 1, 1980. The appointment is iterim; Pryor must stand for election in November 1980 to complete Glasser's term that expires in November 1982.

September 11, 1980: BART celebrates eight years in operation. The transit system has carried better than 237 million passengers over 3 billion passenger miles. BART passed the 3 billion mark by the end of June 1980.

September 12, 1980: BART conducts media tour of transbay tube to inspect water seepage into tube. BART announces that it has contract with Adhesive Engineers of San Carlos to perform grouting work to seal several minor seepage points located approximately 1.7 miles east of San Francisco.

September 12, 1980: BART announces that San Francisco Muni transfers will be available free of charge from transfer machines at the Daly City BART Station. The fifty-cent savings (the current cost of BART/MUNI transfers) will benefit San Francisco residents who have been paying the surcharge on trips taken from the Daly City Station to downtown San Francisco.

October 9, 1980: BART announces modification in its "close headways" program, operating 39 trains maximum instead of the 43 that have been operating during peak hours. Base service will change from 15 to 16 minutes for each line. During peak hours, trains will operate at four-minute intervals in downtown Oakland and Transbay throguh San Francisco and Daly City. The modifications are the result of commute hour service problems encountered during the past three months with the introduction of "close headways."

October 16, 1980: BART Board approves awarding contract to LeeMAH Electronics, Inc., of San Francisco, to manufacture a major new train control modification called, "Manual Cab Signalling" (MCS). The modification will permit train operators to operate the trains manually at normal speeds with full automatic protection. MCS was developed by BART engineers.

October 22, 1980: BART announces it will receive $12.9 million in Federal grants from UMTA for three major improvement programs. The three grants include $3.4 million for a portion of construction of the K-E track, $5.4 million for fire safety improvements, and $4.1 million for reliability improvment projects.

October 25, 1980: BART begins four route service on Saturdays; direct Richmond-Daly City service begins.

CHRONOLOGY

November 5, 1980: BART announces the completion of its seat replacement program. All seats in the system's operating fleet have been replaced with cushions and covers made of fire resistant material; the cushions are made of low-smoke neoprene material and the seat covers are made of 90 percent wool and 10 percent nylon.

December 11, 1980: BART announces that its full-scale fire testing of a BART car is being conducted at the McDonnell-Douglas Corporation testing facility in Southern California.

January 5, 1981: BART begins free shuttle service to transport BART patrons who park along Clayton Rd. in Concord to the Concord BART station. The service begins the same day parking restrictions go into effect in the neighborhood surrounding the Concord Station. The new service has been labled the "Concord Super Shuttle Transit" or "Concord SST."

March 3, 1981: BART police arrest four persons on warrants issued by the Contra Costa County District Attorney's Office, in connection with slashing cusions on BART cars. The four were the owner and three employees of Service Systems, Inc., who were under contract with BART to clean and repair the system's transit car cushions.

April 22, 1981: BART begins "WeTip" program, an anonymous witness program aimed at curtailing vandalsim and other crimes committed on the transit system.

April 21, 1981: BART's "cut out car" program is approved by the CPUC. The new program will allow the system to continue trains in operation even though ther may be a friciton brake problem on one of the cars in a train consist.. Prior to the decision, a train with a brake problem would have to operate at half-speed, thus slowing down trains behind it. The entire train consist would then be taken out of service.

May 7, 1981: BART announces it will soon begin cracking down on fare evaders who fraudulently use BART discount tickets, which is estimated at costing BART about $1 million a year in full fare losses..

July 16, 1981: BART Board adopts a 10-year, $1.2 million program of projects designed to improve pedestrian, automobile, bus and car-pool access to 21 stations through the BART system.

September 3, 1981: BART Board adopts preferred route for the proposed Pittsburg-Antioch extension of the rail system. The preferred route is about 19 miles long and will run from Concord to North Concord along Port Chicago Highway to State Route 4, and along State Route 4 to Antioch.

September 8, 1981: BART announces it will be correcting a minor wate seepage problem in the transbay tube which is allowing less than one gallon of water per hour to seep into the tube.

CHRONOLOGY

September 11, 1981: BART celebrates ninth anniversary. The system presently carries approximately 175,000 passengers a day, with 42 trains in operation during peak commute periods.

September 17, 1981: BART unveils major new exhibit entitled, "BART. Going Places." The traveling exhibit makes its debut at Embarcadero Station in San Francisco.

October 21, 1981: BART Board announces that a $6.7 million federal DOT grant that will aid BART in its purchase of new "C" cars has been approved. The $6.7 million federal grant will go toward the purchase of four prototype "C" cars which will undergo extensive testing.

October 31, 1981: At 12 midnight a massive switch -- a major element in the construction of BART's K-E track through downtown Oakland -- is installed in the new trackway. The switch is one of eight switches to be installed in the 12,300-foot addition of mainline trackage.

January 7, 1982: BART Board adopts five-year plan designed to upgrade and streamline the transit system's Express Bus service. The plan calls for gradually phasing out the local service of BART Express Buses as local community transit service is phased in and gradaully increasing the routing of the express bus network, via freeways.

January 18, 1982: BART stocks its stations' vending machines with new BART tickets. The tickets are brighter blue in color and display the BART logo.

February 1, 1982: BART, for the first time, reduces fares during off-peak hours on weekdays. The fare reduction is a test to determine if patrons can be attracted to use the transit system for other than work-related trips. The 20 percent reduction in fares will continue throughout the entire month of February, between the hours of 10 a.m. and 3 p.m.

February 9, 1982: BART's Engineering and Operations Committee receives scaled back proposal for replacement of its computer control system. The revised plan calls for a more centralized computer network which initially reduces the number of new computers from the originally planned 90 to 10. THis will reduce the hardware cost and still provide for the basic need of increasing system capacity from the current maximum of 49 trains to 75 trains.

February 12, 1982: BART introduces "BART TIMES," a new publication for the transit system's riders. The newsletter is available free of charge and will be published on a bi-monthly basis.

February 18, 1982: BART Board authorizes going to bid on the system's $19 million transit vehicle fire hardening project. Included in the fire hardening project will be the removal and replacement of the existing interior liners of the cars with fire resistant material, installing "fire-stop" materials in the sidewalls and ceiling to prevent the spread of combustion, coating the interior of the car roof with a fire resistant paint, coating selected floor panel areas with a protective covering, and installing brake gride heat shields.

CHRONOLOGY

March 16, 1982: BART seeks bids on $19 million fire hardening project (see February 18, 1982 entry).

March 24, 1982: Goundbreaking ceremony for start of construction of new Regional Administrative Facility. Declared the "first governmental condominium arrangement in the Bay Area," the facility will house BART, Metropolitan Transportation Commission and Association of Bay Area Governments. Cost is estimated at $12.6 million.

May 21, 1982: BART awards $17.8 million contract to improve the fire resistance of transit vehicles to TODCO, a division of the Overhead Door Corp.

May 24, 1982: BART awards $1.8 million contract, which will greatly improve radio communications capacity for BART trains, has been awarded to Wismer and Becker, Consulting Engineers, of Sacramento, California. The new system, called RADCOM, is one of the elements in BART's overall wayside control modification program which will aid BART in increasing passenger capacity by allowing more trains to operate on the system at any one time.

July 1, 1982: BART Board votes to ratify a new three-year contract with its two major unions, ATU 1555 and UPE 390.

July 13, 1982: BART announces winners in its "Architectural Design Competition." Prizes totaling $16,000 were awarded to graduate student teams from west coast colleges who participated in the contest aimed at focusing on commercial and institutional development potential at Walnut Creek, Oakland West and Coliseum BART stations.

July 27, 1982: BART opens bids on the transit system's proposed new "C" cars. Five bids were received and will undergo careful analysis before a contract is awarded.

August 3, 1982: BART General Manager Keith Bernard receives first phone call transmitted via Pacific Telephone's new "fibre optic cable," which has been installed in the gallery of BART's transbay tube.

August 19, 1982: BART Board authorizes the sale of $65 million in sales tax revenue bonds for the purchase of new transit cars.

August 19, 1982: BART Board approves an agreement with Westinghouse Electric Corporation to develop a new generation of automatic train control equipment for the transit system's new "C" cars.

August 20, 1982: BART announces the a contract to manufacture special fare gate equipment to accommodate a combined BART/MUNI "fast pass" has been awarded.

August 20, 1982: BART Board announces new fares will go into effect September 8, 1982. The new fares will raise BART fares on the average by 18.4 percent.

EXTENSIONS: (SEE SEPARATE BINDER ON)

# HISTORY OF BART

## 1972 - 1982

I. BART Opens for Revenue Service

- A. Opening Day, September 11, 1972
- B. "Fremont Flyer" on October 2, 1972
- C. "Record Day" in October for A's World Series Game
- D. Ridership Figures
- E. Concord Line Opens on January 29, 1973
- F. ATU & 390 Strike Shuts System Down From July 1 to August 6, 1973
- G. S.F. Line Opens on November 5, 1973
- H. Analysis of Technical Problems by State Senate Committe in early 1973
- I. Westinghouse Directed to Install SORS
- J. Gasoline Shortage in early 1974 Boosts BART Patronage

II. FINANCIAL PROBLEMS CONTINUE

- A. BART Requests State Subsidy for Operations
- B. SB1966 Introduced by Mills to Extend Half-Cent Sales Tax for Two Years
- C. Voting Districts for 9-Man BART Board Signed Into Law on June 30, 1974
- D. B.R. Stokes Resigns on June 30, 1974
- E. Transbay Service Begins on September 16, 1974
- F. Patronage Makes Sharp Increase
- G. BART Files Lawsuite Against PBTB, Westinghouse, Rohr and Bulova on November 18, 1974
- H. BART Establishes Express Bus Service on December 2, 1974
- I. 9-Member BART Board Installed on December 2, 1974

III. A NEW DIRECTION FOR BART

A. BART Board Appoints Frank C. Herringer as G.M. in April 1975

B. "Bikes on BART" Program Established in 1974, Made Permanent in 1975

C. BART Establishes Discount Fares for Handicapped and Seniors

D. BART Fare Increase Effective in November 1975

E. Robert D. Gallaway Appointed Assistant G.M. of Operations in November

F. Herringer Announces Sweeping Changes in Management Staff and Organization in Nov.

G. MTC & State Legislators Negotiate Funding for Late Night Service Beginning 1/1/76

1. Affirmative Action Department Established in FY 1975-76
2. AB3785, Extending Half-Cent Sales Tax Funding Through June 1978, Signed on 9/22/76
3. Car Availability Increased by 12 Percent During FY 1975-76
4. Reliability Rate Continues at Unacceptable Levels During FY 1975-76
5. Ridership Makes Steady Gains
6. Embarcadero Station Opened in FY 1975-76 (May 27, 1976)
7. Marketing & Passenger Service Combined into New Dept., Concentrates on Increased Patronga
8. Operations: Average Daily Number of Revenue Cars Available Rises From 219 to 245
9. Extra Trains Added for Special Events at Coliseum, Experimental R-DC Trains Run
10. Late Night and Saturday Service Offered on Temporary Basis During X-Mas Season
11. BART Extends Revenue Service Hours to Midnight on Permanent Basis
12. Night Service Accounts for 5 Percent of Total Daily Patronage During FY 1975-76
13. BART Adds 36 Express Buses to Provide More Service to Outlying Areas
14. BART Survey Taken
15. BART Continues Efforts to Attract New Riders
16. 100th Million BART Passenger enters at Montgomery Street Station in 1977
17. As of June 30, 1977, 115 Million rode over 1.5 Billion Passenger Miles Since 1972
18. Maintenance & Engineering Changes and Efforts Increase Car Count to 354 as of June 1977
19. In 1977, 42% Increase in Available Traction Power Due to Work on Electrification System
20. December 1976, 10-Car Trains on Concord Line in Regular Peak-Hour Service
21. Saturday Service During Holiday Season Continues
22. BART Trains run on New Year's Eve Until 2:30 a.m. - A First for BART
23. BART Sees Gains: More Passengers But Uses Less Car Miles
24. Daly City Parking Structure Partially Opened in November 1976
25. BART Planners Develop System Access Study: Emphasize More Bus Service, Station Parking
26. "Oakland Air-BART" Begins Operating on July 1, 1977
27. Handrails Installation Completed in August 1976

28. City Center Plaza Entrance to 12th St. Station Opened on October 15, 1976
29. ComSpecs, "HotLine" Added to Provide Info. Station Operations Division formed
30. Central Operations reorganized for Improved Coordination
31. Two Spur Tracks Added Near OKS and Daly City Station
32. Cut Costs Through Procedures to Operate 3 Yards at Nights and Weekends ($1 Million Annually
33. New Computerized System for Classifying Equipment Failures Means Better Service
34. In-House Engineering Research & Development Lab Established
35. Service Objectives Outlined for 77-78: Begin Sat. Service, R-DC Service, 7-Day Service
36. September 22, 1976: Half-Cent Sales Tax Extended Until June 1978
37. September 30, 1977: Half-Cent Sales Tax Permanently Established
38. May 1977: Consulting Firm Performs Comprehensive Evaluation of BART Organizational Structu
39. Computer Programs Updated, Expanded, New Ones Developed Beginning April 1977
40. Cost Efficiencies Achieved in Fleet Maintenance
41.

# A HISTORY OF BART

(1946 - 1976)

The BART story began in 1946. It began not by governmental fiat but as a concept gradually evolving at informal gatherings of business and civic leaders on both sides of the San Francisco Bay. Facing a heavy post-war migration to the area and its consequent automobile boom, these people discussed ways of easing the mounting congestion that was clogging the bridges spanning the Bay and their highway approaches.

In 1947, a joint Army-Navy review Board concluded that another connecting link between San Francisco and Oakland would be needed in the years ahead to prevent intolerable congestion on the Bay Bridge. The link? An underwater tube devoted exclusively to high-speed electric trains.

Since 1911, visionaries had periodically brought up this Jules Verne concept. But now, pressure for a traffic solution increase with the population. In 1951, the State Legislature created the 26-man San Francisco Bay Area Rapid Transit Commission, comprising representatives from each of the nine counties which touch the Bay. The Commission's charge was to study the Bay Area's long range transportation needs in the context of environmental problems and then recommend the best solution.

The Commission, advised in its final report in 1957, that any transportation plan must be coordinated with the area's total plan for future development. Since no development plan existed, the Commission prepared one itself. The result of their thoroughness is a master plan which did much to bring about coordinated planning in the Bay Area, and which was adopted a decade later by the Association for Bay Area Governments (ABAG).

## BART CONCEPT IS BORN

The Commission's least-cost solution to traffic tieups was to recommend forming a five-county rapid transit district, whose mandate would be to build and operate a high-speed rapid rail network linking major commercial centers with suburban sub-centers.

The Commission stated that, "If the Bay Area is to be preserved as a fine place to live and work, a regional rapid transit system is essential to prevent total dependence on automobiles and freeways."

Thus was born the environmental concept underlying BART. Acting on the Commission's recommendations, in 1957, the Legislature formed the San Francisco Bay Area Transit District, comprising the five counties of Alameda, Contra Costa, Marin, San Francisco and San Mateo. At this time the District was granted a taxing power of five cents per $100 of assessed valuation. It also had authority to levy property taxes to support a general obligation bond issue, if approved by District voters. The State Legislature lowered the requirement for voter approval from 66 percent to 60 percent.

Between 1957 and 1962, engineering plans were developed for a system that would usher in a new era in rapid transit. Electric trains would run on grade-separated right-of-ways, reaching maximum speeds of 75-80 m.p.h., averaging perhaps 45 m.p.h. including station stops. Advanced transit cars, with sophisticated suspensions, braking and propulsion systems, and luxurious interiors, would be strong competition to "King Car" in the Bay Area. Stations would be pleasant, conveniently located, and striking architectural enhancements to their respective on-line communities.

Hundreds of meetings were held in the District communities to encourage local citizen participation in the development of routes and station locations. By midsummer, 1961, the final plan was submitted to the supervisors of the five District counties for approval. San Mateo County Supervisors were cool to the plan. Citing the high costs of a new system - plus adequate existing service from Southern Pacific commuter trains - they voted to withdraw their county from the District in December, 1961.

With the District-wide tax base thus weakened by the withdrawal of San Mateo County, Marin County forced to withdraw in early 1962 because its marginal tax base could not adequately absorb its share of BART's projected cost. Another important factor in Marin's withdrawal was an engineering controversy over the feasibility of carrying trains across the Golden Gate Bridge.

BART had started with a 16-member governing Board of Directors apportioned on county population size: four from Alameda and San Francisco Counties, three from Contra Costa and San Mateo, and two from Marin. When the District was reduced to three counties, the Board was reduced to 11 members: four from San Francisco and Alameda, and three from Contra Costa. Subsequently, in 1965, the District's enabling legislation was changed to apportion the BART Board with four Directors from each county, thus giving Contra Costa its fourth member on a 12-man Board. Two Directors from each county, henceforth, were appointed by the County Board of Supervisors. The other two Directors were appointed by committees of mayors of each county (with the exception of the City and County of San Francisco, whose sole mayor made these appointments).

The five-county plan was quickly revised to a three-county plan emphasizing rapid transit between San Francisco and the East Bay cities and suburbs of Contra Costa and Alameda counties. The new plan, elaborately detailed and presented as the "BART Composite Report," was approved by supervisors of the three counties in July, 1962, and placed on the ballot for the following November general election.

The plan required approval of 60% of the District's voters. It narrowly passed with a 61.2% vote District-wide, much to the surprise of many political experts who were confident it would fail. Indeed, one influential executive was reported to have said: "If I'd known the damn thing would have passed, I'd never have supported it."

The voters approved a $792 million bond issue to finance a 71.5-mile high-speed transit system, consisting of 33 stations serving 17 communities in the three counties. The proposal also included was another needed transit project: rebuilding 3.5 miles of the San Francisco Municipal Railway. The new line would link muni streetcar lines directly with BART & Market Street stations, and four new muni stations would be built.

The additional cost of the transbay tube -- estimated at $133 million -- was to come from bonds issued by the California Toll Bridge Authority and secured by future Bay Area bridge revenues. The additional cost of rolling stock, estimated at $71 million, was to be funded primarily from bonds issued against future operating revenues. Thus, the total cost of the system, as of 1962, was projected at $996 million. It would be the largest single public works project ever undertaken in the U. S. by the local citizenry.

After the election, engineers immediately started work on the final system designs, only to be halted by a taxpayers' suit filed against the District a month later. The validity of the bond election, and the legality of the District itself, were challenged. While the court ruled in favor of the District on both counts, six months of litigation cost $12 million in construction delays. This would be the first of many delays from litigation and time-consuming negotiations involving 166 separate agreements reached with on-line cities, counties, and other special districts. The democratic processes of building a new transit system would prove to be major cost factors that, however necessary, were not foreseen.

## THE PROJECT BEGINS

BART construction officially began on June 19, 1964, President Lyndon Johnson presiding over the ground-breaking ceremonies for the 4.4-mile Diablo Test Track between Concord and Walnut Creek in Contra Costa County. The test track completed 10 months later was used to develop and evaluate sophisticated new design concepts for BART's transit cars and automatic train control system.

In charge of construction management, overall design of system facilities and equipment, and monitoring of BART's major contractors were the District's General Engineering consultants, Parsons-Brinckerhoff-Tudor-Bechtel, or most commonly known as "PB-T-B." A joint venture enterprise formed to manage all technical, as well as construction aspects of the BART project, PB-T-B was comprised of three well known engineering consultant firms. Parsons-Brinckerhoff-Quade & Douglas of New York (who had done the original BART transportation plan); Tudor Engineering Company of San Francisco; and Bechtel Corporation of San Francisco.

Through this joint venture, the firms supplied (or recruited from the U. S. and abroad) the most impressive array of engineering talent ever assembled for a single public works project. The basis of the joint venture concept was that engineering specialists could be supplied as needed, moving on to other projects when their respective BART assignments were completed. This was considered less costly and more permanent than building up a large District staff.

Construction began on the Oakland subway in January, 1966. November of that year saw the first of 57 giant steel and concrete sections of the 3.8-mile transbay tube lowered to the bottom of the Bay by a small navy of construction barges and boats.

The 3.2-mile bore through the hard rock of the Berkeley hills was completed in February, 1967, after 466 work days, to become the fourth longest vehicular tunnel in the U.S.

The first major equipment contract was awarded in May 1967 for the nation's first fully automated train control system. Westinghouse Electric Corporation's low bid of $26.1 million was $3 million under the next bidder. Four other bidders were General Railway Signal Company, Philco-Ford Company, General Electric Company, and Westinghouse Air Brake Company. Although awarding of the contract to any company other than the low bidder would have been illegal, District officials were destined to face criticism and controversy as a result.

In July, 1967, work began on the Market Street subway and stations. Carried out 80-100 feet below heavy downtown traffic, against the combined pressure of mud and Bay water, the work required one of the greatest concentrations of tunneling crews and equipment in construction history. Construction of the giant five-story-high stations beneath Market Street, and the tunnels themselves, was accomplished under extremely difficult conditions imposed by the high water table in downtown San Francisco, plus an incredible maze of underground utilities installed over the last 100 years. The first tunneling in the western U. S. done entirely under compressed air conditions, the project produced a succession of "firsts" in constructing the subway and stations in a difficult mud and water environment.

Subway excavations were rich with buried ships and other memorabilia, providing a fascinating look back into Nineteenth Century San Francisco when the land-fill of lower Market Street and the Embarcadero was still open harbor. The huge construction effort reached its peak in 1969 with a contractor force of 5,000 working on the San Francisco subway and other parts of the system, the weekly payroll was more than $1 million.

The final tunnel bore was "holed through" into the west end of the Montgomery Street Station on January 27, 1971. It marked the completion of tunneling work in the huge, two-level Market Street subway and climaxed six years of tunneling underground.

Tunneling under compressed air required a special medical center with equipment specialists for close monitoring of the "sandhog" construction force. Despite the complex problems of sandhogging, the BART project was completed with one of the best safety records in heavy construction.

## ENGINEER HISTORY WAS MADE

The contract for the production and delivery of BART's revolutionary electric transit cars was signed with Rohr Industries, Inc., of Chula Vista, California, in July, 1969. The initial contract called for delivery of 250 cars, with the first 10 vehicles to serve as test prototypes.

Meanwhile, a truly great chapter was written in the history of civil engineering with the completion of the transbay tube structure in August, 1969. Constructed in 57 sections, and reposing on the Bay floor as deep as 135 feet beneath the surface, the remarkable $180 million structure took six years of soil and seismic studies to design, and less than three years to construct. Before it was closed to visitors for installation of tracks and electrification, many thousands of adventurous people had walked, jogged, and bicycled through the tube. It received a dozen major engineering awards and rapidly became famous, seeming to capture the imagination of visitors from all over the world. To youngsters, especially, the transbay tube is BART.

Unhappily, the major years of BART construction in the 1960's saw seven percent average annual inflation - more than double the rate anticipated by economists and allowed for in the project cost estimates. In this climate, before substantial federal grants were available, BART's financial history was inevitably a troubled one.

While delays and inflation were sapping capital reserves, pressures from public and governmental groups resulted in the relocation of 15 miles of right-of-way and 15 stations, as well as a general upgrading of station plans. Stations were also substantially altered during construction to include elevators and other facilities for the handicapped and elderly at an added cost of $10 million. The cost of the transbay tube rose to $180 million for an original estimate of $133 million.

Prime examples of how public pressures escalated the cost of the system are the Berkeley subway and the Ashby Station. After originally approving a combination aerial and subway line through Berkeley, that city later came to oppose the plan in favor of a subway-only line, which was much more expensive. The new plan necessitated redesign of the Ashby Station from an aerial to a subway facility. Extensive controversy and hearings ensued for the next 2-1/2 years, finally to be resolved by Berkeley residents voting to tax themselves additionally to finance the changes they wanted. Next, a Berkeley City Councilman filed a successful suit to redesign the Ashby Station, yet a second time, asserting the use of skylights in the original plans was not a true subway design.

The Berkeley situation resulted in a 2-1/2 year delay in subway construction, a 17-month delay in starting Ashby Station construction, and additional costs of $18 million.

As early as 1966, it became increasingly clear that the District would fall short of funds to complete the system. The only apparent solutions were an infusion of more funds, or a drastic scaling-down of system miles to fit the original budget. Major construction contracts were rewritten and readvertised in anticipation of the threatened cutbacks.

As the crisis deepened, BART directors refused to compromise the planned 71.5-mile system until every possible alternative could be explored. Finally, in April, 1969, after three years of debate, the State Legislature granted the District's request for $150 million by authorizing the levying of a half-cent sales tax in the BART counties. The needed funds thus came from the sale of bonds pledged against the sales tax revenues.

## THE PROJECT IS RESCUED

With funds to complete the system assured, construction contracts were returned to their original scope, and work quickly reached peak level in 1969. But three years of financial uncertainty had taken their toll on work schedules. The shortage of funds had also held up ordering the transit cars. When the first 250 cars were finally ordered from low bidder Rohr Industries, Inc., of Chula Vista, California, the cost was $80 million -- $8 million more than the original cost estimate for the entire 450-car fleet. (Subsequently, 200 more transit cars were ordered for another $80 million. Delivery of the total 450-car fleet would be complete by July 30, 1975.)

Meanwhile, federal monies had begun flowing into the project at an increasing rate, making possible a wide range of improvements over the original system plans. BART's widely-known "linear park," for example, was constructed under the aerial right-of-way through Albany and El Cerrito to demonstrate how function could combine with aesthetics to enhance community environments. A $7.5 million program for systemwide landscaping and right-of-way beautification was partly funded by several of the largest federal grants ever made for this purpose. Of the $160 million base cost of BART's 450-car fleet, 64 percent was funded by federal grants.

Included in the construction contract for the lower Market Street subway, awarded in the busy year of 1969, was the basic "box" structure for the Embarcadero Station. Not in the original plans, the system's 34th station was added as a result of increasing development of the lower Market Street area. Station funding was cooperative, with the San Francisco business community raising money for design, and BART spending $25 million on construction. (Of the latter figure, $16 million was raised by curtailing construction of the Muni subway at the west portal station instead of St. Francis Circle as originally planned.)

The $315 million received to date in federal capital grants was an important factor in upgrading the system from original plans, nonetheless this federal aid is only 20 percent of the total $1.6 billion investment in the system. (If BART were being built today, 80 percent of its capital costs could be federally funded under the U.S. Urban Mass Transportation Assistance Act of 1974.)

Thus, changes and improvements increased the valuation of the system considerably from the original estimates -- a cost factor that is frequently and incorrectly confused with the true project cost over-runs on specific contracts.

## A NEW RAILROAD TAKES SHAPE

As the project moved into 1970, the wide range of system construction passed its peak, and contracts were being completed with increasing frequency. An amorphous collection of excavations, stacks of lumber and brick, sections of rail, and giant spools of cabling was taking on the outlines of a finished railroad. Long suffering San Francisco businessmen were even beginning to recapture Market Street from the BART construction forces.

As the system neared completion, the construction engineers so long in charge began making way for a wide range of electronic engineers and technicians, computer experts, and other specialists. Their job was to install and prove out the automatic train control system, plus three maintenance shops and train yards at Hayward, Richmond, and Concord, a staggering array of communications and wayside equipment.

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The 1971-72 period saw the gradual phase-out of major construction work and the beginning of the transition from a construction-oriented organization to an operating railroad. New areas of emphasis included marketing, personnel training, planning feeder bus service to stations, and across-the-board preparations for revenue service. The District staff, up to 765 by mid-1972, had almost tripled in three years to build up the transportation and maintenance force for revenue service.

A study of an extension between Daly City Station and the San Francisco International Airport was concluded, and another study of an extension or shuttle access to the Oakland International Airport from the Coliseum Station was continued. Also begun were extension studies for northwest San Francisco, the Pittsburg-Antioch area, and the Livermore-Pleasanton area.

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Another and serious problem arose on June 18 when the State imposed a hiring freeze on the District until 1,100 applicants from other local transportation lines were interviewed for BART jobs on a priority basis. The freeze was lifted June 15, but vital hiring and training time for station agents, train operators, and maintenance workers had been lost.

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The system opened with 26 transit cars (24-A-cars, two B-cars) which was barely sufficient to maintain eight to nine two-car trains daily. The trains ran at 10-15-minute headways, five days a week, from 6 a.m. to 8 p.m. This brave little fleet

carried 100,000 people in the first week of operation -- a remarkable feat considering the limited capacity and newness of the line operation organization.

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Ridership was 12,000 daily on the Fremont line by the time the Richmond line opened on January 29, 1973, extending the service 11 miles northward and opening six more stations. Equipment was increased to 12 trains, each three and four cars long. Daily patronage jumped instantly from 12,000 to 27,000.

On May 21, the Concord line opened, putting 19 more miles and six more stations into service. The line, a scenic showcase of transit/freeway corridor planning and pastoral suburbia, had increased daily patronage to 37,000 by the end of June.

The system was shut down from July 1 to August 6, 1973, by a strike involving 1,100 transportation personnel of the Amalgamated Transit Union, Local 1555, and maintenance and clerical personnel of United Public Employees, Local 390. The strike developed over the issue of wage parity among employees of similar classifications.

The San Francisco line between Montgomery Street and Daly City stations was opened for revenue service on November 5, 1973. Service would remain a shuttle operation on that eight-mile, eight-station line, however, until the District could obtain State approval of its operating procedures to open the seven-and-a-half mile transbay line. Daily patronage (which had quickly recovered to 35,000 after the summer strike) doubled with San Francisco service. Four trains were operating on the line, in addition to the 18 trains on the three East Bay lines. Train lengths ranged from five to seven cars.

In technical areas, meanwhile, major programs were going forward to improve the overall reliability of the vehicle fleet and also improve margins of train safety under automatic train operation, as desired by both the District and the California Public Utilities Commission (CPUC). Equipment modifications were keyed to an analysis of the system's technical problems by a State-appointed three-man panel of electronic experts, who reported their recommendations to the State Senate Public Utilities and Corporations Committee early in 1973.

In December, Westinghouse was directed to install a new train detection system, called SOR (for Sequential Occupancy Release), as an added safety back-up to the basic ATC detection system. After careful analysis, engineers with the CPUC, the District and its engineering consultants, agreed that a back-up detection system

would become desirable when train headways were reduced below five minutes (or approximately one-station separation) as they eventually would have to be to provide a high level of service.

Thus, as the District moved into 1974, its immediate goal was the start-up of transbay service - the only segment not yet in operation, but the most vital link in the 71-mile system.

Early 1974 was marked by a severe gasoline shortage in the Bay Area, which boosted daily system patronage from 70,000-plus to more than 80,000 for a two-month period. Patronage then settled back to the 70,000 level. The eight San Francisco stations were shut down March 11-15 by BART management owing to picketing by San Francisco municipal employees as part of a city-wide strike.

## FINANCIAL PROBLEMS CONTINUE

But 1974 was to see more change and conflict within the District. Its continued operation threatened by a spiralling budget deficit. BART called on State legislators to provide an operating subsidy as the only means of budgeting a widening cost-revenue gap without unreasonably raising fares and lowering service levels. Although rising deficits were what the whole transit industry was experiencing, BART's unique founding legislation required it to operate strictly on fare revenue. Solvency through the fare box appeared increasingly romote. The Director of Finance warned that, without a direct subsidy, the District would be insolvent by the coming November. The system might have to be shut down as early as September to conserve funds for caretaker purposes.

General Manager B. R. Stokes and other officials called for a temporary extension of the half-cent sales tax authorized in 1969 to complete construction of the system. The tax was seen as a temporary means of meeting the unfunded deficit until the legislature could identify and enact more permanent sources of an operating subsidy.

In response, Senator James Mills (D. San Diego) introduced SB1966 extending the sales tax for two years as a temporary operating subsidy. The bill subsequently became State law in September.

On June 30, Governor Ronald Reagan signed into law AB3043, which established voting districts from which a nine-man BART Board of Directors would be popularly elected for the first time in November, 1974 supplanting the long-standing 12-man appointive Board. The nine voting districts were marked out on the criteria of equal population, community of interests, and "geographical cohesiveness."

Also on June 30, the resignation of General Manager B. R. Stokes became effective. Stokes, who had become a controversial figure among the BART Directors, was succeeded by Acting General Manager Lawrence D. Dahms until the incoming elective Board could make a permanent appointment to the post.

Meanwhile, the major effort toward transbay service continued. By July, one-station separation in train operations had been accomplished system-wide. This was the vital step toward transbay operation, as the San Francisco line had to handle trains on closer headways due to the convergence of two East Bay lines through the tube.

On Monday, September 16 -- to the undiluted thrill of patrons young and old -- crowded BART trains began streaking through the tube at 80 m.p.h. Opening at the same time was the Oakland West Station, at the tube's eastern end, leaving only the Embarcadero Station to open in mid-1976. The Monday opening was preceded on Saturday by appropriate ceremonies and introductory train rides through the tube for the public.

Patronage, which had been 73,000 prior to opening of the tube, jumped to 118,000 within the first week. The number of trains operating increased from 22 to 30.

Having linked its East Bay and West Bay lines, the District's next objective was to improve the reliability of both the cars and the train control system. Once this was accomplished, the District could address the question of extending service hours to nights and weekends -- an issue of increasing concern to the public.

"BART's technical and financial problems -- and certainly its limited service hours -- have thus far kept it from achieving full ridership potential. Despite this, we know from surveys that at least 52 percent of our patrons have left their automobiles to ride BART.

"Besides the quality of BART's own service," the analyst emphasized, "an important factor in its ridership will be how well feeder bus service can be improved to all BART stations."

The District has worked out BART-to-bus transfer systems with both AC Transit (which operates buses in the East Bay) and the San Francisco Municipal Railway (which operates buses in that city). The Distsict is also working to help get local bus service to all on-line communities where none yet exists.

The last major action under the appointed Board of Directors was the November 18 filing of a law suit by the District, seeking over $200 million in damages from defendants: Parsons, Brinckerhoff-Tudor-Bechtel, Westinghouse Electric Corporation, Rohr Industries, Inc., Bulova Watch Company, and their respective surety companies. The District sought relief from what it asserted was equipment faulty design and manufacture, with lost revenues and other major expenses resulting.

Also on December 2, BART activated five express feeder bus routes to outlying communities in the District which are not directly served by the train system. The bus lines are operated by AC Transit under contract to BART.

On December 2, eight men and one woman comprising the first elective Board of Directors in the history of the District were formally installed. By lot, some were installed for initial two-year terms, and others for regular four-year terms, in order to stagger subsequent four-year terms of office. Thus, BART entered 1975 with the full system in revenue operation and governed by a Board elected directly by the District residents for the first time in it's 18-year history.

In April, 1975, the new Board of Directors appointed Frank C. Herringer as District General Manager to fill the permanent post vacated by B. R. Stokes the previous June. Coming from his post as Administrator of the U. S. Urban Mass Transportation Administration in Washington, D. C. Herringer arrived at BART on July 1 during a budget and labor crisis.

Despite the administrative crisis and shift in management, the staff was able to meet a steadily increasing level of patronage. Also, it introduced the innovative "Bikes on BART" program. For the first time in the transit industry, patrons were able to bring their bicycles on the system under closely-controlled procedures to prevent interference with other patrons. This program proved so successful, it was made a permanent policy at the end of 1975.

Another industry first introduced during the summer was a program which implemented 75% fare discounts for the handicapped through a system of medical certification by physicians and agencies. Other transit lines in the Bay Area quickly adopted the BART certification program enabling them to offer discounts to the handicapped. BART discounts for senior citizens, over age 65, were increased from 75% to 90%.

After a careful financial analysis of the District's serious financial situation, BART Directors reluctantly approved an average 21% increase in fares, which took effect in November. Maximum fare increased from $1.25 to $1.45, while the 30-cent minimum fare was decreased to 25 cents in the Oakland and San Francisco downtown business areas.

The District's second key post --long vacant -- was filled with the appointment of Robert D. Gallaway as Assistant General Manager of Operations. The second member of the new management team arrived in November from his post as Executive Vice President for Operations at Texas International Airlines in Houston.

Meanwhile, the new General Manager had been conducting an intensive evaluation of the District management staff since his arrival. In late November, he announced a series of sweeping personnel changes and departmental realignments aimed at improving staff productivity and coordination.

The successful conclusion of negotiations with State Legislators and officials of the Metropolitan Transportation Commission (MTC) resulted in the funding of permanent late night service (to midnight), as of January 1, 1976. Late night service was offered during the Thanksgiving-Christmas season, but only on a temporary basis as in previous years. Providing for permanent late night service was the last major accomplishment in 1975 and it began the New Year with a major step forward.

Office of Public Information
November, 1976

# A HISTORY OF BART

(1946 - 1976)

The BART story began in 1946. It began not by governmental fiat but as a concept gradually evolving at informal gatherings of business and civic leaders on both sides of the San Francisco Bay. Facing a heavy post-war migration to the area and its consequent automobile boom, these people discussed ways of easing the mounting congestion that was clogging the bridges spanning the Bay and their highway approaches.

In 1947, a joint Army-Navy review Board concluded that another connecting link between San Francisco and Oakland would be needed in the years ahead to prevent intolerable congestion on the Bay Bridge. The link? An underwater tube devoted exclusively to high-speed electric trains.

Since 1911, visionaries had periodically brought up this Jules Verne concept. But now, pressure for a traffic solution increase with the population. In 1951, the State Legislature created the 26-man San Francisco Bay Area Rapid Transit Commission, comprising representatives from each of the nine counties which touch the Bay. The Commission's charge was to study the Bay Area's long range transportation needs in the context of environmental problems and then recommend the best solution.

The Commission, advised in its final report in 1957, that any transportation plan must be coordinated with the area's total plan for future development. Since no development plan existed, the Commission prepared one itself. The result of their thoroughness is a master plan which did much to bring about coordinated planning in the Bay Area, and which was adopted a decade later by the Association for Bay Area Governments (ABAG).

## BART CONCEPT IS BORN

The Commission's least-cost solution to traffic tieups was to recommend forming a five-county rapid transit district, whose mandate would be to build and operate a high-speed rapid rail network linking major commercial centers with suburban sub-centers.

The Commission stated that, "If the Bay Area is to be preserved as a fine place to live and work, a regional rapid transit system is essential to prevent total dependence on automobiles and freeways."

Thus was born the environmental concept underlying BART. Acting on the Commission's recommendations, in 1957, the Legislature formed the San Francisco Bay Area Transit District, comprising the five counties of Alameda, Contra Costa, Marin, San Francisco and San Mateo. At this time the District was granted a taxing power of five cents per $100 of assessed valuation. It also had authority to levy property taxes to support a general obligation bond issue, if approved by District voters. The State Legislature lowered the requirement for voter approval from 66 percent to 60 percent.

Between 1957 and 1962, engineering plans were developed for a system that would usher in a new era in rapid transit. Electric trains would run on grade-separated right-of-ways, reaching maximum speeds of 75-80 m.p.h., averaging perhaps 45 m.p.h. including station stops. Advanced transit cars, with sophisticated suspensions, braking and propulsion systems, and luxurious interiors, would be strong competition to "King Car" in the Bay Area. Stations would be pleasant, conveniently located, and striking architectural enhancements to their respective on-line communities.

Hundreds of meetings were held in the District communities to encourage local citizen participation in the development of routes and station locations. By midsummer, 1961, the final plan was submitted to the supervisors of the five District counties for approval. San Mateo County Supervisors were cool to the plan. Citing the high costs of a new system - plus adequate existing service from Southern Pacific commuter trains - they voted to withdraw their county from the District in December, 1961.

With the District-wide tax base thus weakened by the withdrawal of San Mateo County, Marin County forced to withdraw in early 1962 because its marginal tax base could not adequately absorb its share of BART's projected cost. Another important factor in Marin's withdrawal was an engineering controversy over the feasibility of carrying trains across the Golden Gate Bridge.

BART had started with a 16-member governing Board of Directors apportioned on county population size: four from Alameda and San Francisco Counties, three from Contra Costa and San Mateo, and two from Marin. When the District was reduced to three counties, the Board was reduced to 11 members: four from San Francisco and Alameda, and three from Contra Costa. Subsequently, in 1965, the District's enabling legislation was changed to apportion the BART Board with four Directors from each county, thus giving Contra Costa its fourth member on a 12-man Board. Two Directors from each county, henceforth, were appointed by the County Board of Supervisors. The other two Directors were appointed by committees of mayors of each county (with the exception of the City and County of San Francisco, whose sole mayor made these appointments).

The five-county plan was quickly revised to a three-county plan emphasizing rapid transit between San Francisco and the East Bay cities and suburbs of Contra Costa and Alameda counties. The new plan, elaborately detailed and presented as the "BART Composite Report," was approved by supervisors of the three counties in July, 1962, and placed on the ballot for the following November general election.

The plan required approval of 60% of the District's voters. It narrowly passed with a 61.2% vote District-wide, much to the surprise of many political experts who were confident it would fail. Indeed, one influential executive was reported to have said: "If I'd known the damn thing would have passed, I'd never have supported it."

The voters approved a $792 million bond issue to finance a 71.5-mile high-speed transit system, consisting of 33 stations serving 17 communities in the three counties. The proposal also included was another needed transit project: rebuilding 3.5 miles of the San Francisco Municipal Railway. The new line would link muni streetcar lines directly with BART & Market Street stations, and four new muni stations would be built.

The additional cost of the transbay tube -- estimated at $133 million -- was to come from bonds issued by the California Toll Bridge Authority and secured by future Bay Area bridge revenues. The additional cost of rolling stock, estimated at $71 million, was to be funded primarily from bonds issued against future operating revenues. Thus, the total cost of the system, as of 1962, was projected at $996 million. It would be the largest single public works project ever undertaken in the U. S. by the local citizenry.

After the election, engineers immediately started work on the final system designs, only to be halted by a taxpayers' suit filed against the District a month later. The validity of the bond election, and the legality of the District itself, were challenged. While the court ruled in favor of the District on both counts, six months of litigation cost $12 million in construction delays. This would be the first of many delays from litigation and time-consuming negotiations involving 166 separate agreements reached with on-line cities, counties, and other special districts. The democratic processes of building a new transit system would prove to be major cost factors that, however necessary, were not foreseen.

## THE PROJECT BEGINS

BART construction officially began on June 19, 1964, President Lyndon Johnson presiding over the ground-breaking ceremonies for the 4.4-mile Diablo Test Track between Concord and Walnut Creek in Contra Costa County. The test track completed 10 months later was used to develop and evaluate sophisticated new design concepts for BART's transit cars and automatic train control system.

In charge of construction management, overall design of system facilities and equipment, and monitoring of BART's major contractors were the District's General Engineering consultants, Parsons-Brinckerhoff-Tudor-Bechtel, or most commonly known as "PB-T-B." A joint venture enterprise formed to manage all technical, as well as construction aspects of the BART project, PB-T-B was comprised of three well known engineering consultant firms. Parsons-Brinckerhoff-Quade & Douglas of New York (who had done the original BART transportation plan); Tudor Engineering Company of San Francisco; and Bechtel Corporation of San Francisco.

Through this joint venture, the firms supplied (or recruited from the U. S. and abroad) the most impressive array of engineering talent ever assembled for a single public works project. The basis of the joint venture concept was that engineering specialists could be supplied as needed, moving on to other projects when their respective BART assignments were completed. This was considered less costly and more permanent than building up a large District staff.

Construction began on the Oakland subway in January, 1966. November of that year saw the first of 57 giant steel and concrete sections of the 3.8-mile transbay tube lowered to the bottom of the Bay by a small navy of construction barges and boats.

The 3.2-mile bore through the hard rock of the Berkeley hills was completed in February, 1967, after 466 work days, to become the fourth longest vehicular tunnel in the U.S.

The first major equipment contract was awarded in May 1967 for the nation's first fully automated train control system. Westinghouse Electric Corporation's low bid of $26.1 million was $3 million under the next bidder. Four other bidders were General Railway Signal Company, Philco-Ford Company, General Electric Company, and Westinghouse Air Brake Company. Although awarding of the contract to any company other than the low bidder would have been illegal, District officials were destined to face criticism and controversy as a result.

In July, 1967, work began on the Market Street subway and stations. Carried out 80-100 feet below heavy downtown traffic, against the combined pressure of mud and Bay water, the work required one of the greatest concentrations of tunneling crews and equipment in construction history. Construction of the giant five-story-high stations beneath Market Street, and the tunnels themselves, was accomplished under extremely difficult conditions imposed by the high water table in downtown San Francisco, plus an incredible maze of underground utilities installed over the last 100 years. The first tunneling in the western U. S. done entirely under compressed air conditions, the project produced a succession of "firsts" in constructing the subway and stations in a difficult mud and water environment.

Subway excavations were rich with buried ships and other memorabilia, providing a fascinating look back into Nineteenth Century San Francisco when the land-fill of lower Market Street and the Embarcadero was still open harbor. The huge construction effort reached its peak in 1969 with a contractor force of 5,000 working on the San Francisco subway and other parts of the system, the weekly payroll was more than $1 million.

The final tunnel bore was "holed through" into the west end of the Montgomery Street Station on January 27, 1971. It marked the completion of tunneling work in the huge, two-level Market Street subway and climaxed six years of tunneling underground.

Tunneling under compressed air required a special medical center with equipment specialists for close monitoring of the "sandhog" construction force. Despite the complex problems of sandhogging, the BART project was completed with one of the best safety records in heavy construction.

## ENGINEER HISTORY WAS MADE

The contract for the production and delivery of BART's revolutionary electric transit cars was signed with Rohr Industries, Inc., of Chula Vista, California, in July, 1969. The initial contract called for delivery of 250 cars, with the first 10 vehicles to serve as test prototypes.

Meanwhile, a truly great chapter was written in the history of civil engineering with the completion of the transbay tube structure in August, 1969. Constructed in 57 sections, and reposing on the Bay floor as deep as 135 feet beneath the surface, the remarkable $180 million structure took six years of soil and seismic studies to design, and less than three years to construct. Before it was closed to visitors for installation of tracks and electrification, many thousands of adventurous people had walked, jogged, and bicycled through the tube. It received a dozen major engineering awards and rapidly became famous, seeming to capture the imagination of visitors from all over the world. To youngsters, especially, the transbay tube is BART.

Unhappily, the major years of BART construction in the 1960's saw seven percent average annual inflation - more than double the rate anticipated by economists and allowed for in the project cost estimates. In this climate, before substantial federal grants were available, BART's financial history was inevitably a troubled one.

While delays and inflation were sapping capital reserves, pressures from public and governmental groups resulted in the relocation of 15 miles of right-of-way and 15 stations, as well as a general upgrading of station plans. Stations were also substantially altered during construction to include elevators and other facilities for the handicapped and elderly at an added cost of $10 million. The cost of the transbay tube rose to $180 million for an original estimate of $133 million.

Prime examples of how public pressures escalated the cost of the system are the Berkeley subway and the Ashby Station. After originally approving a combination aerial and subway line through Berkeley, that city later came to oppose the plan in favor of a subway-only line, which was much more expensive. The new plan necessitated redesign of the Ashby Station from an aerial to a subway facility. Extensive controversy and hearings ensued for the next 2-1/2 years, finally to be resolved by Berkeley residents voting to tax themselves additionally to finance the changes they wanted. Next, a Berkeley City Councilman filed a successful suit to redesign the Ashby Station, yet a second time, asserting the use of skylights in the original plans was not a true subway design.

The Berkeley situation resulted in a 2-1/2 year delay in subway construction, a 17-month delay in starting Ashby Station construction, and additional costs of $18 million.

As early as 1966, it became increasingly clear that the District would fall short of funds to complete the system. The only apparent solutions were an infusion of more funds, or a drastic scaling-down of system miles to fit the original budget. Major construction contracts were rewritten and readvertised in anticipation of the threatened cutbacks.

As the crisis deepened, BART directors refused to compromise the planned 71.5-mile system until every possible alternative could be explored. Finally, in April, 1969, after three years of debate, the State Legislature granted the District's request for $150 million by authorizing the levying of a half-cent sales tax in the BART counties. The needed funds thus came from the sale of bonds pledged against the sales tax revenues.

## THE PROJECT IS RESCUED

With funds to complete the system assured, construction contracts were returned to their original scope, and work quickly reached peak level in 1969. But three years of financial uncertainty had taken their toll on work schedules. The shortage of funds had also held up ordering the transit cars. When the first 250 cars were finally ordered from low bidder Rohr Industries, Inc., of Chula Vista, California, the cost was $80 million -- $8 million more than the original cost estimate for the entire 450-car fleet. (Subsequently, 200 more transit cars were ordered for another $80 million. Delivery of the total 450-car fleet would be complete by July 30, 1975.)

Meanwhile, federal monies had begun flowing into the project at an increasing rate, making possible a wide range of improvements over the original system plans. BART's widely-known "linear park," for example, was constructed under the aerial right-of-way through Albany and El Cerrito to demonstrate how function could combine with aesthetics to enhance community environments. A $7.5 million program for systemwide landscaping and right-of-way beautification was partly funded by several of the largest federal grants ever made for this purpose. Of the $160 million base cost of BART's 450-car fleet, 64 percent was funded by federal grants.

Included in the construction contract for the lower Market Street subway, awarded in the busy year of 1969, was the basic "box" structure for the Embarcadero Station. Not in the original plans, the system's 34th station was added as a result of increasing development of the lower Market Street area. Station funding was cooperative, with the San Francisco business community raising money for design, and BART spending $25 million on construction. (Of the latter figure, $16 million was raised by curtailing construction of the Muni subway at the west portal station instead of St. Francis Circle as originally planned.)

The $315 million received to date in federal capital grants was an important factor in upgrading the system from original plans, nonetheless this federal aid is only 20 percent of the total $1.6 billion investment in the system. (If BART were being built today, 80 percent of its capital costs could be federally funded under the U.S. Urban Mass Transportation Assistance Act of 1974.)

Thus, changes and improvements increased the valuation of the system considerably from the original estimates -- a cost factor that is frequently and incorrectly confused with the true project cost over-runs on specific contracts.

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would become desirable when train headways were reduced below five minutes (or approximately one-station separation) as they eventually would have to be to provide a high level of service.

Thus, as the District moved into 1974, its immediate goal was the start-up of transbay service - the only segment not yet in operation, but the most vital link in the 71-mile system.

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## FINANCIAL PROBLEMS CONTINUE

But 1974 was to see more change and conflict within the District. Its continued operation threatened by a spiralling budget deficit. BART called on State legislators to provide an operating subsidy as the only means of budgeting a widening cost-revenue gap without unreasonably raising fares and lowering service levels. Although rising deficits were what the whole transit industry was experiencing, BART's unique founding legislation required it to operate strictly on fare revenue. Solvency through the fare box appeared increasingly romote. The Director of Finance warned that, without a direct subsidy, the District would be insolvent by the coming November. The system might have to be shut down as early as September to conserve funds for caretaker purposes.

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Also on June 30, the resignation of General Manager B. R. Stokes became effective. Stokes, who had become a controversial figure among the BART Directors, was succeeded by Acting General Manager Lawrence D. Dahms until the incoming elective Board could make a permanent appointment to the post.

Meanwhile, the major effort toward transbay service continued. By July, one-station separation in train operations had been accomplished system-wide. This was the vital step toward transbay operation, as the San Francisco line had to handle trains on closer headways due to the convergence of two East Bay lines through the tube.

On Monday, September 16 -- to the undiluted thrill of patrons young and old -- crowded BART trains began streaking through the tube at 80 m.p.h. Opening at the same time was the Oakland West Station, at the tube's eastern end, leaving only the Embarcadero Station to open in mid-1976. The Monday opening was preceded on Saturday by appropriate ceremonies and introductory train rides through the tube for the public.

Patronage, which had been 73,000 prior to opening of the tube, jumped to 118,000 within the first week. The number of trains operating increased from 22 to 30.

Having linked its East Bay and West Bay lines, the District's next objective was to improve the reliability of both the cars and the train control system. Once this was accomplished, the District could address the question of extending service hours to nights and weekends -- an issue of increasing concern to the public.

"BART's technical and financial problems -- and certainly its limited service hours -- have thus far kept it from achieving full ridership potential. Despite this, we know from surveys that at least 52 percent of our patrons have left their automobiles to ride BART.

"Besides the quality of BART's own service," the analyst emphasized, "an important factor in its ridership will be how well feeder bus service can be improved to all BART stations."

The District has worked out BART-to-bus transfer systems with both AC Transit (which operates buses in the East Bay) and the San Francisco Municipal Railway (which operates buses in that city). The Distsict is also working to help get local bus service to all on-line communities where none yet exists.

The last major action under the appointed Board of Directors was the November 18 filing of a law suit by the District, seeking over $200 million in damages from defendants: Parsons, Brinckerhoff-Tudor-Bechtel, Westinghouse Electric Corporation, Rohr Industries, Inc., Bulova Watch Company, and their respective surety companies. The District sought relief from what it asserted was equipment faulty design and manufacture, with lost revenues and other major expenses resulting.

Also on December 2, BART activated five express feeder bus routes to outlying communities in the District which are not directly served by the train system. The bus lines are operated by AC Transit under contract to BART.

On December 2, eight men and one woman comprising the first elective Board of Directors in the history of the District were formally installed. By lot, some were installed for initial two-year terms, and others for regular four-year terms, in order to stagger subsequent four-year terms of office. Thus, BART entered 1975 with the full system in revenue operation and governed by a Board elected directly by the District residents for the first time in it's 18-year history.

## A NEW DIRECTION FOR BART

In April, 1975, the new Board of Directors appointed Frank C. Herringer as District General Manager to fill the permanent post vacated by B. R. Stokes the previous June. Coming from his post as Administrator of the U. S. Urban Mass Transportation Administration in Washington, D. C. Herringer arrived at BART on July 1 during a budget and labor crisis.

Despite the administrative crisis and shift in management, the staff was able to meet a steadily increasing level of patronage. Also, it introduced the innovative "Bikes on BART" program. For the first time in the transit industry, patrons were able to bring their bicycles on the system under closely-controlled procedures to prevent interference with other patrons. This program proved so successful, it was made a permanent policy at the end of 1975.

Another industry first introduced during the summer was a program which implemented 75% fare discounts for the handicapped through a system of medical certification by physicians and agencies. Other transit lines in the Bay Area quickly adopted the BART certification program enabling them to offer discounts to the handicapped. BART discounts for senior citizens, over age 65, were increased from 75% to 90%.

After a careful financial analysis of the District's serious financial situation, BART Directors reluctantly approved an average 21% increase in fares, which took effect in November. Maximum fare increased from $1.25 to $1.45, while the 30-cent minimum fare was decreased to 25 cents in the Oakland and San Francisco downtown business areas.

The District's second key post --long vacant -- was filled with the appointment of Robert D. Gallaway as Assistant General Manager of Operations. The second member of the new management team arrived in November from his post as Executive Vice President for Operations at Texas International Airlines in Houston.

Meanwhile, the new General Manager had been conducting an intensive evaluation of the District management staff since his arrival. In late November, he announced a series of sweeping personnel changes and departmental realignments aimed at improving staff productivity and coordination.

The successful conclusion of negotiations with State Legislators and officials of the Metropolitan Transportation Commission (MTC) resulted in the funding of permanent late night service (to midnight), as of January 1, 1976. Late night service was offered during the Thanksgiving-Christmas season, but only on a temporary basis as in previous years. Providing for permanent late night service was the last major accomplishment in 1975 and it began the New Year with a major step forward.

# A HISTORY OF BART

## (1946 - 1976)

The BART story began in 1946. It began not by governmental fiat but as a concept gradually evolving at informal gatherings of business and civic leaders on both sides of the San Francisco Bay. Facing a heavy post-war migration to the area and its consequent automobile boom, these people discussed ways of easing the mounting congestion that was clogging the bridges spanning the Bay and their highway approaches.

In 1947, a joint Army-Navy review Board concluded that another connecting link between San Francisco and Oakland would be needed in the years ahead to prevent intolerable congestion on the Bay Bridge. The link? An underwater tube devoted exclusively to high-speed electric trains.

Since 1911, visionaries had periodically brought up this Jules Verne concept. But now, pressure for a traffic solution increase with the population. In 1951, the State Legislature created the 26-man San Francisco Bay Area Rapid Transit Commission, comprising representatives from each of the nine counties which touch the Bay. The Commission's charge was to study the Bay Area's long range transportation needs in the context of environmental problems and then recommend the best solution.

The Commission, advised in its final report in 1957, that any transportation plan must be coordinated with the area's total plan for future development. Since no development plan existed, the Commission prepared one itself. The result of their thoroughness is a master plan which did much to bring about coordinated planning in the Bay Area, and which was adopted a decade later by the Association for Bay Area Governments (ABAG).

## BART CONCEPT IS BORN

The Commission's least-cost solution to traffic tieups was to recommend forming a five-county rapid transit district, whose mandate would be to build and operate a high-speed rapid rail network linking major commercial centers with suburban sub-centers.

The Commission stated that, "If the Bay Area is to be preserved as a fine place to live and work, a regional rapid transit system is essential to prevent total dependence on automobiles and freeways."

Thus was born the environmental concept underlying BART. Acting on the Commission's recommendations, in 1957, the Legislature formed the San Francisco Bay Area Transit District, comprising the five counties of Alameda, Contra Costa, Marin, San Francisco and San Mateo. At this time the District was granted a taxing power of five cents per $100 of assessed valuation. It also had authority to levy property taxes to support a general obligation bond issue, if approved by District voters. The State Legislature lowered the requirement for voter approval from 66 percent to 60 percent.

Between 1957 and 1962, engineering plans were developed for a system that would usher in a new era in rapid transit. Electric trains would run on grade-separated right-of-ways, reaching maximum speeds of 75-80 m.p.h., averaging perhaps 45 m.p.h. including station stops. Advanced transit cars, with sophisticated suspensions, braking and propulsion systems, and luxurious interiors, would be strong competition to "King Car" in the Bay Area. Stations would be pleasant, conveniently located, and striking architectural enhancements to their respective on-line communities.

Hundreds of meetings were held in the District communities to encourage local citizen participation in the development of routes and station locations. By midsummer, 1961, the final plan was submitted to the supervisors of the five District counties for approval. San Mateo County Supervisors were cool to the plan. Citing the high costs of a new system - plus adequate existing service from Southern Pacific commuter trains - they voted to withdraw their county from the District in December, 1961.

With the District-wide tax base thus weakened by the withdrawal of San Mateo County, Marin County forced to withdraw in early 1962 because its marginal tax base could not adequately absorb its share of BART's projected cost. Another important factor in Marin's withdrawal was an engineering controversy over the feasibility of carrying trains across the Golden Gate Bridge.

BART had started with a 16-member governing Board of Directors apportioned on county population size: four from Alameda and San Francisco Counties, three from Contra Costa and San Mateo, and two from Marin. When the District was reduced to three counties, the Board was reduced to 11 members: four from San Francisco and Alameda, and three from Contra Costa. Subsequently, in 1965, the District's enabling legislation was changed to apportion the BART Board with four Directors from each county, thus giving Contra Costa its fourth member on a 12-man Board. Two Directors from each county, henceforth, were appointed by the County Board of Supervisors. The other two Directors were appointed by committees of mayors of each county (with the exception of the City and County of San Francisco, whose sole mayor made these appointments).

The five-county plan was quickly revised to a three-county plan emphasizing rapid transit between San Francisco and the East Bay cities and suburbs of Contra Costa and Alameda counties. The new plan, elaborately detailed and presented as the "BART Composite Report," was approved by supervisors of the three counties in July, 1962, and placed on the ballot for the following November general election.

The plan required approval of 60% of the District's voters. It narrowly passed with a 61.2% vote District-wide, much to the surprise of many political experts who were confident it would fail. Indeed, one influential executive was reported to have said: "If I'd known the damn thing would have passed, I'd never have supported it."

The voters approved a $792 million bond issue to finance a 71.5-mile high-speed transit system, consisting of 33 stations serving 17 communities in the three counties. The proposal also included was another needed transit project: rebuilding 3.5 miles of the San Francisco Municipal Railway. The new line would link muni streetcar lines directly with BART & Market Street stations, and four new muni stations would be built.

The additional cost of the transbay tube -- estimated at $133 million -- was to come from bonds issued by the California Toll Bridge Authority and secured by future Bay Area bridge revenues. The additional cost of rolling stock, estimated at $71 million, was to be funded primarily from bonds issued against future operating revenues. Thus, the total cost of the system, as of 1962, was projected at $996 million. It would be the largest single public works project ever undertaken in the U. S. by the local citizenry.

After the election, engineers immediately started work on the final system designs, only to be halted by a taxpayers' suit filed against the District a month later. The validity of the bond election, and the legality of the District itself, were challenged. While the court ruled in favor of the District on both counts, six months of litigation cost $12 million in construction delays. This would be the first of many delays from litigation and time-consuming negotiations involving 166 separate agreements reached with on-line cities, counties, and other special districts. The democratic processes of building a new transit system would prove to be major cost factors that, however necessary, were not foreseen.

## THE PROJECT BEGINS

BART construction officially began on June 19, 1964, President Lyndon Johnson presiding over the ground-breaking ceremonies for the 4.4-mile Diablo Test Track between Concord and Walnut Creek in Contra Costa County. The test track completed 10 months later was used to develop and evaluate sophisticated new design concepts for BART's transit cars and automatic train control system.

In charge of construction management, overall design of system facilities and equipment, and monitoring of BART's major contractors were the District's General Engineering consultants, Parsons-Brinckerhoff-Tudor-Bechtel, or most commonly known as "PB-T-B." A joint venture enterprise formed to manage all technical, as well as construction aspects of the BART project, PB-T-B was comprised of three well known engineering consultant firms. Parsons-Brinckerhoff-Quade & Douglas of New York (who had done the original BART transportation plan); Tudor Engineering Company of San Francisco; and Bechtel Corporation of San Francisco.

Through this joint venture, the firms supplied (or recruited from the U. S. and abroad) the most impressive array of engineering talent ever assembled for a single public works project. The basis of the joint venture concept was that engineering specialists could be supplied as needed, moving on to other projects when their respective BART assignments were completed. This was considered less costly and more permanent than building up a large District staff.

Construction began on the Oakland subway in January, 1966. November of that year saw the first of 57 giant steel and concrete sections of the 3.8-mile transbay tube lowered to the bottom of the Bay by a small navy of construction barges and boats.

The 3.2-mile bore through the hard rock of the Berkeley hills was completed in February, 1967, after 466 work days, to become the fourth longest vehicular tunnel in the U.S.

The first major equipment contract was awarded in May 1967 for the nation's first fully automated train control system. Westinghouse Electric Corporation's low bid of $26.1 million was $3 million under the next bidder. Four other bidders were General Railway Signal Company, Philco-Ford Company, General Electric Company, and Westinghouse Air Brake Company. Although awarding of the contract to any company other than the low bidder would have been illegal, District officials were destined to face criticism and controversy as a result.

In July, 1967, work began on the Market Street subway and stations. Carried out 80-100 feet below heavy downtown traffic, against the combined pressure of mud and Bay water, the work required one of the greatest concentrations of tunneling crews and equipment in construction history. Construction of the giant five-story-high stations beneath Market Street, and the tunnels themselves, was accomplished under extremely difficult conditions imposed by the high water table in downtown San Francisco, plus an incredible maze of underground utilities installed over the last 100 years. The first tunneling in the western U. S. done entirely under compressed air conditions, the project produced a succession of "firsts" in constructing the subway and stations in a difficult mud and water environment.

Subway excavations were rich with buried ships and other memorabilia, providing a fascinating look back into Nineteenth Century San Francisco when the land-fill of lower Market Street and the Embarcadero was still open harbor. The huge construction effort reached its peak in 1969 with a contractor force of 5,000 working on the San Francisco subway and other parts of the system, the weekly payroll was more than $1 million.

The final tunnel bore was "holed through" into the west end of the Montgomery Street Station on January 27, 1971. It marked the completion of tunneling work in the huge, two-level Market Street subway and climaxed six years of tunneling underground.

Tunneling under compressed air required a special medical center with equipment specialists for close monitoring of the "sandhog" construction force. Despite the complex problems of sandhogging, the BART project was completed with one of the best safety records in heavy construction.

## ENGINEER HISTORY WAS MADE

The contract for the production and delivery of BART's revolutionary electric transit cars was signed with Rohr Industries, Inc., of Chula Vista, California, in July, 1969. The initial contract called for delivery of 250 cars, with the first 10 vehicles to serve as test prototypes.

Meanwhile, a truly great chapter was written in the history of civil engineering with the completion of the transbay tube structure in August, 1969. Constructed in 57 sections, and reposing on the Bay floor as deep as 135 feet beneath the surface, the remarkable $180 million structure took six years of soil and seismic studies to design, and less than three years to construct. Before it was closed to visitors for installation of tracks and electrification, many thousands of adventurous people had walked, jogged, and bicycled through the tube. It received a dozen major engineering awards and rapidly became famous, seeming to capture the imagination of visitors from all over the world. To youngsters, especially, the transbay tube is BART.

Unhappily, the major years of BART construction in the 1960's saw seven percent average annual inflation - more than double the rate anticipated by economists and allowed for in the project cost estimates. In this climate, before substantial federal grants were available, BART's financial history was inevitably a troubled one.

While delays and inflation were sapping capital reserves, pressures from public and governmental groups resulted in the relocation of 15 miles of right-of-way and 15 stations, as well as a general upgrading of station plans. Stations were also substantially altered during construction to include elevators and other facilities for the handicapped and elderly at an added cost of $10 million. The cost of the transbay tube rose to $180 million for an original estimate of $133 million.

Prime examples of how public pressures escalated the cost of the system are the Berkeley subway and the Ashby Station. After originally approving a combination aerial and subway line through Berkeley, that city later came to oppose the plan in favor of a subway-only line, which was much more expensive. The new plan necessitated redesign of the Ashby Station from an aerial to a subway facility. Extensive controversy and hearings ensued for the next 2-1/2 years, finally to be resolved by Berkeley residents voting to tax themselves additionally to finance the changes they wanted. Next, a Berkeley City Councilman filed a successful suit to redesign the Ashby Station, yet a second time, asserting the use of skylights in the original plans was not a true subway design.

The Berkeley situation resulted in a 2-1/2 year delay in subway construction, a 17-month delay in starting Ashby Station construction, and additional costs of $18 million.

As early as 1966, it became increasingly clear that the District would fall short of funds to complete the system. The only apparent solutions were an infusion of more funds, or a drastic scaling-down of system miles to fit the original budget. Major construction contracts were rewritten and readvertised in anticipation of the threatened cutbacks.

As the crisis deepened, BART directors refused to compromise the planned 71.5-mile system until every possible alternative could be explored. Finally, in April, 1969, after three years of debate, the State Legislature granted the District's request for $150 million by authorizing the levying of a half-cent sales tax in the BART counties. The needed funds thus came from the sale of bonds pledged against the sales tax revenues.

## THE PROJECT IS RESCUED

With funds to complete the system assured, construction contracts were returned to their original scope, and work quickly reached peak level in 1969. But three years of financial uncertainty had taken their toll on work schedules. The shortage of funds had also held up ordering the transit cars. When the first 250 cars were finally ordered from low bidder Rohr Industries, Inc., of Chula Vista, California, the cost was $80 million -- $8 million more than the original cost estimate for the entire 450-car fleet. (Subsequently, 200 more transit cars were ordered for another $80 million. Delivery of the total 450-car fleet would be complete by July 30, 1975.)

Meanwhile, federal monies had begun flowing into the project at an increasing rate, making possible a wide range of improvements over the original system plans. BART's widely-known "linear park," for example, was constructed under the aerial right-of-way through Albany and El Cerrito to demonstrate how function could combine with aesthetics to enhance community environments. A $7.5 million program for systemwide landscaping and right-of-way beautification was partly funded by several of the largest federal grants ever made for this purpose. Of the $160 million base-cost of BART's 450-car fleet, 64 percent was funded by federal grants.

Included in the construction contract for the lower Market Street subway, awarded in the busy year of 1969, was the basic "box" structure for the Embarcadero Station. Not in the original plans, the system's 34th station was added as a result of increasing development of the lower Market Street area. Station funding was cooperative, with the San Francisco business community raising money for design, and BART spending $25 million on construction. (Of the latter figure, $16 million was raised by curtailing construction of the Muni subway at the west portal station instead of St. Francis Circle as originally planned.)

The $315 million received to date in federal capital grants was an important factor in upgrading the system from original plans, nonetheless this federal aid is only 20 percent of the total $1.6 billion investment in the system. (If BART were being built today, 80 percent of its capital costs could be federally funded under the U.S. Urban Mass Transportation Assistance Act of 1974.)

Thus, changes and improvements increased the valuation of the system considerably from the original estimates -- a cost factor that is frequently and incorrectly confused with the true project cost over-runs on specific contracts.

## A NEW RAILROAD TAKES SHAPE

As the project moved into 1970, the wide range of system construction passed its peak, and contracts were being completed with increasing frequency. An amorphous collection of excavations, stacks of lumber and brick, sections of rail, and giant spools of cabling was taking on the outlines of a finished railroad. Long suffering San Francisco businessmen were even beginning to recapture Market Street from the BART construction forces.

As the system neared completion, the construction engineers so long in charge began making way for a wide range of electronic engineers and technicians, computer experts, and other specialists. Their job was to install and prove out the automatic train control system, plus three maintenance shops and train yards at Hayward, Richmond, and Concord, a staggering array of communications and wayside equipment.

The first prototype car was delivered in August, 1970. By early 1971, the 10 test prototype transit cars were being operated on the Fremont line in a round-the-clock program to prove out the new design before it went into full-scale production. Meanwhile, at its San Jose plant, IBM was readying the first group of prototype fare collection machines, which it demonstrated to District Directors in October. Since it received an initial $5 million contract in 1968, IBM had been developing a fully

automatic system to collect fares on a graduated (per mile) basis, as specified by BART, to provide equity between short and long distance riders.

In December, 1971, the District Board adopted the official interstation fare schedule, ranging from 30 cents minimum to $1.25 maximum fare. Also, approved the following month were 75 percent fare discounts for patrons over 65 or under 12 years of age, with discount tickets to be sold through local bank branches instead of at BART stations.

The 1971-72 period saw the gradual phase-out of major construction work and the beginning of the transition from a construction-oriented organization to an operating railroad. New areas of emphasis included marketing, personnel training, planning feeder bus service to stations, and across-the-board preparations for revenue service. The District staff, up to 765 by mid-1972, had almost tripled in three years to build up the transportation and maintenance force for revenue service.

A study of an extension between Daly City Station and the San Francisco International Airport was concluded, and another study of an extension or shuttle access to the Oakland International Airport from the Coliseum Station was continued. Also begun were extension studies for northwest San Francisco, the Pittsburg-Antioch area, and the Livermore-Pleasanton area.

The first segment of the system to open would be 26-miles between Fremont and MacArthur stations. In mid-1972 the District Board set Monday, September 11, as the first day of revenue service. The summer of '72 did not lack for problems.

Eliminate design "bugs" from the newly-designed train control equipment. A problem they could not deal with, however, Rohr Industries, Inc., had suffered a nine-week strike, which, added to previous delays, had put the car builder one year behind in its car delivery schedules.

Another and serious problem arose on June 18 when the State imposed a hiring freeze on the District until 1,100 applicants from other local transportation lines were interviewed for BART jobs on a priority basis. The freeze was lifted June 15, but vital hiring and training time for station agents, train operators, and maintenance workers had been lost.

## BART OPENS FOR REVENUE SERVICE

Opening day finally arrived...September 11, 1972: Ceremonial trains first made inaugural runs through the 12 opening stations. At exactly 12 noon the voice of BART General Manager B. R. Stokes came over the station pbulic address system from BART Central: "Ladies and gentlemen, this system is now open for revenue service." Thousands of Bay Area residents and visitors, who had been waiting in lines at all stations, surged forward to be the first riders of the first new U.S. transit system in the last 60 years.

The system opened with 26 transit cars (24-A-cars, two B-cars) which was barely sufficient to maintain eight to nine two-car trains daily. The trains ran at 10-15-minute headways, five days a week, from 6 a.m. to 8 p.m. This brave little fleet

carried 100,000 people in the first week of operation -- a remarkable feat considering the limited capacity and newness of the line operation organization.

On October 2, failure of a tiny crystal in a train's on-board control circuitry caused a two-car train to enter the Fremont Station too fast. Failing to stop completely, one of the cars passed through a safety sand barrier at the end of the platform, coming to rest on a soft dirt incline. A few passengers were bruised, but none was seriously injured. Engineers judged recurrence of the accident to be extremely remote; however, circuitry was designed in all control cars (A-cars) to eliminate any possibility of a repeat failure.

Also in October, the fledgling railroad met its first test of crowd handling, moving 8,000 people per hour with only 18 cars to and from Oakland Athletic's World Series games.

Ridership was 12,000 daily on the Fremont line by the time the Richmond line opened on January 29, 1973, extending the service 11 miles northward and opening six more stations. Equipment was increased to 12 trains, each three and four cars long. Daily patronage jumped instantly from 12,000 to 27,000.

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Another industry first introduced during the summer was a program which implemented 75% fare discounts for the handicapped through a system of medical certification by physicians and agencies. Other transit lines in the Bay Area quickly adopted the BART certification program enabling them to offer discounts to the handicapped. BART discounts for senior citizens, over age 65, were increased from 75% to 90%.

After a careful financial analysis of the District's serious financial situation, BART Directors reluctantly approved an average 21% increase in fares, which took effect in November. Maximum fare increased from $1.25 to $1.45, while the 30-cent minimum fare was decreased to 25 cents in the Oakland and San Francisco downtown business areas.

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Meanwhile, the new General Manager had been conducting an intensive evaluation of the District management staff since his arrival. In late November, he announced a series of sweeping personnel changes and departmental realignments aimed at improving staff productivity and coordination.

The successful conclusion of negotiations with State Legislators and officials of the Metropolitan Transportation Commission (MTC) resulted in the funding of permanent late night service (to midnight), as of January 1, 1976. Late night service was offered during the Thanksgiving-Christmas season, but only on a temporary basis as in previous years. Providing for permanent late night service was the last major accomplishment in 1975 and it began the New Year with a major step forward.

## THE PROJECT BEGINS

BART construction officially began on June 19, 1964, President Lyndon Johnson presiding over the ground-breaking ceremonies for the 4.4-mile Diablo Test Track between Concord and Walnut Creek in Contra Costa County. The test track completed 10 months later was used to develop and evaluate sophsicated new design concepts for BART's transit cars and automatic train control system.

In charge of construction management, overall design of system facilities and equipment and monitoring of BART's major contractors were the District's General Engineering consultants, Parsons-Brinckerhoff-Tudor-Bechtel, or most commonly known as "PB-T-B," a joint venture enterprise, formed to manage all technical, as well as construction aspects of the BART project. PB-T-B was comprised of three well known engineering consultant firms. Parsons-Brinckerhoff-Quade & Douglas of New York (who had done the original BART transportation plan); Tudor Engineering Company of San Francisco; and Bechtel Corporation of San Francisco.

while, at its San Jose plant, IBM was readying the first group of prototype fare collection machines, which it demonstrated to District Directors in October. Since it received an initial $5 million contract in 1968, IBM had been developing a fully automatic system to collect fares on a graduated (per mile) basis, as specified by BART, to provide equity between short and long distance riders.

In December, 1971, the District Board adopted the official interstation fare schedule, ranging from 30 cents minimum to $1.25 maximum fare. Also, approved the following month were 75 percent fare discounts for patrons over 65 or under 13 years of age, with discount tickets to be sold through local bank branches instead of at BART stations.

The 1971-72 period saw the gradual phase-out of major construction work and the beginning of the transition from a construction-oriented organization to an operating railroad. New areas of emphasis included marketing, personnel training, planning feeder bus service to stations, and across-the-board preparations for revenue service. The District staff, up to 765 by mid-1972, had almost tripled in three years to build up the transportaion and maintenance force for revenue service.

A study of an extension between Daly City Station and the San Francisco International Airport was concluded, and another study of an extension or shuttle access to the Oakland International Airport from the Coliseum Station was continued. Also begun were extension studies for northwest San Francisco, the Pittsburg-Antioch area, and the Livermore-Pleasanton area.

The first segment of the system to open would be 26-miles between Fremont and Mac Arthur stations. In mid-1972 the District Board set Monday, September 11, as the first day of revenue service. The summer of '72 did not lack for problems.

Eliminate design "bugs" from the newly-designed train control equipment was A problem they could not deal with, however, Rohr Industries, Inc., had suffered a nine-week strike, which, added to previous delays, had put the car builder one year behind in its car delivery schedules.

Another and serious problem arose on June 18 when the State imposed a hiring freeze on the District until 1,100 applicants from other local transportation lines were interviewed for BART jobs on a priority basis. The freeze was lifted June 15, but vital hiring and training time for station agents, train operators, and maintenance workers had been lost.

## BART OPENS FOR REVENUE SERVICE

Opening day finally arrived...September 11, 1972: Ceremonial trains first made inaugural runs through the 12 opening stations. At exactly 12 noon the voice of BART General Manager B. R. Stokes came over the station public address system from BART Central; "Ladies and gentlemen, this sytem is now open for revenue service." Thousands of Bay Area residents and visitors, who had been waiting in lines at all stations, surged forward to be the first riders of the first new U. S. transit system in the last 60 years.

The system opened with 26 transit cars (24-A-cars, two B-cars) which was barely sufficient to maintain eight to nine two-car trains daily. The trains ran at 10-15-minute headways, five days a week, from 6 a.m. to 8 p.m. This brave little fleet carried 100,000 people in the first week of operation. . . a remarkable feat considering the limited capacity and newness of the line operation organization.

On October 2, failure of a tiny crystal in a train's on-board control circuitry caused a two-car train to enter the Fremont Station too fast. Failing to stop completely, one of the cars passed through a safety and barrier at the end of the platform, coming to rest on a soft dirt incline. A few passengers were bruised, but none was seriously injured. Engineers judged recurrence of the accident to be extremely remote; however, circuitry was designed in all control cars (A-cars) to eliminate any possibility of a repeat failure.

redesigned?

Also in October, the fledgling railraod met its first test of crowd handling, moving 8,000 people per hour with only 18 cars to and from Oakland Athletic's World Series games.

Ridership was 12,000 daily on the Fremont line by the time the Richmond line opened on January 29, 1973, extending the service 11 miles northward and opening six more stations. Equipment was increased to 12 trains, each three and four cars long. Daily patronage jumped instantly from 12,000 to 27,000.

On May 21, the Concord line opened, putting 19 more miles and six more stations into service. The line, a scenic showcase of transit/freeway corridor planning and pastoral suburbia, had increased daily patronage to 37,000 by the end of June.

The system was shut down from July 1 to August 6, 1973, by a strike involving 1,100 transportation personnel of the Amalgamated Transit Union, Local 1555, and maintenance and clerical personnel of United Public Employees, Local 390. The strike developed over the issue of wage parity among employees of similar classifications.

The San Francisco line between Montgomery Street and Daly City stations was opened for revenue service on November 5, 1973. Service would remain a shuttle operation on that eight-mile, eight-station line, however, until the District could obtain State approval of its operating procedures to open the seven-and-a-half mile transbay line. Daily patronage (which had quickly recovered to 35,000 after the summer strike) doubled with San Francisco service. Four trains were operating on the line, in addition to the 18 trains on the tree East Bay lines. Train lengths ranged from five to seven cars.

In technical areas, meanwhile, major programs were going forward to improve the overall reliability of the vehicle fleet and also improve margins of train safety under automatic train operation, as desired by both the District and the California Public Utilities Commission (CPUC). Equipment modifications were keyed to an analysis of the system's technical problems by a State-appointed three-man panel of electronic experts, who reported their recommendations to the State Senate Public Utilities and Corporations Committee early in 1973.

In December, Westinghouse was directed to install a new train detection system, called SOR (for Sequential Occupancy Release), as an added safety back-up to the basic ATC detection system. After careful analysis, engineers with the CPUC, the District and its engineering consultants, agreed that a back-up detection system would become desirable when train headways were reduced below five minutes (or approximately one-station separation) as they eventually would have to be to provide a high level of service.

Thus, as the District moved into 1974, its immediate goal was the start-up of transbay service. . . the only segment not yet in operation, but the most vital link in the 71-mile system.

Early 1974 was marked by a severe gasoline shortage in the Bay Area, which boosted daily system patronage from 70,000-plus to more than 80,000 for a two-month period. Patronage then settled back to the 70,000 level. The eight San Francisco stations were shut down March 11-15 by BART management owing to picketing by San Francisco municipal employees as part of a city-wide strike.

## FINANCIAL PROBLEMS CONTINUE

But 1974 was to see more change and conflict within the District. Its continued operation threatened by a spiralling budget deficit. BART called on State legislators to provide an operating subsidy as the only means of budgeting a widening cost-revenue gap without unreasonably raising fares and lowering service levels. Although rising deficits were what the whole transit industry was experiencing, BART's unique founding legislation required it to operate strictly on fare revenue. Solvency through the fare box appeared increasingly remote. The Director of Finance warned that, without a direct subsidy, the District would be insolvent

by the coming November. The system might have to be shut down as early as September to conserve funds for caretaker purposes.

General Manager B. R. Stokes and other officials called for a temporary extension of the half-cent sales tax authorized in 1969 to complete construction of the system. The tax was seen as a temporary means of meeting the unfunded deficit until the legislature could identify and enact more permanent sources of an operating subsidy.

In response, Senator James Mills (D. San Diego) introduced SB1966 extending the sales tax for two years as a temporary operating subsidy. The bill subsequently became State law in September.

On June 30, Governor Ronald Reagan signed into law AB3043, which established voting districts from which a nine-man BART Board of Directors would be popularly elected for the first time in November, 1974, supplanting the long-standing 12-man appointive Board. The nine voting districts were marked out on the criteria of equal population, community of interests, and "geographical cohesiveness."

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Public Information Office
October, 1981

DRAFT

Thus BART entered 1976 with permanent night service which offered new mobility for night travelers in the Bay Area.

On May 27 BART's Embarcadero station opened providing better access to Embarcadero Center -- this was the 34th and final station to be opened on the basic 71 mile system.

~~BARTxaddedxtoxexxtxaxnexonxthexheavixyx~~ in 1976

BART's financial condition was stabilized by legislation to continue the 1/2 cent sales tax to support BART operations.

BART started off 1977 by seeing its one hundred millionth patron enter the system at Montgomery Street Station -- by this time BART had traveled 1.4 billion passenger miles.

Patronage for 1977 showed an increase of approximately 2,000,000 over total ridership for the previous year -- culminating in BART's highest patronage day on November 28 with 192,000 trips.

Continuous effort in maintenance resulted in a 50% increase in car availability over the previous year -- giving BART between 80 and 90 percent of the working fleet.

January of 1978 saw the start of permanent Saturday service on BART -- with full weekend service to commence in July.

An A.C. Transit strike in January brought new riders to BART -- and on February 22 BART offered free rides all day -- a record breaking 250,000 people rode BART on that day. This was BART's way of saying thank you to its regular riders who were inconvenienced during the A.C. Transit Strike.

In June ~~FrankxHerringer~~ General Manager Frank C. Herringer announced his resignation to the BART Board of Directors -- effective at the end of the year.

Completion of the system's resignaling project allowed BART to operate at normal speeds during wet weather and paved the way for service expansions and improvements throughout the transit district.

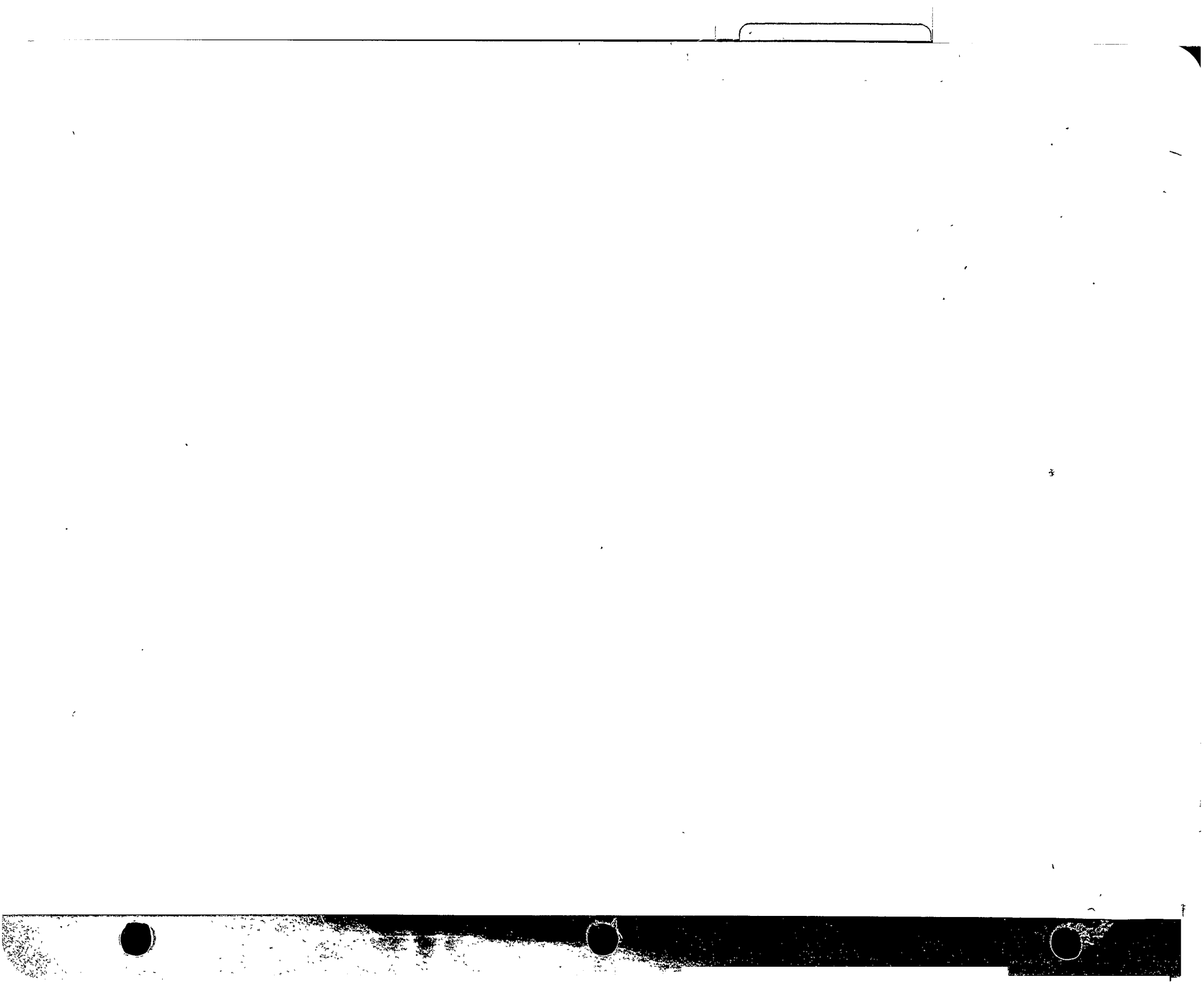
BART also started a program to remotely staff some of its 34 stations with monitoring of these stations through closed circuit television --

And, before closing out the year BART adopted Phase I of a program to improve access to the system.

The year ended with the BART Board selecting BART's Director of Planning, Budgeting & Research, Keith Bernard to replace Frank Herringer as General Manager.

Then came January 17, 1979 -- a metal cover protecting the electrical line switch on Car 537 of train 363 came loose and jammed against the third rail at about 4:30 p.m. Nine more San Francisco bound trains then went through the bore -- each ~~damaging the~~ adding to the damage of the third rail -- but without incident. At 6:05 the tenth train entered the tube and the damaged third rail ripped the shoe contact assembly off the truck of at least one car. ~~As this happened the~~ The ensuing short circuit caused arcing which went through the floor of the last car causing a fire with heavy toxic smoke.

The BART transbay tube was closed by the Public Utilities Commission for a period of almost 11 weeks and was reopened on April 5, 1979, with restrictions levied by the PUC that BART continue with an ongoing safety program.



# THE BART C-CAR

## CAR SPECIFICATIONS

| | |
|---|---|
| Length: | 70 feet |
| Width: | 10 feet, 6 inches |
| Height | 10 feet, 6 inches |
| Ceiling Height | 6 feet, 9 inches |
| Exterior: | Brushed aluminum finish with blue striping and BART insignia. |
| Floors: | Wall-to-wall rust colored, 100% wool carpeting. |
| Aisles: | 30 inches wide |
| Seats: | Woven upholstery, fire safe foam padding. Transverse seats (52 per car) are black in color, 34 inches apart. Longitudinal seats (16 per car) are located next to side doors and are rust in color. Seats are cantilevered to offer maximum leg and luggage space, and provides easy maintenance. |
| Seating Capacity: | 68 persons per car |
| Lighting: | Recessed overhead fixtures provide both diffuse overall lighting and high intensity seat lighting for reading. |
| Windows: | Tinted and heat reflecting glass. The passenger seats offer panoramic view. Operator's cab windshield is high impact glass, similar to the glass used in commercial aircrafts. |
| Air Conditioning: | Temperature/humidity control to maintain 68-72$^{0}$F, and this keeps humidity below 60 percent. |
| Propulsion: | Four 150-HP, air-cooled, electric traction motors (one per axle) 1,000-V direct current power derived from third rail. |
| Communication: | VHF two-way radio telephone in cab. PA announcements to passengers in car can be originated by Central Control or Operator. A passenger intercom labeled, "Attendant Call" is located in each car, which eneables passengers to contact Train Operator. |

Each car operates as an independent unit in a multi-car consist, responding to train-lined control commands, generated by the lead car, and should be capable of operating as a lead, trail or middle car of a consist. Each car is equipped with an operator's compartment.

Tractive energy is supplied to the car via a third rail, operating at 1000-V DC. Tractive effort, propulsion and braking is to be provided by DC series traction motors, controoled by a chopper-type controller. In addition, mechanical braking effort is to be provided by a hydraulic system applying retarding torque on one disc per axle. Proper glinding of electrical and mechanical braking effort has to be provided. The car has to be equipped with an auxiliary electrical system operating at 120/208 AC 60HZ, supplied by a rotary converter or static inverter. Battery and battery charging equipment provides power for control components.

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# BART "C"-Car BIDS

On Tuesday, July 27, 1982, BART received bids from five companies interested in producing BART's new "C-Car", which has been designed by BART engineers. The opening of the bids was culmination of nearly three years by BART staff, which focused on the creation and development of specification for the new car. Included in the design concept is "Automatic Train Control System" (ATC), found in the present BART "A-Car", and the ability to also operate as a mid-train car.

The bidding documents were made available in January 1982. Bidders were required to address a series of elements, common to the production of a C-Car, resulting in a base bid. In addition, the bids would detail separate costs for producing 60, 90, 120 and 150 C-Cars.

The Base Bid covered the following elements: a) engineering; b) four prototype vehicles for extensive testing; c) publications and manuals; and d) test equipment. Each bidder was required to submit bids for all these Base Bid elements. In additon, BART provided specific costs for spare parts, totaling $1.5 million, and a figure of $15 million for ATC, for an unspecified number of cars; these two figures were included in all bids for all quantities of cars. The elements were presented to the bidders in this way because, at the time, the cost of the ATC per car had not yet been finalized.

BART engineers have now determined that the ATC cost per car will be approximately $100,000 per car. The bid submitted by SOVERVAL of France can now be compared with a better degree of accuracy, based on the adjusted BART engineering estimate for ATC. This comparison indicates that BART engineers' estimates for cost of the different quantities of cars were very close to the bids received from SOVERVAL.

Here is the comparison of the adjusted SOVERVAL bids and BART engineers estimates:

| NUMBER OF CARS | BART ENGINEERS' ESTIMATES | SOVERVAL BIDS | PERCENT DIFFERENCE |
|---|---|---|---|
| 60 cars | @ $1,412,000 | @ $1,475,184 | 4.3% |
| 90 cars | @ $1,262,222 | @ $1,347,469 | 6.3% |
| 120 cars | @ $1,191,666 | @ $1,272,192 | 6.3% |
| 150 cars | @ $1,147,546 | @ $1,225,124 | 6.3% |

These figures illustrate that the BART engineers' estimates were between 4.3 percent and 6.3 percent below the submitted bids of SOVERVAL. While the original estimated cost of the car was announced some time ago to be $900,000, this figure did not include the automatic train controls and engineering costs which were finally included in the bidding documents. Tracing the original estimated cost per car to the adjusted BART estimates, the very small percentage difference is a tribute to the capabilities of BART engineers.

BART
Office of Public Information
August 5, 1982

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BART
Office of Public Information
August 5,1982

Form No. 0061

BAY AREA RAPID TRANSIT

Routing Slip

Sandy Tibbets
From

February 24, 1982
Date Initiated

| To | Person | Initials | Use Routing Sequence Numbers to Designate Person Concerned |
|---|---|---|---|
| 1 | Kris Hari | | |
| 2 | | | ___ Referred for appropriate action |
| 3 | | | ___ For concurrence |
| 4 | | | ___ For comment |
| 5 | | | ___ For information |
| 6 | | | ___ For approval |
| | | | ___ Please discuss with me |
| | | | ___ Read and retain |
| | | | ___ Return before filing |
| | | | ___ Note & send to central files |
| | | | |

Comments:

The Public Information Office would like to prepare an "information sheet," similar to the attached, for the [redacted]-Car. If available, please send us the C-Car Specifications.

Thank you!
Janet
X566

Sandy
I have marked up the sheet with the best information that we have ~~as~~ to date.
Hari
3/1/82

# THE BART CAR

## CAR TYPES

**A-Car** — Equipped with fiberglass operator's cab, automatic train operation sensors and two-way communications system. Length is 75 feet, and weight is 59,000 pounds (without passengers). Also referred to as "Lead Car."

**B-Car** — Intermediate car (without cab). Length: 70' Weight: 56,000 lbs.

C Car. Length 70'. Can operate as a lead, trailer or middle car

## CAR SPECIFICATIONS

| | |
|---|---|
| Width | 10 feet, 6 inches |
| Height | 10 feet, 6 inches |
| Ceiling Height | 6 feet, 9 inches |
| Exterior | Brushed aluminum finish with blue striping and BART insignia. |
| Floors | Wall-to-wall rust colored, 100% wool carpeting. |
| Aisles | 30 inches wide |
| Seats | Woven upholstery, fire safe foam padding. Transverse seats (56 per car) are black in color, 34 inches apart. Longitudinal seats (16 per car) are located next to side doors and are rust in color. Seats are cantilevered to offer maximum leg and luggage space, and provides easy maintenance. |
| Seating Capacity | 72 persons per car |
| Lighting | Recessed overhead fixtures provide both diffuse overall lighting and high intensity seat lighting for reading. |
| Windows | Tinted and heat reflecting glass. The passenger seats offer panoramic view. Operator's cab windshield is high impact glass, similar to the glass used in commercial aircrafts. |
| Air Conditioning | 12-ton multi-zone temperature/humidity control to maintain 68-72°F, and this keeps humidity below 60 percent. |
| Propulsion | Four 150-HP, air-cooled, electric traction motors (one per axle) 1,000-V direct current power derived from third rail. |
| Communication | VHF two-way radio telephone in cab. PA announcements to passengers in car can be originated by Central Control or Operator. A Passenger Intercom labeled, "Attendant Call" is located in each car, which enables passengers to contact Train Operator. |
| Speed | 80 MPH maximum. 45 MPH average, including station stops (average stop is 20 seconds). Acceleration is 3.0 MPH per second. |
| Fleet Size | Full system operations requires 450 cars (176 "A"-Cars; 274 "B"-Cars) |
| Consists | Minimum Train - 2 "A"-Cars (144 seated passengers).<br>Maximum Train - 2 "A"-Cars; 8 "B"-Cars (720 seated passengers).<br>Intermediate consists formed by varying number of "B"-Cars per train. |

Not enough information about the capacity but will maintain the same temp. and humidity

we have never used this many cars

PUBLIC AFFAIRS OFFICE
October 22, 1980

# THE BART C-CAR

## CAR SPECIFICATIONS

| | |
|---|---|
| Length: | 70 feet |
| Width: | 10 feet, 6 inches |
| Height | 10 feet, 6 inches |
| Ceiling Height | 6 feet, 9 inches |
| Exterior: | Brushed aluminum finish with blue striping and BART insignia. |
| Floors: | Wall-to-wall rust colored, 100% wool carpeting. |
| Aisles: | 30 inches wide. |
| Seats: | Woven upholstery, fire safe foam padding. Transverse seats (52 per car) are black in color, 34 inches apart. Longitudinal seats (16 per car) are located next to side doors and are rust in color. Seats are cantilevered to offer maximum leg and luggage space, and provides easy maintenance. |
| Seating Capacity: | 68 persons per car |
| Lighting: | Recessed overhead fixtures provide both diffuse overall lighting and high intensity seat lighting for reading. |
| Windows: | Tinted and heat reflecting glass. The passenger seats offer panoramic view. Operator's cab windshield is high impact glass, similar to the glass used in commercial aircrafts. |
| Air Conditioning: | Temperature/humidity control to maintain 68-72$^{o}$F, and this keeps humidity below 60 percent. |
| Propulsion: | Four 150-HP, air-cooled, electric traction motors (one per axle) 1,000-V direct current power derived from third rail. |
| Communication: | VHF two-way radio telephone in cab. PA announcements to passengers in car can be originated by Central Control or Operator. A passenger intercom labeled, "Attendant Call" is located in each car, which eneables passengers to contact Train Operator. |

Each car operates as an independent unit in a multi-car consist, responding to train-lined control commands, generated by the lead car, and should be capable of operating as a lead, trail or middle car of a consist. Each car is equipped with an operator's compartment.

Tractive energy is supplied to the car via a third rail, operating at 1000-V DC. Tractive effort, propulsion and braking is to be provided by DC series traction motors controoled by a chopper-type controller. In addition, mechanical braking effort is to be provided by a hydraulid system applying retarding torque on one disc per axle. Proper glinding of electrical and mechanical braking effort has to be provided. The car has to be equipped with an auxiliary electrical system operating at 120/208 AC 60HZ, supplied by a rotary converter or static inverter. Battery and battery charging equipment provides power for control components.

Bay Area Rapid Transit District
Public Information Office, April 1982

# "C" CAR SPECIFICATIONS

The intended procurement is for a new vehicle which must be compatible with the District's existing fleet in terms of appearance, strength and performance. Each vehicle is 70 ft. long and is to be equipped with propulsion, braking, air-conditioning, lighting and controls. Each car operates as an independent unit in a multi-car consist, repsonding to train-lined control commands, generated by the lead car, and should be capable of operating as a lead, trail or middle car of a consist. Each car is equipped with an operator's compartment. A copy of the general layout of the car is attached for your information.

Tractive energy is supplied to the car via a third rail, operating at 1000 V DC. Tractive effort, propulsion and braking is to be provided by DC series traction motors, controlled by a chopper type controller. In addition, mechanical braking effort is to be provided by a bydraulic system applying retarding torque on one disc per axle. Proper blending of electrical and mechanical braking effort has to be provided. The car has to be equipped with an auxiliary electrical system operating at 120/208 AC 60HZ, supplied by a rotary converter or static inverter. Battery and battery charging equipment provides power for control components.

Each car will contain 68 seats.

Bay Area Rapid Transit District
Public Information Office, October 1980

12/31/81

Ly,

Please discuss with Sandy.

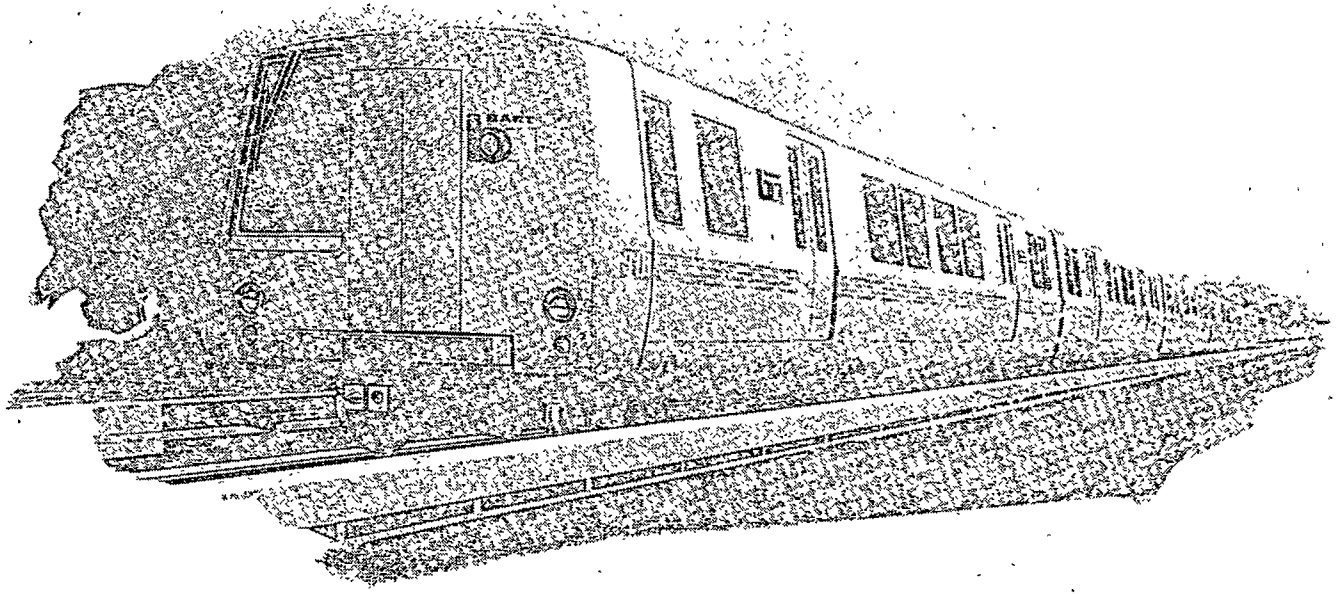
Michael Collins needs info on Bart Car. Is making a model.

Address is

1004 Burnside Road
Sharon Hills, PA
19074

Andy please
discuss with
Ty.

# A NEW DESIGN FOR BART CARS




**"... more capacity, flexibility, reliability and reduced operating costs ..."**

# BART's PROPOSED NEW "C" CAR

## Development:

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When operating as a lead vehicle, there will be doors which close at the end of the car. Each car is equipped with an operator's compartment at this end. These "flipper" doors open to the side to allow the car to also operate as a center train when required. This design concept will provide increased operational flexibility. Trains will no longer have to be taken to a yard (as is now the case) to change the size of the train. The new car will make it easy to change a train into two complete trains without having to leave the main line. This capability will also mean savings in labor and energy costs.

Modification of the operator's compartment and passageway door are the major design changes in the "C" car. Passenger seating will be only slightly reduced. Included in the design changes will be new and larger capacity traction motors powering the car, which will increase reliability.

All of the latest modifications which BART now has in progress for the present fleet will be incorporated in the new cars. The new cars will be using those materials which conform to the fire performance standards which BART has been developing over the past two years.

When the new "C" Car is added to the BART fleet in about four years, BART engineers believe the system will be operating with one of the most efficient and fire safe fleets of transit vehicles in the nation.

## Procurement:

The procurement of new transit vehicles is critical to the success of BART's Five-year Objectives. With rapidly rising costs of operating the private automobile, more travelers in the San Francisco Bay Area are expected to use BART. Patronage on BART is expected to reach over 200,000 a day in 1985. A grant is being sought from the U.S. Urban Mass Transportation Administration to fund 80% of the cost of the new "C" car, which is expected to be approximately $1 million each.

**SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT**
800 Madison Street–Oakland, CA 94607
(415) 465-4100

BART

# THE BART CAR

## CAR TYPES

| | |
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PUBLIC AFFAIRS OFFICE
October 22, 1980

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"....more capacity, flexibility, reliability and reduce operating costs...."

2-2-2-2-2-2 "C" Car pamphlet

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COPY "C" CAR PAMPHLET

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-MORE-

"C" CAR PAMPHLET

(Copy with picture)

A NEW DESIGN FOR BART CARS

(Picture)

"....more capacity, flexibility, reliability and reduce operating costs...."

"C" CAR PAMPHLET

(Copy with picture)

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-MORE-

2-2-2-2-2-2 "C" Car pamphlet

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# BART BULLETIN

**News of Special Interest to BART'S Riders**

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"....more capacity, flexibility, reliability and reduce operating costs...."

BAY AREA RAPID TRANSIT DISTRICT
Headquarters: 800 Madison Street
Oakland, California 94607
Telephone: (415) 465-4100

BROADWAY DISPLAY
C-CAR ID CARD

NEW BART C CAR

This is a model of BART's new C-car, which is expected to begin making its appearance on the system late in 1985. BART engineers, working with consultants, designed this new BART transit vehicle. The car will be similar in appearance to the present BART cars, but will not have the sloped front end of the present A-car, which operates as a lead or trailing car. Instead, it will be integrated with the existing fleet either as an A-car or as a B-car, which operates in the middle of a BART train.

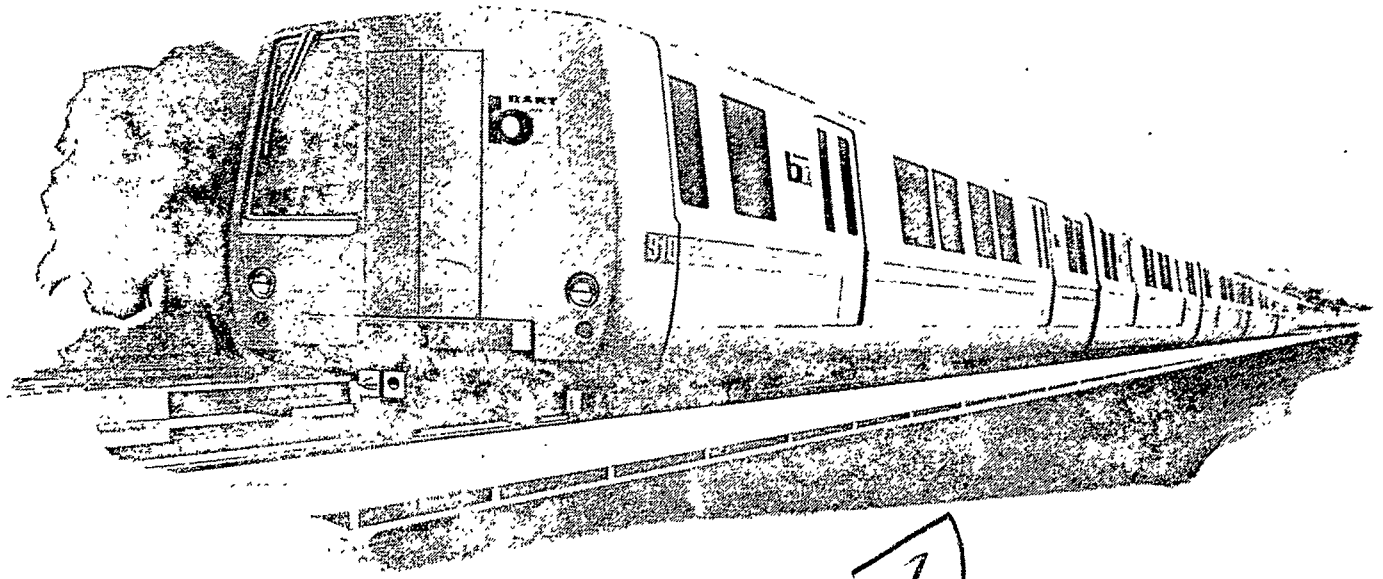
This design concept will mean greatly improved flexibility of the BART system and savings in labor and energy cost. The long trains which are needed during the commute hours can be changed in size while on the mainline, instead of going into the yard, which is the present picture.

Final assembling of the new C-car will be done in the San Francisco Bay Area, thereby creating several hundred new jobs sometime beginning in 1984. Acquisition of the new cars is a major element in BART's 5-year Capital Improvement Program, which will, when completed, mean that 75 trains can be operated on the system, thereby nearly doubling the present capacity, and will mean that trains will be arriving at stations much more frequently.

which will make it possible to

Aquisition of the new C-Cars is a major element of BART's Five year Capital Improvement Program, which includes an expanded and improved Intergrated Control System, the completion of the third track (K-E Track) in downtown Oakland, and contruction of the Daly City Turnback Track. All of these proejct will mean that BART will nearly double its passenger capacity and operate more train which arrive at station more frequently.

# NEW DESIGN FOR BART CARS




**"... more capacity, flexibility, reliability and reduced operating costs ..."**

2-2-83

Gary Would like to know what the new BART cars will be like?

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SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT
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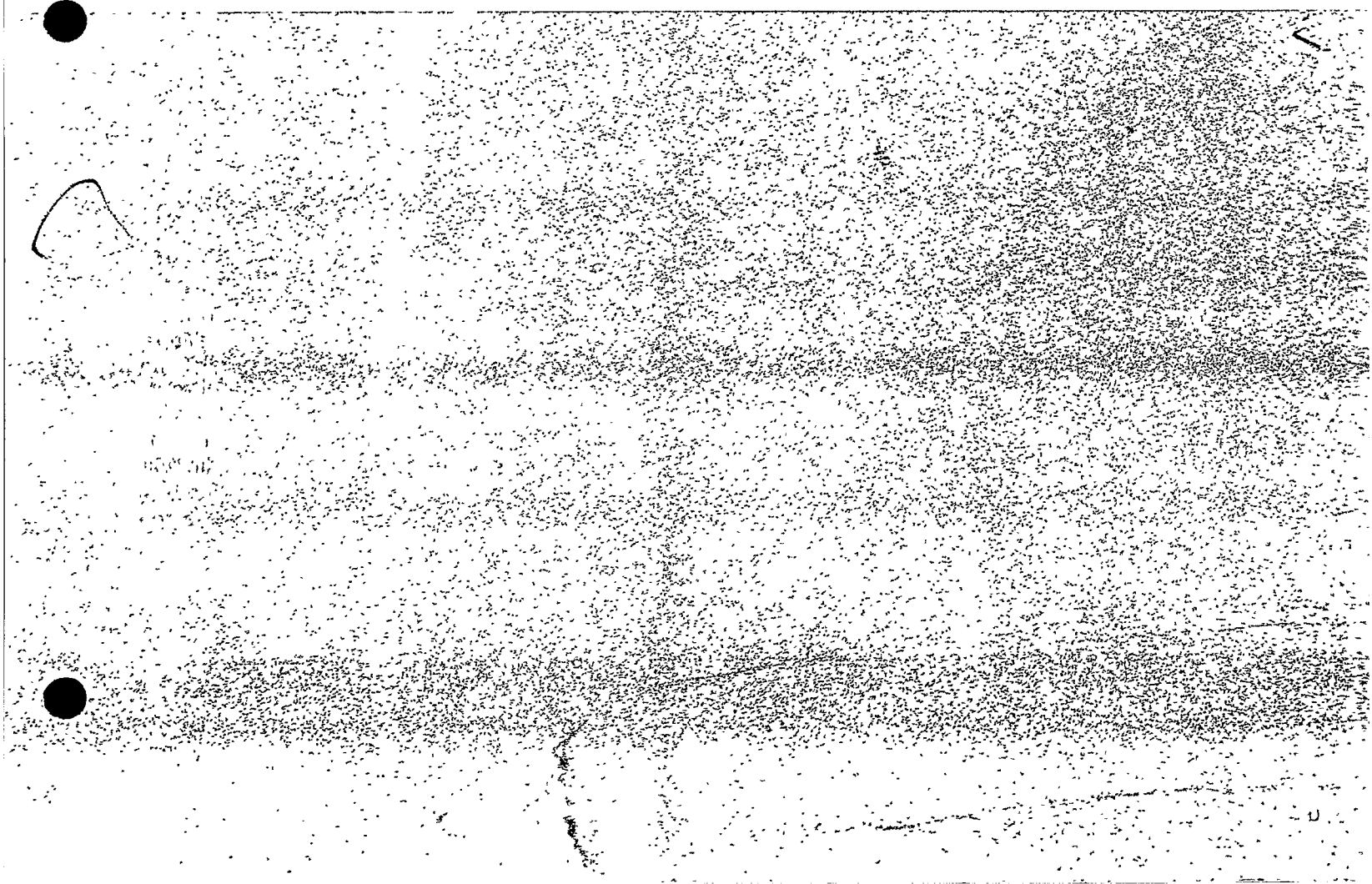
BART



# BART "C"-Car BIDS

On Tuesday, July 27, 1982, BART received bids from five companies interested in producing BART's new "C-Car", which has been designed by BART engineers. The opening of the bids was culmination of nearly three years by BART staff, which focused on the creation and development of specification for the new car. Included in the design concept is "Automatic Train Control System" (ATC), found in the present BART "A-Car", and the ability to also operate as a mid-train car.

The bidding documents were made available in January 1982. Bidders were required to address a series of elements, common to the production of a C-Car, resulting in a base bid. In addition, the bids would detail separate costs for producing 60, 90, 120 and 150 C-Cars.

The Base Bid covered the following elements: a) engineering: b) four prototype vehicles for extensive testing; c) publications and manuals; and d) test equipment. Each bidder was required to submit bids for all these Base Bid elements. In additon, BART provided specific costs for spare parts, totaling $1.5 million, and a figure of $15 million for ATC, for an unspecified number of cars; these two figures were included in all bids for all quantities of cars. The elements were presented to the bidders in this way because, at the time, the cost of the ATC per car had not yet been finalized.

BART engineers have now determined that the ATC cost per car will be approximately $100,000 per car. The bid submitted by SOVERVAL of France can now be compared with a better degree of accuracy, based on the adjusted BART engineering estimate for ATC. This comparison indicates that BART engineers' estimates for cost of the different quantities of cars were very close to the bids received from SOVERVAL.

Here is the comparison of the adjusted SOVERVAL bids and BART engineers estimates:

| NUMBER OF CARS | BART ENGINEERS' ESTIMATES | SOVERVAL BIDS | PERCENT DIFFERENCE |
|---|---|---|---|
| 60 cars | @ $1,412,000 | @ $1,475,184 | 4.3% |
| 90 cars | @ $1,262,222 | @ $1,347,469 | 6.3% |
| 120 cars | @ $1,191,666 | @ $1,272,192 | 6.3% |
| 150 cars | @ $1,147,546 | @ $1,225,124 | 6.3% |

These figures illustrate that the BART engineers' estimates were between 4.3 percent and 6.3 percent below the submitted bids of SOVERVAL. While the original estimated cost of the car was announced some time ago to be $900,000, this figure did not include the automatic train controls and engineering costs which were finally included in the bidding documents. Tracing the original estimated cost per car to the adjusted BART estimates, the very small percentage difference is a tribute to the capabilities of BART engineers.

BART
Office of Public Information
August 5, 1982

July 3, 1969

Vick Yick X600
Adrian X517

Phase I, II, III
June Control Records →

Rohr Contract 2Z4602 1969 (for Transit Vehicle)
last Contract Award Date
last Date of Delivery - 19

Design Concept was Rohr's: That "C" car could function as either an "A" or "B" car.
Industrial Designer: Sundberg & Ferar of Michigan

3-5 years

operating fleet of 417
155 "A" cars

Purchase: 181 "C" cars.

250

Nov. 5, 1971 - Delivery of first Production car for Revenue Service
Feb 1972 - first revenue vehicles received after Rohr strike ended

B74 - 100
Both M&K - Planning 415
July 30,
74-75 - 100

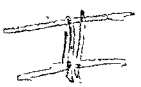
Jim

Engineering

Al

Adam O. Goldstein

James Park
1509 [illegible]
Chicago, IL
60626



Tube Lamb

BACKGROUND INFORMATION

## THE BART RAPID TRANSIT VEHICLE

Rohr is building 450 vehicles for BART under a $143 million in contracts awarded since July 1969. Cars with attendant's cabs ("A" cars), each 75 feet long, are placed on each end of the BART trains. Cars 70 feet long are located in the middle of the trains ("B" cars). The trains are from two to ten cars long, depending on the passenger capacity required.

Using a systems management concept common to the aerospace industry, Rohr designed the car to meet a set of performance requirements rather than to fit existing available components. The car was initially designed at the systems engineering level to perform certain functions, i.e., to ride properly on a given track; to accelerate at a certain rate; to maintain a high degree of reliability; and perform to stringent safety requirements. The vehicle system, as a whole, was broken down into subsystems and components. The trucks had to be designed to operate on a given track. The propulsion system had to be designed to meet speed performance requirements. Systems integration became a major consideration and resulted in formal documentation, to establish just what would happen when a component is interfaced with another component.

The BART cars are being assembled by methods new to the rapid transit industry. Individual components are combined into sub-assemblies which are inspected and tested, and then incorporated into major assemblies. Each major assembly is then inspected and tested before going into final assembly. Finally, the completed vehicles are subjected to a series of tests for a step-by-step checkout of all systems.

Rohr has employed engineering and manufacturing technology in designing and building the cars to provide maximum passenger comfort and safety, as well as improved reliability and ease of maintenance. The cars have wall-to-wall carpeting, which reduces noise levels and provides a more comfortable riding atmosphere. Temperature and humidity are controlled by a multi-zone air conditioning system that provides a constant flow of fresh air without the presence of drafts. BART passengers will ride in much quieter surroundings than commuters in private automobiles.

The cars are supported on eight air cushion bellows (four per truck) which provide a smooth, comfortable ride, even at top speeds. Since the air bellows absorb more vibration than mechanical springs, roadbed irregularities go virtually unnoticed. The

foam-padded seats are more comparable to living room chairs than to the ones usually found in transit cars. Not only are they more comfortable than other seats, they are cantilevered; i.e., suspended from the cars' side walls without standard pedestal supports. Elimination of the pedestal increases legroom and results in easier maintenance of car interior.

Cantilevered seats are possible because the BART cars utilize a "semi-monocoque" design in which the body is integral with the chassis and bears most of the loads. Monocoque design is used in construction of jet aircraft to achieve maximum strength at minimum weight.

The cars are built of aluminum extrusions, some of which run the full length of the vehicles. The result is a smooth, durable surface with no visible rivets or fasteners. Attendant's cabs on the "A" cars are one-piece fiberglass with no seams, similar to modern boat hulls. The windshield is made of high-impact glass similar to that used on commercial aircraft.

The BART propulsion system is the most advanced ever installed on transit vehicles in this country. It operates so smoothly that passengers have virtually no sensation of starting and stopping. The system will accelerate trains from a standstill to 50 miles-per-hour in 20 seconds and decelerate them from the 80 miles-per-hour top speed to a station stop in 27 seconds. The cars are among the lightest in the world. The light weight reduces power requirements. Even the wheels, with aluminum centers and steel rims, are light in weight.

Other improvements have been incorporated in the doors and electrical systems. A new mechanism prevents "gaps" in the doors, eliminating drafts and rattling. Shielding of the electrical systems prevents interference with television and radio reception as the cars pass. Many of the innovations in the design of the vehicles were developed by Rohr. Among these are the cantilevered seats, improvements in the door hanger system, the attendant's cab, and the extruded aluminum construction.

BART vehicles are built in two configurations identified as "A" cars and "B" cars. The two configurations are identical in all respects except that an "A" car has an Attendant's cab mounted to its front. The aft end of each configuration is referred to as the X-end and the forward end as the Y-end of the vehicle. An operational train consists of a minimum of two "A" cars mated back-to-back. Increased passenger capacity is attained by coupling from one to eight "B" cars between the two "A" cars.

Train control is accomplished through vital train lines running throughout the length of the train, and connected through the electrical portion of each car end coupler. The train is operated or controlled in one of three modes:

(1) AUTOMATIC - The train is controlled from the remote operational control center (OCC) by signals received through vehicle antennas and route relay antennas.

Train speed, braking, stopping and door operations are automatically controlled in this mode. Train speed can be varied between 0 and 80 MPH in the automatic mode.

(2) ROAD MANUAL - The train is controlled by the attendant from the cab through the operation of the attendant's control level. Train speed can be varied between 0 and 25 MPH in the road manual mode. This mode is used when a malfunction occurs in the Automatic Train Control (ATC) System to move the train on the mainline tracks.

(3) YARD MANUAL - The train is controlled by the attendant from the cab. This mode is used primarily within the District Yard Service Areas. The maximum speed obtainable is 10 MPH.

Table 1 Vehicle Dimensions

| | A-Car | B-Car |
|---|---|---|
| Carbody Width | 10'6" | 10'6" |
| Carbody Length | 75'0" | 70'0" |
| Car Height, Top of rail to top of car, less antennas | 10'6" | 10'6" |
| Ceiling Height, center of aisle | 6'9" | 6'9" |
| Floor Height, Top of rail to top of floor | 39'0" | 39'0" |
| Maximum Dimension, Top of floor to bottom, all undercar equipment | 33-1/4" | 33-1/4" |
| Height of all door openings | 6'4" | 6'4" |
| Width of side door | 4'6" | 4'6" |
| Width of end door | 46-3/4" | 46-3/4" |
| Width of cab door | 30" | - |
| Wheel diameter - New | 30" | 30" |
| Wheel diameter - Worn condemning | 28" | 28" |
| Truck spacing, center to center of trucks | 50'0" | 50'0" |
| Wheel Gauge, between gauging points $\pm$ 1/16" | 5'5-1/4" | 5'5-1/4" |
| Track gauge, tangent and curved $\pm$ 1/8" | 5'6" | 5'6" |
| Station platform height, from top of rail | 39" | 39" |
| Running clearance | 2" | 2" |

Table 2. Vehicle and Component Weights

| ITEM | A-Car | B-Car |
|---|---|---|
| 1. Car, complete | 59,000 | 57,000 |
| 2. Car, without trucks | 38,175 | 36,280 |
| 3. Car, without Undercar Equipment and Seats * | 22,615 | 20,655 |
| 4. Cab, complete | 1,475 | --- |
| 5. Truck, Y-end, complete | 10,435 | 10,360 |
| 6. Truck, X-end, complete | 10,390 | 10,360 |
| 7. Evaporator Box, each (6 installed) | 115 | 115 |
| 8. Condenser, rightside | 240 | 240 |
| 9. Condenser, leftside | 215 | 215 |
| 10. Air Receiver, 7000 cu. in., each (2 installed) | 45 | 45 |
| 11. Auxiliary Air Receiver, 500 cu. in., each (4 installed) | 40 | 40 |
| 12. Air Compressor Assembly | 265 | 265 |
| 13. Air Suspension Panel (2 installed) | 15 | 15 |
| 14. Coupler, Standard, complete (1 A-Car/ 2 B-Car) | 670 | 670 |
| 15. Coupler, Retractable, complete (A-car only) | 365 | --- |
| 16. Hydraulic Master Control Panel | 160 | 160 |
| 17. Brake Control Panel, W/Accumulator (2 installed) | 30 | 30 |
| 18. Parking Brake Control Panel, W/Accumulator | 40 | 40 |
| 19. Battery Box, empty | 75 | 75 |
| 20. Battery Box, W/Batteries | 555 | 555 |
| 21. Auxiliary Electric Box, complete | 1,240 | 1,240 |
| 22. Semi-Conductor Box, complete | 1,600 | 1,600 |
| 23. MA-17 Braking Resistor Box(2 installed;LH-655LBS/RH-570 lbs) | 655 | 655 |
| 24. Motor Control Box | 855 | 855 |
| 25. Line Reactor | 365 | 365 |
| 26. M/A Resistor, with Line Switch Box | 235 | 235 |
| 27. Motor Alternator Assy, complete | 2,460 | 2,460 |
| 28. Motor Reactor Box | 765 | 765 |
| 29. Motor Blower Complete | 290 | 290 |
| 30. Passenger Seat, Longitudinal, each (8 installed) | 80 | 80 |
| 31. Passenger Seat, Transverse, each (28 installed) | 80 | 80 |
| 32. Attendant's Seat, complete | 50 | -- |
| 33. Emergency Plank | 25 | 25 |

Table 2. Vehicle and Component Weights (continued)

| ITEM | A-Car | B-Car |
|---|---|---|
| 34. Fire Extinguisher (2 installed) | 17 | 17 |
| 35. Car Control Panel, complete | 65 | 65 |
| 36. Attendant's Control Console, complete | 45 | |
| 37. Side Door Operator Panel, complete (8 installed) | 50 | 50 |
| 38. Door Control Relay Panel, complete | 30 | 30 |
| * Includes harness and ducts | | |

Table 3. **Vehicle Voltage Requirements**

| TITLE | SOURCE | VALUE |
|---|---|---|
| Primary | DC Contact Rail (Third Rail) | 850 Minimum-1150 Maximum |
| Auxiliary | AC Bus | 120/208,3-Phase, Regulated ±5% |
| Low | Vehicle Battery | 32 VDC Nominal |

Table 4. **Hydraulic Brake Subsystem Requirements**

| ITEM | VALUE |
|---|---|
| System Pressure Relief | +100 psi<br>2000 - 50 psi |
| System Operating Pressure Maximum | 1850 psi |
| Supply System Pressure | 1650 to 1850 psi |
| Pump Stop Pressure | 1850 ± 35 psi |
| Pump Start Pressure | 1650 ± 35 psi |
| Control Pressure | 1200 psi |
| Brake Caliper System Pressure | 600 to 1200 psi |
| Parking Brake System Pressure | 600 to 800 psi |
| Residual Brake Pressure | 20 to 35 psi |
| Hydraulic Fluid | Brayco 776 RP oil |
| Reservoir Capacity | 3 gallon |

Table 4 Hydraulic Brake Subsystem Requirements (continued)

| ITEM | VALUE |
|---|---|
| Operating Power | |
| Hydraulic Pump Motor | 208 VAC, 3ph, 60 Hz |
| Starting Current | 30 amp |
| Run Current | 5.5 amp |
| Battery Power | 32 VDC |
| Parking Brake (apply & release) | 1.5 amp |

Table 5 Air Suspension Subsystem Requirements

| ITEM | VALUE |
|---|---|
| System Relief Pressure | 200 psi ± 15 |
| System Maximum Operating Pressure | 175 psi |
| Compressor Stop Pressure | 175 psi |
| Compressor Start Pressure | 145 psi |
| Cut-out Switch Pressure, Decreasing, (SCS-4) | 35 psi |
| Shut-off Switch Pressure, Decreasing, (SCS-1, 2, & 3 | 15 psi |
| Air Receiver Capacity, 2 installed per car | 7,000 cu. in. |
| Auxiliary Air Tank Capacity, 4 installed per car | 5,000 cu. in. |

Table 6 Truck and Component Requirements.

| ITEM | REQUIREMENT |
|---|---|
| Truck Designation | HPD-3 |
| Truck Swivel | Sliding Air Seal and car body center pin |
| Suspension | Firestone #205C air bellows |
| Damping | Delco Hydraulic Shock |
| Equalization | Self-aligning ball joints |
| Sideframes | Cast steel ASTM A27 65-35 |
| Suspension Adapter | Fabricated Steel USS EX-TEN 50 |
| Wheels | 30" diameter, aluminum centered, steel tire with modified cylindrical tread |
| Axles | AISI, 5150 Steel Tube |
| Journal Bearings | BRENCO 6 x 11 cylindrical bearings |
| Brakes | Disc type |
| Motors and drives | Westinghouse Electric Parallel Drive |
| Track Gage | 5' - 6" |
| Truck Wheel Base | 7' - 0" |
| Truck Width | 54" journal centers, inboard journals. |

Table 7 **Vehicle Passenger Loading**

| DESIGN | LOAD CONDITION | WEIGHT (A-Car) |
|---|---|---|
| AW-0 | Empty car (no passengers) | 59,000 pounds |
| AW-1 | 72 passengers seated | 73,000 pounds |
| AW-2 | 72 passengers seated - 72 passengers standing | 81,000 pounds |
| AW-3 | 72 passengers seated - 144 to 216 passengers standing (crush load) | 97,000 pounds |

Car Body Structure

The car body is an integrated structure, reinforced in areas subject to high stress. By the use of aluminum extrusions, the car sidewalls are designed to carry the car weight throughout the span of the car. The floor beams and roof are riveted to the sidewalls, completing the integrated car body structure. To compensate for the openings of the side doors, special door frames are installed into the sidewall, thereby, insuring the continuity of sidewall strength. The Roof Panel is constructed of 3003 H14 aluminum alloy sandwiched with 300F Foam. The outer skin is a single piece running the full length of the car. Roof bows are contained within the structure. This sandwich structure is attached to four longitudinal stringers extending the full length of the car, two of which provide support for any future strap hangar applications. The roof panel is capable of supporting a 250 pound man. At the outer edge of the roof, and extending the length of the car, are three inch by two inch deep rain gutters to prevent rain run-off down the sides of the car. These rain gutters are open-ended, with lip troughs, to provide drainage over the ends. The roof has an inner liner that carries the interior car lighting and speakers. The liner is made of molded fiberglass, riveted to the roof panel, and made in five sections. The liners, by removing the rivets, can be lowered from the roof panel, but due to their size are not removable from the interior of the car, without a major end-panel removal.

The end panels are of a unitized construction, riveted to the roof panel and sidewall. The X-end panel houses the car control panel and the door relay panel.

The floor beams are interlaced with intercostal members to provide a means of suspending various undercar components, and transferring the weight of the undercar components to the sidewalls. The bolster serves to anchor the trucks to the car body, and to provide a pivot axis capable of allowing truck pivot under the car for all calculated BART rail curves. The underside of the bolster has an impregnated surface of Teflon to reduce friction between the truck and the bolster.

Another function of the bolster is to allow air to enter the air suspension bags of the trucks, by positioning the air hose into the air suspension bags for all calculated truck pivot movement. The bolster is riveted to the car sidewalls and transfers the acceleration and deceleration efforts from the truck to the car body. The bolster also serves as the anchor for the car end-sill. The end-sills are mounted to the bolsters with twelve special 3/8 inch bolts, capable of withstanding normal car buffing, that will shear under extreme buffing to reduce car telescopic damage. The end-sill also provides a firm anchor for the car coupler. The tension-compression forces created during vehicle movement are transferred through the inter-car couplers.

Completing the floor structure are six floor panels (cars up to Number 35 contain 14), riveted to the sidewall frame and the floor beams to complete the integrated circle around the car body. The floor panels are a metal sandwich structure, with the outer skins made of 6061-T6 aluminum, and a core composed of two inch thick polystyrene foam. The outer skins, and foam core are bonded together with FR8550 epoxy. With the exception of the

indows, the car is completely insulated. The side wall insulation is such that it provides air passageways to direct conditioned air upward at the bottom of the side windows and act as a defroster on cold days.

The X-end of each A-car configuration and each end of the B-car configuration are provided with an intercar closure. The closure provides an enclosed passageway between vehicles. The closure section consists of buffer faceplates extended from the car end sill by elastomeric shear springs capable of both angular and longitudinal motion. An elastomeric diaphragm is located above the faceplates. The diaphragm on one vehicle contacts the diaphragm on the adjoining coupled car during train operation. A drain trough is located on the top portion of the diaphragm to divert water away from the mating surfaces of the two diaphragms.

The Y-end of an A-car is mounted with a cab riveted to the sidewalls and roof panel. The cab is made of foam sandwiched fiberglass to form an insulated compartment to house the various control components and provide the train attendant with an isolated environment. The cab side windows can be swung open to afford an external view of the train. The cab does not rest upon the end-sill, thereby eliminating any vibration that may emanate from the end-sill, or undercar structure.

Sidewall windows located within the passenger compartments of each vehicle configuration are $\frac{1}{4}$ inch green tinted safety glass and cannot be opened. The end door windows are single glazed, clear and cannot be opened. The cab side windows are similar to the sidewall windows but are contoured and can be swung inward to open. The cab windshield is made of 1 inch thick, green tinted, laminated safety glass fixed in position. The cab windshield will withstand a pressure of fifty pounds/foot force which is equal to a 175 MPH windload. All windows are installed from the exterior of the vehicle.

Four types of seats are used on the BART vehicles. The four types are differentiated only by configuration. The seat backs are of a fiberglass reinforced plastic laminate. The seats are covered with vinyl and plastic coated nylon fabric.

The double sliding end doors are constructed of aluminum with a foam core. The doors are suspended by door hangers that house rolling ball bearing races riding on the overhead rails. The bottom of the doors are retained in a threshold guide slot, and at the last inch of door closure, are cammed outward to seal the door recesses. Sealing between the sliding door mating surfaces is by two neoprene extrusions and sealing around the door edges is by typical sealing strips bonded to an aluminum strip and cap-screwed to the door frame, or to the bottom of the door. The door rails are surrounded by a 1/8" cable riding on two pulleys, mounted at the extreme of the door rails. The cable causes both sliding doors to travel in opposite directions when one, or both doors are manually opened.

The side doors are of foam core construction, reinforced internally for strength as well as providing attachments for door hardware and operating arms. The doors are constructed of aluminum alloy, with an exterior brush finish, matching the exterior car skin,

and with the interior finish coated with alumilite (Alcoa 215C3) to present a smooth surface.

Vehicle Sub-Systems

The BART vehicle contains five functional interrelated subsystems that provide electrical power, propulsion, braking, suspension and air comfort. These systems are common to both A-car and B-car configurations. The A-car is controlled from the Attendant's Control Panel in the forward direction and from a Hostling Panel in the X-End of the car for travel in the opposite direction. The B-Car can be controlled, from a Hostling Panel at either end of the car, for movement in that direction.

Whether the subsystems are controlled by any one of the control inputs is contingent upon the settings of the controls within a vehicle or train of vehicles. Control of a train composed of two A-cars and a maximum of eight B-cars, is exercised by the setting of a single control unit (Attendant's Control Console) of the lead A-car which provides control signals via the trainlines to the other vehicles within the train. Diagnostic Test Equipment is provided for testing of the above subsystems.

The 1,000 VDC high current feeds from the third rail shoe to the Auxiliary Power Subsystem by way of the Auxiliary Box. 1000 V high voltage passes to the line Switch Box, Line Reactor, and into the Motor Control Box. The Motor Alternator operates in conjunction with the Aux. Box to generate the vehicle's basic 32 VDC and 3Ø 120-208 VAC power sources. The 32 volt source charges the vehicle's battery, which, in turn, assures 32 VDC is present for such vehicle electronic devices as relays, lighting indicators, and control PC board circuits. The Motor Alternator function is to generate the basic 3Ø 120/208 VAC for other vehicle electrical devices and also furnish mechanical drive for the Air Comfort Subsystem's compressor assembly. 120 VAC is available at terminals to which the 3Ø 208 VAC is routed.

Assemblies grouped within the propulsion Subsystem are: the Line Switch Box, the Line Filter, the Line Reactor, the Motor Control Box, the Semiconductor Box, the Propulsion Blower, and the Braking Resistors. Key control inputs are the ATC control or "P" signal -- an analog current signal that commands the Semiconductor box to send out subcommand signals which operate Motor Control Box interlocks that in turn control subsystem braking and motoring circuits; the BRK Signal -- a "P" signal with a limited speed range; the Yard Manual Control Signal -- a simulated "P" signal capable of commanding low speed motoring for a limited time; and the Direction Signal. Outputs from the Semiconductor box to the Friction Brake Subsystem are the Brake Command Signal; the Dynamic Brake Signal; and the Manual Parking Signal. Two additional outputs from the Semiconductor Box are contained in the 1,000 VDC Motoring and 1,000 VDC Braking circuits which pass high currents to and from the traction motors. Two groups of signal inputs (one consisting of speed signals from the Truck Subsystem speed sensors and the other load weight signals from the Air Suspension Subsystem) feedback signals to the Semiconductor Box which help it to give appropriate commands to associated vehicle

vehicle subsystems. The Propulsion Blower unit uses a motor requiring 3Ø 208 VAC input and functions to cool the Propulsion Subsystem Semiconductor Box and Braking Resistor Assemblies. The pneumatic lines to the Line Switch Box and the Motor Control Box furnish the air required to drive the electro-pneumatic switches located within these assemblies.

The Friction Brake Subsystem consists of electro-hydraulic units that control the Brake disc assemblies located in the Truck Subsystem. The two groups of signals, which are control inputs to the friction brake electro-hydraulic units, are control signals arriving via the logic tray of the Semiconductor Box Assembly and speed signals from the speed sensors which are mounted on the truck assembly gear units.

Connections between the Air Conditioning Subsystem and the remaining vehicle subsystems are of a power input nature. 1,000 VDC low current input is taken directly from the line switch box, 3Ø 120/208 VAC input is supplied by the Auxiliary Power Subsystem, and the motor drive input for the Subsystem's air compressor is taken directly from the Motor Alternator assembly. Thermostat positions within the vehicle cause the subsystem to be of a self-regulating nature once it is energized.

There are three general links between the Air Suspension Subsystem and other vehicle subsystems. The standard power sources from the Auxiliary Power Subsystem; the group of load weight signals feeding to the Semiconductor Box; and the pneumatic connections the Air Spring Assemblies.

Each truck of the vehicle is made up of mechanical, electrical, pneumatic and hydraulic components controlled by electronics contained in the previously discussed subsystems. The truck frame is a steel casting. A derailment detection device is provided which will break by impacting against the running rail during derailment causing an open-loop brake application as for an open door condition.

The auxiliary Electric Subsystem consists of a Motor-Alternator set with voltage and frequency regulation, circuit breakers for protection of feeder and branch circuits, contactors and motor starter for connecting loads, a battery charger to supply low voltage dc, and auxiliary relays to perform functions such as sequence control of motor starting, under frequency and under voltage trips, and power annunciation.

Most of the above circuits are contained in two units, the Auxiliary Power Box and the Motor Alternator. The Motor Alternator performs specific generating and motor drive functions whereas the Auxiliary Box performs multiple functions. It holds the auxiliary circuits for the motor alternator and numerous circuit breaking and regulating components required for such functions as air conditioning (heating, compression, exhausting and blowing of air) and operation of other vehicle subsystems requiring low level power.

ch BART vehicle is equipped with a self-contained air comfort system, capable of providing heated air, cooled air, or fresh air ventilation within the vehicle interior.

Four thermostats mounted to the Air Comfort Control Panel, located near the floor level of the car interior, dictate the type and amount of air comfort required to maintain the car interior at 72 degrees.

Each car is equipped with a self-contained pneumatic system capable of performing the following functions:

(1) Maintain the car floor level at 39 inches above the roadbed rail head, irrespective of the amount of passenger load.

(2) Continually monitor (weigh) the passenger load, and to provide an electrical factor that is blended with the car's individual acceleration and deceleration effort.

(3) Provide pneumatic means of uncoupling car.

(4) Activate the electrical line switch box.

(5) Enable reversing of the traction motors polarity.

The pneumatic system is composed of an air compressor, two air receiver tanks, three leveling valves, eight air suspension bags, load weighing system, two uncoupler valves, and provides pressure to activate the motor controller drum switch and line switches.

The air compressor is a two-stage V type assembly, and through two pressure switches, will maintain the air pressure between the 145-175 psi. When the air pressure reaches 175 psi, the compressor shuts down and the condensate pop-off valve will momentarily open to discharge accumulated moisture.

The air suspension system is controlled by three car-leveling valves, one mounted on the X-truck and two mounted on the Y-truck. The truck suspension air bags are installed between the truck suspension adapter and truck side frame, with the leveling valve installed to the truck suspension adapter and the leveling valve linkage attached to the side frame. Compression of the air bags will cause the level valve to open to pressure and expansion of the air bags will cause the level valve to vent.

The car is considered as having a three point suspension, with each point having a leveling valve. The four X-end air bags are cross connected to the single X-end leveling valve. At the Y-end, only the two left air bags are connected to the left leveling valve, while the right air bags are connected to the right leveling valve. Therefore, not only will all leveling valves maintain the car floor height at 39-inches above the rail head in the longitudinal (fore - and - aft) direction, but the two Y-truck leveling valves will maintain the car level in the traverse (sideway) direction for any placement of passenger loads.

During normal train operation braking or deceleration is accomplished through the

traction motors by dynamic braking. Dynamic braking occurs within the speed range between 4 MPH and 80 MPH. At speeds under 4 MPH the dynamic field has decayed and the friction braking system assumes control. In the event of dynamic braking failure, the friction braking system will be used at any train speed. The friction braking system consists of a hydraulic power unit, mounted on the underside of each vehicle, which supplies hydraulic pressure to a brake caliper mounted on each axle. Isolation of an individual vehicle may be accomplished by a manual cutoff valve. Control of the friction braking system is accomplished through the master brake control valve. The valve responds to electrical signals received from the vehicle control systems to allow system pressure to flow to the brake calipers. The magnitude of the pressure is determined by electrical signals from the control system. The friction braking system works in connection with the wheel slip-spin detector system. If slippage of a wheel occurs, the slippage is detected by the vehicle control system which, in turn, signals the brake control valve to reduce brake pressure and reapply when slippage stops. This cycle is repeated until slippage control is obtained.

Each vehicle incorporates an electrically operated hydraulic parking brake. The system includes a manual override. The parking brake is applied to the X-end truck only.

Car Coupler is a fully automatic car coupler, having a pin with a tapered point and a funnel at each coupling face. It is necessary only to bring two cars together at speeds from $\frac{1}{4}$ to 4 MPH to accomplish complete mechanical and electrical coupling. As the cars are brought together, the main coupling pin of each coupler head enters the funnel of the opposing coupler so long as the centerlines of the couplers are not misaligned by more than 6 inches laterally and 4 inches vertically. The main pin will align the heads within +/- .012 inches and as coupling proceeds, secondary and tertiary alignment pins will engage to reduce misalignment to +/- .0 inches. When the pins have completely entered the funnels, latches in each head snap into the notches in the main coupling pins, thus locking the pins in the funnels.

The air connections from the uncoupling valve to the unlatching piston are made through the uncoupling hose and through the uncoupling air tappet on the coupler.

The electric portion includes a slide frame assembly and a removable front cover assembly. Each assembly includes 80 contacts with 30-amp capacity, and 58 contacts with 60-amp capacity.

The car coupling system provides the ability to couple cars mechanically and electrically without requiring any action on the part of the operator beyond controlling the rate of approach of the cars.

Provisions are made to eliminate differences in coupler-to-coupler alignment in the vertical and horizontal direction and to eliminate the relative skewing that may exist between the coupler heads.

Uncoupling of cars is accomplished through an Uncoupling Valve located at either end of each car. An A-car is equipped with a manually operated valve mounted under the cab at the Y-end of the car and with a solenoid/manual operated valve at the X-end of the car and mounted to the right of the coupler. A B-car is equipped with two solenoid-piloted valves, one located at each end and mounted under the right side of the car.

The draft gear is designed to permit $1\frac{1}{2}$ inches travel at 150,000 pounds buff load, with a pre-load in each direction of 6,000 pounds. The draft gear assembly includes unique tensile bolts which break at 150,000 pounds, plus or minus 10%. Once released the draft gear has $3\frac{1}{2}$ inches collapsing travel to permit the car end to engage, causing the center-sill to absorb the additional loading.

The Retractable Coupler is designed to serve as a drawbar at the Y-end of A-cars. The assembly can be rotated a full $90^{\circ}$ and locked in place under the car when not in use. Retraction is manual and uncoupling is accomplished with the manually operated uncoupling valve. No trainline electrical connections are provided. The Retractable Coupler can withstand buff and draft loads of 100,000 pounds.

Interior car lighting consists of 48 overhead lights in the passenger area, floor level lighting at all side and end doors and one standard overhead light and two variable overhead spot lights located in the Attendant's cab. Emergency power is provided by the battery circuit, the regular power source is the motor/alternator circuitry.

The BART vehicle is equipped with a communication network that provides intercommunications between units as follows:

1. INTERCOM - between a passenger and attendant.

2. Public Address (PA) - between attendant and all passengers in the train.

3. Train Telephone (TT) - Radio telephone between attendant and:

   (a) Operating Control Center (OCC).

   (b) Yard Control Station

   (c) Mainline Relay Stations

4. Train Telephone PA (TPA) - Radio telephone to enable OCC or a Mainline Relay Station to transmit a public address announcement throughout a particular train. Each train has a separate radio frequency.

5. Attendant Signal (ATT. SIG) -- Console handset communication between personnel in cabs at both ends of the train. (Primarily maintenance checkout personnel).


BART
COMES TO
SAN FRANCISCO


RIDE
BART
TO
The
Emporium