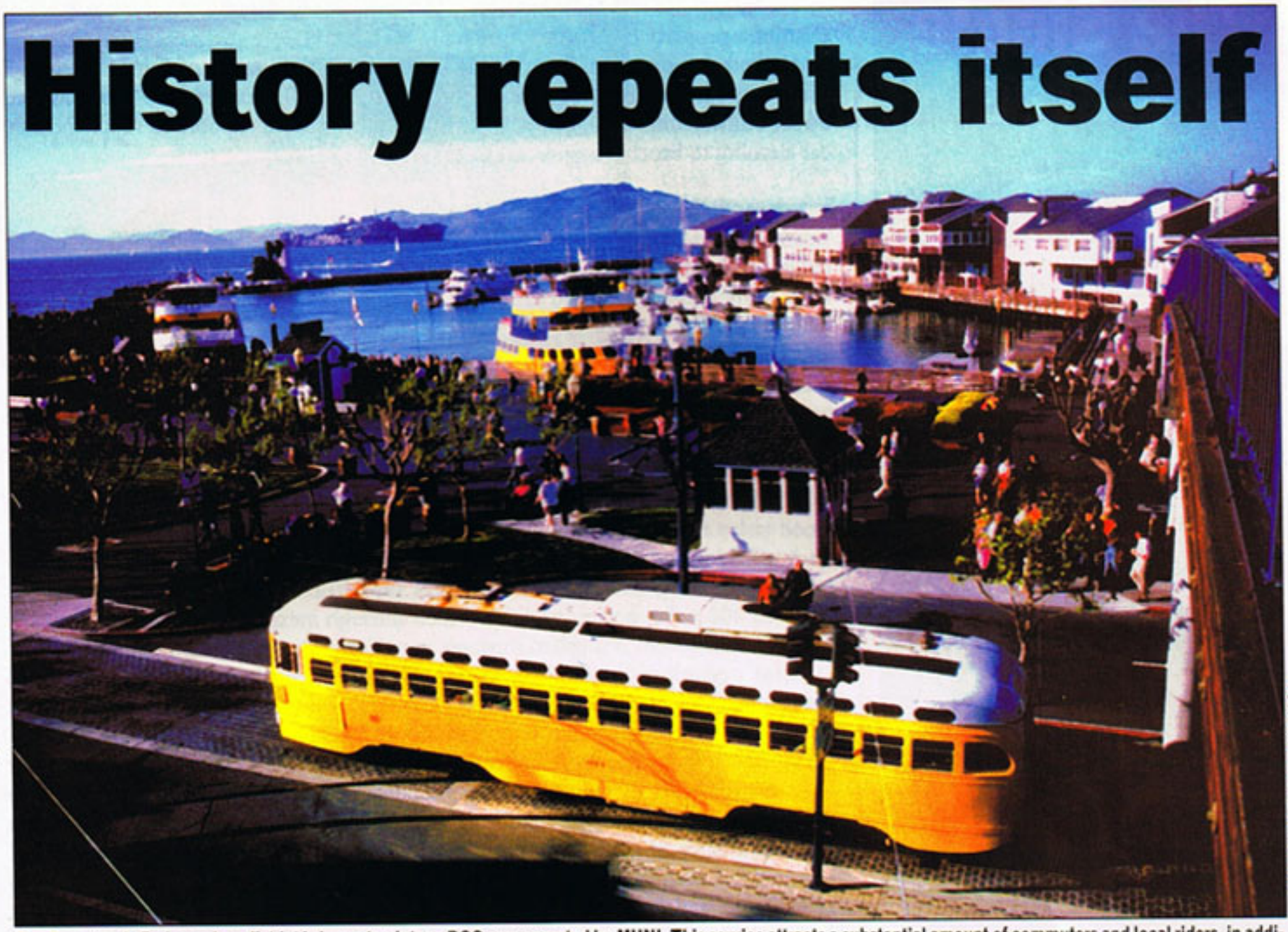
History repeats itself



WILLIAM D. MIDDLETON

San Francisco's Embarcadero district is home to vintage PCC cars operated by MUNI. This service attracts a substantial amount of commuters and local riders, in addition to tourists frequenting Fisherman's Wharf.

Low-cost, low-tech streetcar systems serve a real purpose, not only as recreational and tourist attractions, but by drawing attention to modern urban rail transit.

By William D. Middleton, Contributing Editor

Replaced by motorbuses, the electric streetcar, once the backbone of urban transit systems, had all but vanished from the streets of North American cities close to a half-century ago. In the more advanced form of modern light rail transit, the electric railway has been enjoying a strong resurgence in urban transit. Now, the basic streetcar has re-emerged as a "new" transit mode for urban areas. More than a half dozen U.S. cities include these historic or "heritage" rail lines as a part of their transit systems, and several more have new streetcar systems under construction or in planning.

These new streetcar lines typically operate in surface streets or reserved medians, providing short-headway, frequent-stop service well suited to local transit needs in developed urban areas. Though most serve markets heavily oriented to tourism and recreational traffic, they also provide a high-visibility service that appeals to other transit users, introducing a new generation of riders to the advantages of urban rail. "People who wouldn't ride a bus will ride a streetcar," says San Francisco Municipal Railway (MUNI) General Manager Michael T. Burns.

For several cities, the development of trolley lines is seen as an integral part of redevelopment. Kenosha Transit's new streetcar line, for example, was planned as part of the city's redevelopment of a 64-acre former auto plant site on Lake Michigan for housing, business, and recreation. San Francisco's F Line serves a similar function in commercial and tourism redevelopment of The Embarcadero, while its planned E Line extension will serve a rapidly developing area south of Market Street. The Portland (Ore.) Streetcar, which begins operation this summer, is tied to an emerging center city neighborhood—the River Distric—that includes new residential development on a 34-acre former rail yard.

A few of these lines are holdovers from the street railway era. The St. Charles Line at New Orleans, for example, has been operating for well over 100 years. Some are new-starts developed and operated by public transit agencies. At Portland, a non-profit organization, Portland Streetcar, Inc., was set up to develop the Portland system, while a non-profit organization, The Tampa Historic Streetcar Board, Inc., will operate the Tampa system. At Dallas, McKinney Avenue Transit Authority offers an unusual example of a non-profit, volunteer operator. Organized as a private, non-profit 501(c)(3) organization under a city franchise, MATA is almost entirely staffed by volunteers, with financial support from the Uptown Public Improvement

District, a property owners tax district.

Volunteer support has been highly important to the success of San Francisco's F Line, says Michael Burns. Provided through the 1,100-member, non-profit Market Street Railway, this has included everything from political support to supplementary car cleaning to brochures and information displays.

Low-tech rail transit

Track and power supply requirements for streetcar operation are simple. Track can be constructed with standard or streetcar girder rail. Suitable track can be built with as little as 90-pound relay rail and timber ties, says Harvey Stone, president of Stone Engineering, which engineered the Kenosha and other recent streetcar installations, although higher-grade track will reduce maintenance requirements. "Kenosha Transit wanted a maintenance-free installation, so we specified new 115-pound continuous welded rail, with concrete ties in open track and steel ties in pavement," he says. The biggest problem is getting the special trackwork needed for turnouts, which varies from standard railroad requirements because of differences in wheel treads and flanges.

Unobtrusive overhead power supply systems can be installed with simple metal or wood poles and bracket-supported trolley wires. San Francisco's F Line achieved an unusually high standard of overhead system appearance through the use of ornamental street lighting fixtures that double as supports for trolley wire brackets. The required 600 v.d.c. power can be provided through inexpensive solid-state rectifiers. The Kenosha system is supplied through a rectifier that cost less than $100,000.

Most operations have solved the handicapped accessibility problem with fixed ramps to a floor-level platform and bridge plates. Kenosha Transit was able to install standard bus handicapped lifts in the rear doors of its PCC cars.

Several equipment options are available. Most employ a variety of cars from either U.S. or overseas street railway systems, ranging from relatively modern PCC cars to much older equipment. Rebuilding costs vary. Gomaco Trolley Company's John Kallin estimates that a restoration project can cost up to $400,000 a car. MUNI encountered even higher costs for a major rebuilding of its PCC fleet several years ago. Completed by Morrison-Knudsen (now Alstom) at Hornell, N.Y., the work averaged about $500,00 to $600,000 per car. Today, MUNI anticipates costs of about $1 million to $1.3 million per car.

Replica cars are another option. The principal U.S. supplier for replica trolleys, Iowa's Gomaco Trolley Company, has been building them since 1982, when it supplied the first of three replicas for a trolley line serving the Lowell (Mass.) National Historical Park. The firm has since supplied replicas for Portland and Memphis, and is currently building replica double-truck Birney cars for Tampa and Little Rock. Depending upon the specifications and the inclusion of such features as air conditioning and onboard wheelchair lifts, says John Kallin, replica car costs can range from $500,000 to $800,000 per car.

Still another alternative is new streetcars similar to modern LRVs. Both Portland Streetcar and Sound Transit's (Seattle) Tacoma Link have taken this route and are getting modern 66-foot, four-axle, double-articulated, low-floor "Astra" trams manufactured by Skoda Transportation Systems, Czech Republic.

Low-cost rail transit

While costs for trolley installations have varied widely, the technology typically costs less than light rail. For example, the Portland Streetcar budget, including seven new streetcars, totals $56.9 million for the 4.6-track-mile project, just under $12.4 million per mile. Tampa's 2.2-mile TECO Line Streetcar System, including eight replica cars, is budgeted at $31.5 million, $13.7 million per mile. Central Arkansas Transit Authority's 2.1-mile project at Little Rock, including three cars, is currently budgeted at $15 million, $7.1 million per mile. Perhaps the most economical project yet has been Kenosha Transit's two-mile line completed last year, which came in at about $4 million, or $2 million per mile.

Several projects are employing innovative financing. For example, in addition to Federal Transit Administration and HUD funds, Portland Streetcar is being financed from city parking revenues and local improvement district funding from online property owners. Tampa has developed a comprehensive naming rights program, under which TECO Energy has paid for naming rights for the trolley line, while other

Gomaco (www.gomacotrolley.com) builds replica streetcars. This two-truck Birney car replica was built for Tampa, Fla.

GOMACO

sponsors will acquire naming rights for individual vehicles and stations.

Streetcar systems proliferate

■ **New Orleans:** The RTA's venerable 6.6-mile St. Charles Line has established itself as a distinctive feature of the Crescent City, with an average weekday ridership of 23,000 visitors and local residents. Building on the success of the St. Charles line, the RTA added a two-mile, tourist-oriented Riverfront trolley in 1988 that now carries an average of 3,000 weekday and 5,000 weekend passengers. Construction should begin this summer for a 4.1-mile line that will restore service in Canal Street from the river to the Cemeteries. Preliminary engineering and environmental studies have also been started for a Desire Avenue streetcar project that would restore trolley service in a four-mile loop operating from Canal Street on St. Claude Avenue and North Rampart Street. A fleet of 35 Perley A. Thomas streetcars dating from 1922-1923 operates the St. Charles line, while another seven historic cars are used on the Riverfront line. A new fleet of 23 replica Perley Thomas cars will be built for the Canal line at RTA's Carrollton shops.

■ **Boston:** Massachusetts Bay Transportation Authority (MBTA) continues to operate a 2.6-mile extension of its Red Line metro from Ashmont to Mattapan with a fleet of ten PCC cars.

■ **San Francisco:** By far the most ambitious of the new-start trolley lines is MUNI's F Line, which originated as a temporary alternative in 1983 to the city's popular cable cars when they were shut down for rehabilitation. Their success led to development of the six-mile F Line, which now operates on Market Street and The Embarcadero to Fisherman's Wharf. MUNI estimates that 60% of the line's average of 20,000 daily riders are local residents.

A planned extension will add an E Line, which will share Embarcadero trackage with the F Line between Fisherman's Wharf and the Ferry Building, continuing south from the foot of Market Street on existing MUNI Metro surface tracks to the PacBell ballpark and Caltrain station, a major redevelopment area. Funding is already in hand for station modifications. Other proposed extensions include a westward extension of the F Line from Fisherman's Wharf to the Marina District, the Presidio, and Golden Gate Bridge, and a G Line to Golden Gate Park.

The F Line operates with a mixture of 17 rehabilitated PCC

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Low-cost, low-tech rail transit (continued from p. 47)

cars, 11 former Milan (Italy) Peter Witt trams, and seven historic streetcars. Additional cars will be needed to operate the planned E Line, and MUNI is currently evaluating the best equipment options, with a preference for rehabilitated PCCs.

■ **Kenosha:** Kenosha Transit began operating its two-mile streetcar circulator system last June, linking its Metra commuter rail station with downtown Kenosha and the Harborpark development on the shore of Lake Michigan at the site of a former American Motors auto plant. The service is operated with five rebuilt, ex-Toronto PCCs.

■ **Memphis:** The Memphis Area Transit Authority operates the five-mile Main Street Trolley through the heart of downtown Memphis and over Riverfront Loop. The line, operated with 14 rehabilitated trolleys, transported an average daily ridership of 2,700 during 2000. Construction begins this spring for a two-mile Medical Center extension that should open in early 2004. While it will operate initially with historic trolleys, the extension is designed for later transition to the use of LRVs as a regional system is developed.

MAC SEBREE

At New Orleans, two RTA-built Perley Thomas replica streetcars pass each other at the foot of Canal Street, on the Riverfront Line.

■ **Dallas:** The McKinney Avenue Transit Authority has been operating its 2.8-mile line in the popular McKinney Avenue restaurant and entertainment district since 1989. The line's links to the Dallas transit system will be strengthened by extensions that will add direct connections to Dallas Area Rapid Transit (DART) light rail. Construction began in March for a mile-long north-end extension to DART's newly opened Cityplace station that should open early next year. A second planned project will add two miles of track to link the south end of the system with DART bus and rail in the West End district of downtown Dallas.

■ **Seattle:** King County Metro Transit has been operating the 1.9-mile Waterfront Streetcar line between the International District south of downtown Seattle and Alaskan Way since 1982. Five restored ex-Melbourne (Australia) trams operate the service.

■ **Portland (Ore.):** Portland Streetcar, Inc., is building a 4.6-mile streetcar loop extending from Good Samaritan Hospital through the Pearl Improvement District and downtown Portland to Portland State University. Construction is substantially complete and deliveries have begun on seven modern, triple-articulated trams from Skoda. Service is scheduled to begin July 20.

■ **Tampa:** Hillsborough Area Regional Transit Authority (HART) and the City of Tampa have begun construction for the 2.3-mile TECO Line Streetcar System, which will link downtown Tampa and the convention center with the Ybor City entertainment district. Gomaco is supplying eight air-conditioned, replica double-truck Birney Safety Cars. Operation should begin in spring 2002, and ridership is expected to exceed one million trips annually.

■ **Tacoma:** Sound Transit is building the 1.6-mile Tacoma Link trolley line, which will link Sounder commuter rail and regional express bus services at the Tacoma Dome Station with Tacoma's downtown area, convention center, and theater district. Construction began last fall, and the line is expected to open late in 2002. Skoda is supplying three modern, articulated streetcars.

■ **Philadelphia:** Southeastern Pennsylvania Transportation Authority (SEPTA) is completing a $40 million renovation that will permit reopening of its 8.4-mile Route 15/Girard Avenue streetcar line by 2002. The badly deteriorated line, which connects West Philadelphia, Kensington, and Richmond, and connects with both the Broad Street and Market-Frankford metro lines, was closed and temporarily converted to bus operation in 1992. SEPTA will rehabilitate 18 PCCs for the service.

■ **Little Rock:** Central Arkansas Transit Authority (CATA) is developing the 2.1-mile River Rail streetcar project, which will link downtown Little Rock with North Little Rock along the Arkansas River. Three replica double truck Birney cars are on order with Gomaco.