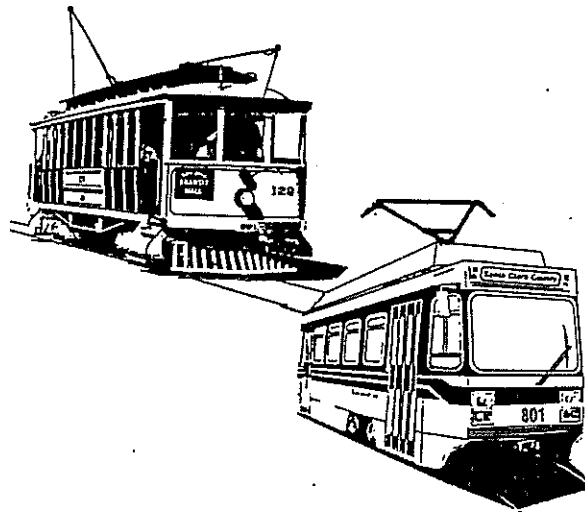


BLENDING HISTORIC TROLLEYS
WITH
LIGHT RAIL VEHICLES
IN
SAN JOSE, CALIFORNIA



A PRESENTATION TO THE
AMERICAN PUBLIC TRANSIT ASSOCIATION
LOS ANGELES - JUNE 1992

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SANTA CLARA COUNTY TRANSPORTATION AGENCY LIGHT RAIL DIVISION

During the early planning stages of the Light Rail system in San Jose, it was realized that trolley wire was going to go back up again and some of the rails would be back where old trolleys used to operate. Just fifty years earlier San Jose and Santa Clara were served by a trolley system called the San Jose Railroads and prior to that there as a broader system call the Peninsular Railway that went as far north as Palo Alto.

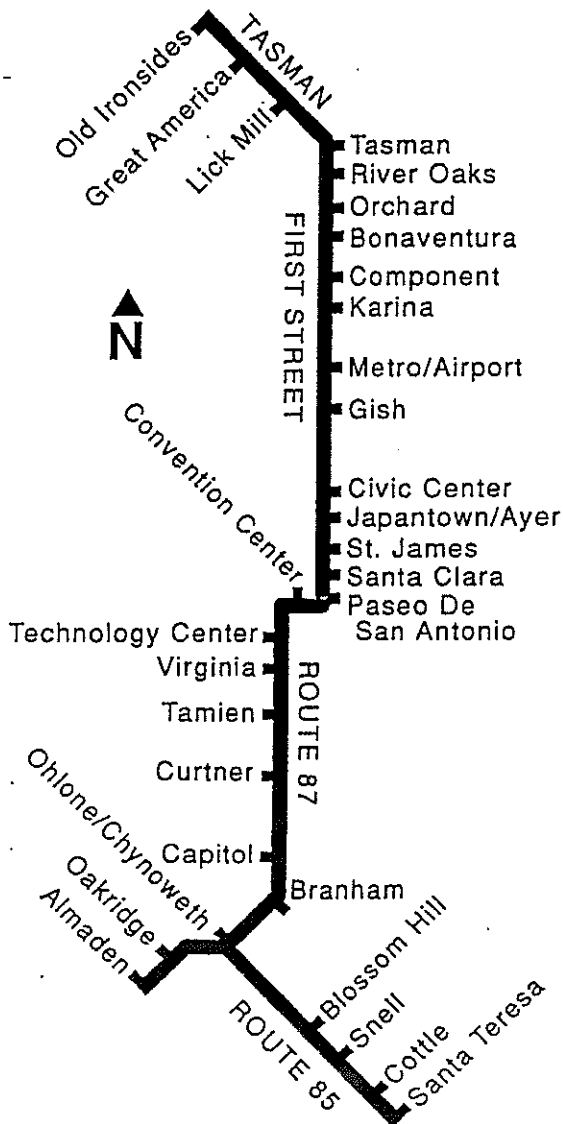
With all the remembrances of the previous systems, there were immediate thoughts about getting some vintage cars back running on part of the new line. Peninsular Railway car #61 had been partially restored a few years earlier and had been on display. There were also a couple of other quite visible cars used for farm labor housing south of town. It is not certain who initiated the restorations of old trolleys, or when it was decided that maybe the new and the old could run together. It all happened in the early design stages of the new Light Rail line.

The Santa Clara County Transportation Agency, Light Rail Division has twenty one miles of standard gauge track with 50 UTDC Canadian built LRV's. The Historic Trolley portion is about four and a half miles long and consists of six restored standard gauge trolley cars. Possible additions will be a Fresno Birney car, Russian work car and perhaps, a Chinese vehicle. All of the historic vehicles are restored to their original condition as closely as possible.

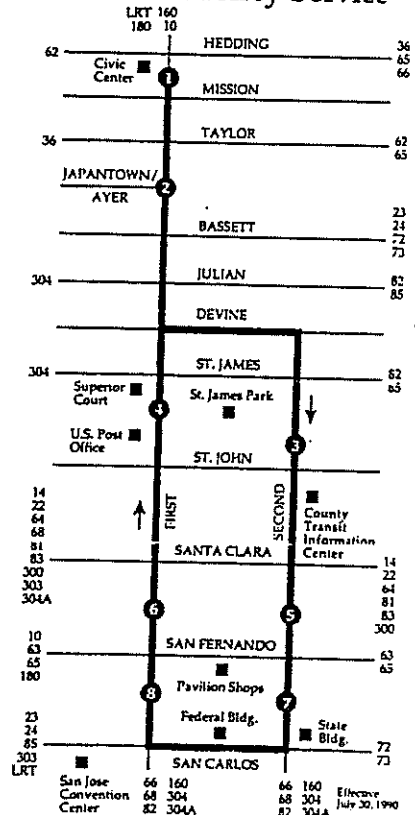
LRV service was started in the downtown transit mall on June 17, 1988 and the first historic car started running on November 8, 1988.

As of the first of January, 1992, the historic trolleys run from 11:00 a.m. to 7:00 p.m. and the regular fare is 50 cents. Monday through Friday a single car is usually operated every 40 minutes and on the weekends two cars operate giving 20 minute service. Extra cars are added for special holidays and are also available for charter.

During 1991, there were 143, 322 passengers that rode the historic trolleys in downtown San Jose.



Historic Trolley Service



Bus/Rail Connections and Passenger Stops

1. CIVIC CENTER-10, 36, 62, 65, 66, 160, 180, LRT
2. JAPANTOWN/AYER-10, 66, LRT
- 3/4. ST. JAMES-10, 23, 24, 66, 72, 73, 82, 85, 160, 180, 304, LRT
- 5/6. SANTA CLARA-10, 14, 22, 23, 24, 63, 64, 65, 66, 68, 72, 73, 81, 82, 83, 85, 160, 180, 300, 303, 304/304A, LRT
- 7/8. PASEO DE SAN ANTONIO-23, 24, 66, 68, 72, 73, 82, 85, 160, 303, 304/304A, LRT

RAILROAD DEVELOPMENT IN THE SANTA CLARA VALLEY

San Jose's first railroad connection was with San Francisco in 1864, through service started to San Jose on January 17th of that year. This was an independent rail system under the name of the San Francisco and San Jose Railroad. A short time later the Southern Pacific purchased this railroad and began extending it south. Service was open to Gilroy by 1869.

The narrow gauge South Pacific Coast entered San Jose from the north in February 1877 and a line over the mountains to Santa Cruz was completed in May of 1888. The complete South Pacific Coast line operated from Alameda to Santa Cruz. It was gradually standard gauged and taken over by the Southern Pacific about the time of the 1906 earthquake.

Horse cars started operating on the Alameda between San Jose and Santa Clara in the late 1860's. Within a few years there were several competing lines, operating in all directions. During the 1880's, cables were discussed as method of propulsion, also underground power cables were tried to keep wires out of sight. Overhead trolley won out when troubles were experienced with the underground collector system.

By mid 1899, a successful electric trolley system finally started operating. A number of independent narrow gauge lines started radiating in several directions with trolley cars of all descriptions. These lines included service to Santa Clara, Alum Rock Park and the Cemetery south.

By 1915, there were 126 miles of trolley wire in the Santa Clara Valley, and the street cars were at the height of their popularity. By this time, there were two systems, one of which was the Peninsular Railway that ran to Palo Alto, Congress Springs, Los Gatos, Saratoga, Campbell and Alum Rock Park.

At one time there were plans to continue north to San Mateo and connect with the United Railroads, which would allow a continuous trolley operation from San Jose to San Francisco.

From 1914 to mid 30's, eight fifty five foot interurban cars operated on the Peninsular Railway and they were the pride of the system. They were numbered 105 112 and were built by Jewett Car Company in 1913. These cars were the same as the 1000 series of the Pacific Electric Railway in Los Angeles, and after abandonment, they were sent to the PE where they lived out their lives as 1050-1057 until they were scrapped in the 1950's.

The other company was the San Jose Railroad. It was related to the Peninsular, with which it sometimes exchanged cars, and also shared some track. However, the San Jose Railroad operated primarily within the city limits of San Jose, with the exception of a northern extension to the City of Santa Clara.

The Peninsular Railway abandoned all service with the closing of the Mayfield line in October, 1934. The remaining equipment included some city cars, a box motor, wrecker and line car, along with about 12 miles of track in city streets were conveyed to the San Jose Railroad.

The San Jose Railroad was faced with declining ridership, competition from automobiles and the great depression. A number of steps were taken to try to keep the trolley line in operation. Birney cars were purchased, faster schedules were established, and older cars were converted for one man operation. Some cars were sold and busses were purchased, much of the rail was badly worn and there were continuous arguments about street maintenance.

The San Jose Railroad continued to operate until the 10th of April, 1938, at which time all of the South Bay area said farewell to their once proud street car system.

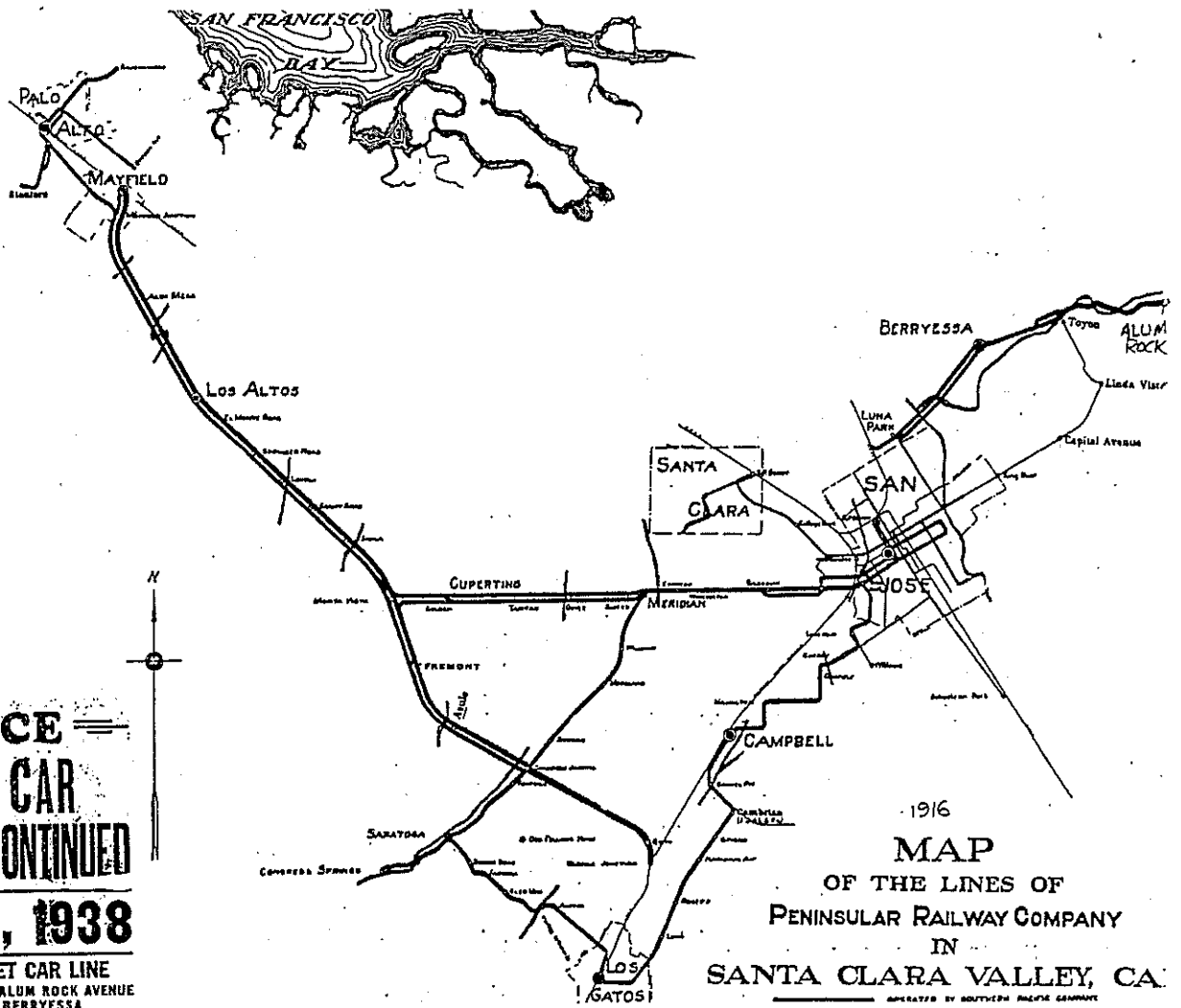
The last two lines to operate were the Santa Clara-Linda Vista Line and the Bascom-Downtown line. Trolley freight operations continued in the Berryessa area for a short time longer, they were later taken over by the parent Southern Pacific.

Following the end of trolley service in San Jose, rails in the street were paved over, car bodies were stripped of all usable metal and the remains sold to farmers for storage sheds, while some went for living quarters. In the later 1950's, the body of Peninsular Railway Car #61 was lifted out of a back yard and taken to Lou's Village Restaurant where it was partially restored as a museum piece. It, along with the body of car #52, eventually made their way to Rio Vista Junction, where they are now in the Bay Area Electric Museum. Cars #73 and #124 were restored by the San Jose Trolley Corporation and are now operated daily by the Santa Clara County Transportation Agency in the San Jose downtown transit mall.

RETURN OF SAN JOSE TROLLEYS

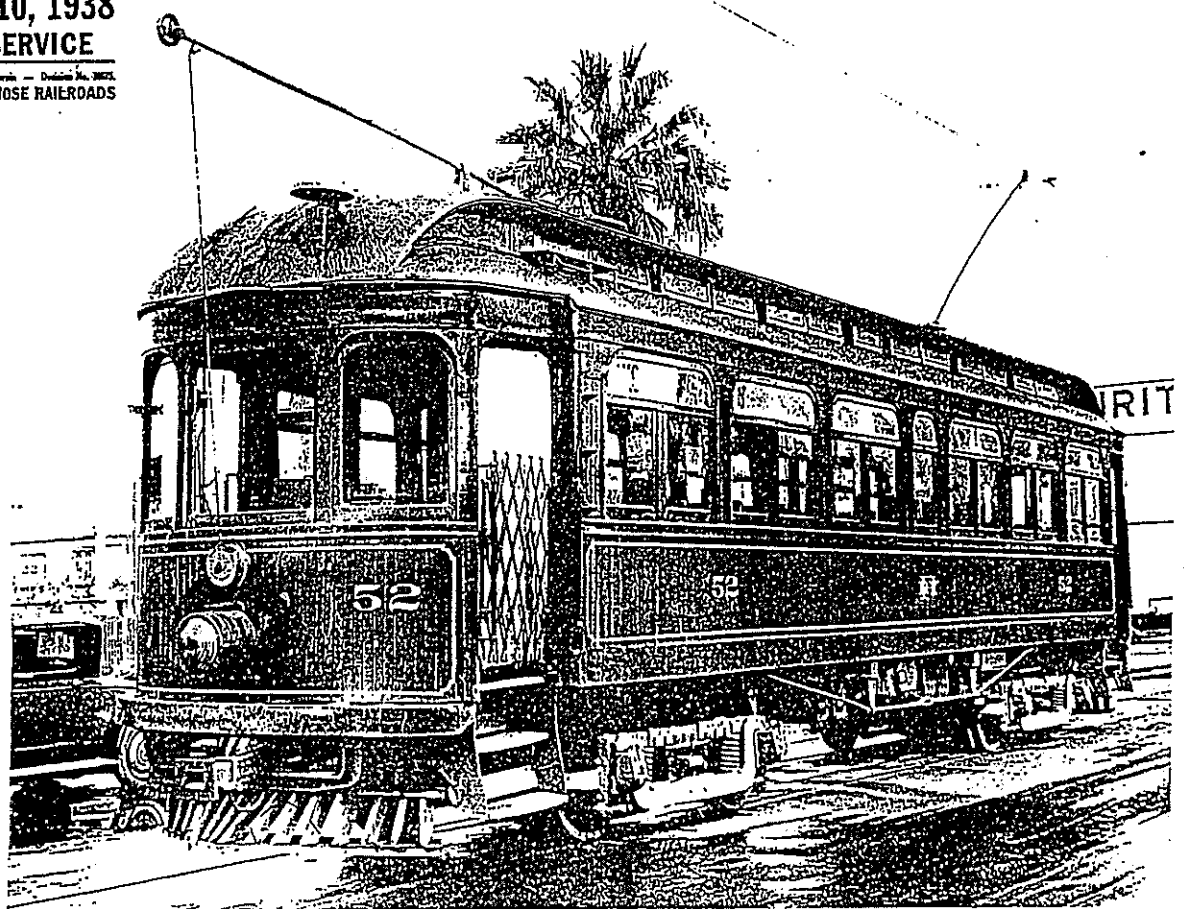
With the surge of interest in building a new light rail line system in San Jose, there were a few rail enthusiasts who remembered the earlier trolley cars that operated downtown and they expressed an interest in finding some old trolley car bodies that could be restored.

The first car to be obtained was actually Sacramento car #35, which had been in operation until about 1948. Its body was sold for use as a storage shed near Roseville. This car was picked up by Charles Smallwood, placed on a pair of dummy trucks and stored at Rio Vista in the trolley museum.



NOTICE
STREET CAR
SERVICE DISCONTINUED
APRIL 11, 1938
 BERRYESSA STREET CAR LINE
 BETWEEN KING ROAD AND ALUM ROCK AVENUE
 AND THE TOWN OF BERRYESSA
SUNDAY, APRIL 10, 1938
LAST DAY OF SERVICE
By Order of the Railroad Commission of the State of California - Division No. 3022
SAN JOSE RAILROADS

1916
MAP
 OF THE LINES OF
 PENINSULAR RAILWAY COMPANY
 IN
 SANTA CLARA VALLEY, CA.
OPERATED BY SOUTHERN PACIFIC COMPANY



It was later donated to the San Jose Trolley Corporation with the stipulation that it be numbered #129 and be painted the yellow, red, and gray of the San Jose Railroad colors.

In the early 1980's , two former San Jose trolley cars were located along Almaden Road. They had been used for farm worker housing and had badly deteriorated over the years they had sat on the ground . These car bodies (Peninsular #73 and San Jose Railroads #124) were moved to Kelley Park at the San Jose Historical Museum in 1982. About the same time , it became apparent that some sort of organization was needed if these cars were going to be properly restored and made suitable for operation.

TROLLEY CORPORATION ESTABLISHED

The San Jose Trolley Corporation was formed in 1982 for the purpose of restoring historic trolley cars. Depending on the extent of restoration, rebuilding of trolleys can be a very complex operation. Starting with an old termite eaten car body, and ending up with a fully operational vehicle that will meet all Public Utilities Commission (PUC) requirements for revenue passenger service is a lengthy undertaking. Without an organization , the cars remained on the ground for several months, and little progress was made to restore them. Interested fans took a look, some sanded a little to see what the other colors of paint were that had covered the body over the years. It soon became apparent that if these cars were going to be restored, there was a lot of work to be done and a lot of money would be needed. Buildings would be needed, qualified workers to turn axles, weld under frames, wire the high voltage systems, replace the roofs and windows, put the air brakes back on, the list went on and on.

The new San Jose Trolley Corporation included charter members, such as Rod Diridon, a well known Santa Clara County Supervisor with a great interest of rail transportation in the Santa Clara valley. He was joined by a group of industry leaders including lawyers, businessmen, labor leaders, skilled workers and numbers of very willing people who were anxious to follow instructions and do most any task.

One of their first projects was to build a trolley barn in Kelley Park in South San Jose. PG&E, along with several building contractors, donated materials and labor to construct this 3-track building with several work areas. Old machine shop equipment was donated along with wood working tools. All kinds of tools seemed to find their way to the trolley building along with many people who wanted to help.

SUPERVISION FOR TROLLEY SHOP

The next task was to search the country for an experienced "Master Car Builder", a full-time position.

This person needed to have street car restoration experience and had to be someone who could direct volunteers in fields as varied as woodworking, painting, electricians, machinists, pattern makers, upholsterers and glass cutters. At the same time, this person needed to be able to work with high school and college students who wanted to get involved in special projects for school credit. People were needed to make structural drawings, wiring drawings and air pipe layouts.

Fred Bennett was hired from the Branford Museum in Connecticut, and for more than 8 years has patiently overseen the work as the cars have changed from rotted sheds to beautiful works of art comparable to a trolley just delivered from the original car builder.

Each of our first trolley cars took over three years to bring back to life. This represents a lot of hard labor, but that is only part of the reconstruction. Each restored trolley car takes a lot of money to bring it back to life. For example, the two car bodies we recovered from Almaden Valley had been resting on the ground for nearly 50 years. Much of the work body was rotted away or was full of termites. Nearly every metal part had been removed before the car body was sold at the San Jose Railroads scrap yard on San Carlos Street. The wheels and axles were gone, along with traction motors, air compressor, controls and air brake equipment. When used as houses, sides were removed and bathrooms were installed, holes were cut in the floor, windows knocked out and roof lines were changed.

They did not have much to work with, but with a closer look and a little imagination, you could still see an old street car when looking at the sheds. Looking for new hardware for a car built 90 years ago is a full-time job in itself. New wheels and axles were purchased so that our cars could run on the Santa Clara County Transportation Agency Light Rail System and meet railroad standards.

K-35 controllers were purchased from Milan, Italy. Air compressors were purchased or traded from other trolley museums. Many wooden patterns were made and taken to the local foundries to get parts for seats, couplers, queen posts, brake handles and numerous other pieces of hardware. New high voltage wire was purchased along with heavy duty steel air piping. Trolley poles are still made as well as whistles and bells. But all this adds up, and each car probably costs about \$200,000 by the time it is completed.

PARTS FOR RESTORING OLD TROLLEYS

Obtaining parts to reconstruct historic trolleys is an endless task. The first car was delivered with a body in reasonable shape and it also had a pair of turn of the century American Brill 27G trailer trucks. The wheels were worn beyond condemning limits, so it was necessary to purchase new wheels from Standard Steel, of Burnham, Pennsylvania. These were purchased to match the LRV's with AAR standard contour, but slightly more clearance back to back to allow for operation on down to 80 foot radius curves.

With only the set of trailer trucks, it was necessary to obtain matching power trucks. As a result, a pair of Brill 27G Italian built power trucks were purchased from a museum in Minnesota. There is some difference in the two trucks, such as wheel base, axle diameter and hardware; however, only a sharp traction fan would notice the difference.

It was decided to keep two motors in one truck and run the other as trailer truck, rather than one motor in each truck as had been the operation standard in the early days in San Jose. Cars #124 and #129 now operate with mixed Brill trucks and full (5 1/2) inch wide tires.

The next trucks that were available were two pairs from Melbourne, Australia delivered with cars #403 and #531. These trucks are very similar to American built M.C.B. types as used in many high speed cars and locomotives. When these trucks were received from Melbourne, they had narrow transit type tires and would have dropped through the frogs on the LRV system, so it was necessary to replace the old tires.

During a study of the Melbourne truck frames, it was determined that a wheel set with 5 1/2 inch wide tires would not fit without contacting the equalizer or other truck hardware.

Some earlier electric interurban cars that were designed to operate partially over steam railroads had a "compromise" wheel that would operate on street railways as well as steam mainline. These cars had tires measuring nearly 4 1/2 inches wide. Tests were made through our Light Rail yard and over various switches and it was determined that the 4 1/2 inch wide tire would operate safely and had several years of reserve metal to keep it from dropping into #4 switch frogs. As a result, four of our vintage cars will have compromise 4 1/2 inch tires. In over two years of regular operation, car #73 has shown little wear on any of the tire surfaces. This particular car also has composition shoes.

The first vintage street car was placed in service in November 1988; to date, no wheel turning on the Hegenscheidt lathe has been required. A few minor slid flat wheels have been experienced; however they have all been small enough to wear back round or to true up with hand grinding.

All cars are equipped with GE K-35 controllers, while all but the Australian car have LB-2 line breaker control handles. That particular car is equipped with an older ratchet type line breaker control which has provided very reliable service.

A slight reverse movement on the operating handle or either controller unlatches the power to the overhead line breaker, immediately dropping the power to the traction motors. This safety provision has been used as a near equivalent to a "dead man" system for nearly a century.

In addition to the controller-power off provisions, vintage cars are all equipped with a series overhead line breaker switch at each end of the car. This allows the conductor in the rear of the car to also cut off power in an emergency.

MUSEUM STANDARDS NEED UPGRADE FOR PUC REQUIREMENTS

Most vintage street cars are restored to a museum standard that is usually a thing of beauty with much polished wood, bright brass and glistening paint.

In order to operate a Historic Trolley in revenue service, much more work is required.

The window glass at the ends of the car must be safety plate, seats and gates must always operate properly and the brakes must pass strict stopping distance tests. Steps must have the required clearance, trucks must be completely overhauled and meet operating railroad requirements. The whistle and bells must work at 75 to 80 DBA, and the hand brakes must be able to hold a full car on the steepest grade.

When operating in revenue service, trolley cars come under California Public Utilities Commission, and they are subject to the same rules as the Light Rail cars.

All doors or gates must be closed before a car can proceed. No one is allowed to hang on the outside of a trolley car like is seen in the old cable cars.

Milan Car #2001 required major repairs and strengthening of the underframe before it could be operated in mixed service. This car is now designed to handle end contacts up to one "G" and not damage the underframe. In addition to operating in the down town mall, this vehicle will also be permitted to operate North to Great America where the speed limit is 35 mph. This car will be equipped with a pantograph to operate in charter service where there are no overhead trolley frogs.

TROLLEY OVERHEAD POWER

Overhead power for Santa Clara County's Light Rail System is supplied at 840 volts DC to the overhead. Historically, most trolley systems operated from 550 to 600 volts DC. Therefore a voltage dropping device is required to protect the traction motors and other electrical equipment. Several exotic devices were investigated such as multiple groups of semiconductor conductors for dropping voltage and maintaining uniform output with various loading. Reducing DC from 900 to 600 volts at 200 amps with electronic circuits has not yet been developed to meet high voltage and current trolley car requirements. Trolley cars at San Jose now use a heavy duty two ohm dropping resistor for the power circuit and other combinations of resistors for the compressor and controller latching. The power resistor arrangement is made up of sixteen .89 ohm Milwaukee resistor elements, part #792. This provides eight even steps of power, five in series parallel and three in straight parallel.

Current limiting is handled by a GE DB-986 overhead line breaker set to trip at 200 amps. This setting provides overload protection to the traction motors and will trip if the operator advances the K-35 controller faster than a step at a time. The air compressor (CP-25) has a 90 ohm resistor in a series to drop the DC voltage 5 amps.

Lighting circuits are made up of two sets of seven GE 56 watt 120 volt street railway lamps in series. A headlight switch directs power either to the headlight or to an overhead lamp above the operator. With the overhead lamp ON, it is an indication that the headlight is OFF. Each vintage car has a total of 16-120 lamps, with the location of lamps varying with the style of car. Some have step lights, if steps are at the corners and lights at night will help passengers. Car #2001 is equipped with a two level headlight, providing a bright high beam for operating on private right of way.

DOWNTOWN OVERHEAD WIRE

Integrating vintage trolleys with LRV's in the Mall area of downtown San Jose was considered before the contact wire was strung in that area. Trolley wire frogs were installed as the overhead was first being put up; also additional tie wires were installed and circuit isolators were revamped to accept trolley poles. In the downtown area, all of the Siemens insulator clamps were replaced by Ohio Brass hollow screw clamps so that the trolley car J type shoes would operate without snagging.

Regular routes were established for trolley cars on Younger Street and through the shop so that all the overhead wire involved was equipped with the required trolley frogs. The downtown area is completely equipped with overhead frogs so that vintage cars can continue to look the mall of pull out of the way of LRV's on the north bound loop of First Street, at St. James.

SCHEDULING

Trolley cars are scheduled to follow right after LRV's whenever possible. When departing from the shop hold over point, trolleys wait for scheduled LRV's to pass before entering the main line. If an LRV is in sight on the downtown loop heading back north, the historic trolley will hold up to let it pass, avoiding any possible delay to the Light Rail on First Street.

Heaviest usage of historic cars usually occurs between 11:30AM and 1:30PM when office workers take the vehicles downtown for lunch. During the Thanksgiving and Christmas holidays, patronage is high when the cars are running to accommodate shoppers and people that want to visit the downtown holiday displays.

HISTORIC TROLLEY HOURS OF SERVICE

Normal trolley service are from 11:00AM to 6:00PM weekends and holidays. Trolleys run every 20 minutes between the Civic Center Station and downtown, a distance of four (4) miles.

FARES

Regular Historic Trolley fares are 50 cents for adults (18-64 years) and youth (5-17 years). Seniors (65+years) and disabled passengers pay 25 cents. Tickets have a two hour time limit. Tickets may be purchased from ticket vending machines at the Transit Mall of Civic Center Light Rail Station. There is a button on the vending machine marked "Historic Trolley". Valid Santa Clara County Transit District bus and light rail passes are good on historic trolleys, but historic trolley tickets are not valid for travel on LRV's or buses.

PUBLIC ATTENDANCE

The introduction of Historic Trolleys to the downtown area was overwhelmingly accepted. As each car is completed, it is introduced downtown with a special celebration. The sponsors name is attached on a plaque to the car and there are usually a few speeches and a couple of days of free rides. If it is a from another, dignitaries are invited to celebrate with the christening.

Combining the historic trolleys with the new streamline light rail cars provides a very attractive contrast in rail transportation. The local residence enjoy a step back in history by being able to climb on the old fashioned cars that served the city 75 years ago. Tourists and rail fans enjoy riding and photographing the San Jose trolleys. Many of them plan trips to visit and ride our system just like a planned tour of San Francisco to ride the cable cars.

TROLLEY CARS IN SERVICE

CAR #1

Car #1 was built by the Sacramento Electric, Gas and Railway Company and ran in Sacramento from 1903 to 1906. It was sold to the new standard gauge Union Traction Company in Santa Cruz, California in 1907, going into service after the 1906 earthquake. In 1923, it was taken out of service and used as living quarters behind the French Laundry on lower Pacific Avenue. The laundry owner donated the deteriorated car body which was then in two pieces, to the San Jose Trolley Corporation. A complete new steel underframe replaced the rotten wood floor. The car was then reconstructed one board at a time with wood sides and brass hardware. Enough of the old car sides were saved so that the body could be restored to the original convertible configuration. For summer time at the beach, the windows and sides could be removed, making it a completely open car. The interior of the car is solid ash. It was returned to service in San Jose on August 3, 1990.

CAR #73

Car #73 was built by the Jewett Car Company in Newark, Ohio. It ran in San Jose for the San Jose Railroad from 1913 to 1934, when it was sold for use as housing on Old Almaden Road. Car #73's exterior is bright yellow (similar to car #129), contrasting with a rich mahogany interior that is almost identical to car #124. Car #73 returned to service on May 12, 1989.

CAR #124

Car #124 was built for the San Jose Railroad by the American Car Company in St. Louis, Missouri. It ran in San Jose from 1912 to 1934 when it was sold with Car #73 for use as housing. In 1920, its original red paint scheme was changed to yellow and windows were added to close the open sections. Car #124 was restored and returned to service in San Jose on November 19, 1988.

CAR #129

Car #129 was built by the American Car Company for Sacramento Gas and Electric. It operated in Sacramento as Car #35 from 1913 to 1948 and is identical to cars which ran in Santa Clara County. After 1948, the car was used as a storage shed before being acquired by Charles Smallwood and leased to the San Jose Trolley Corporation for restoration. Before his death in 1986, Mr. Smallwood requested the Corporation renumber #35 to car #129. It returned to service on November 18, 1988.

CAR #531

Car #531 was built in 1928 by the workshops of the Melbourne and Metropolitan Tramways Board (M&MTB) in Melbourne, Australia and ran on the 200-mile Melbourne trolley system from 1928 to the mid 1980's. After it was retired from service following an upgrade of M&MTB's trolley fleet, the San Jose Trolley Corporation bought the vintage trolley in 1986. Restored to its original factory fresh chocolate and cream paint scheme, Car #531 features Tasmanian mahogany and polished chrome accents. It began service in San Jose in January 26, 1990.

CAR #2001

Car #2001 was obtained from Milan, Italy, and was part of the group numbered 1993 to 2002 built for AZIENDA TRANSPORTI Municipali. The car was built for single end operation and had three doors on the right side, it was unlike all of the other trolley equipment in San Jose that is equipped for double end operation and has doors on both sides.

The underframe appeared to be took weak at the ends, and it was desirable to rebuild this car into a special charter car for possible service north to Santa Clara. The reconstruction of this car involved extensive steel work, the exchange of ends from car 1943, new doors on the blind side along with heavy collision posts, and removal of many old and rusted structural parts.

Historic Trolley Data

CAR #1

BUILDER Sacramento Gas & Electric Co. 1903
WEIGHT 34,000
SEATS 48
TRUCKS Milan 1928
MOTORS 4 Milan 27 HP
CONTROL GE K-35KK
COMPRESSOR CP25

CAR #129

BUILDER American Car Co. 1913
WEIGHT 38,000
SEATS 36
TRUCKS Power - Brill 27G 4 '6" wheel base
Trailer - Brill 27G 4 '10" wheel base
MOTORS 2 Brown Bouarie, 65 HP
CONTROL GE K 35KK
COMPRESSOR CP 25

CAR #73

BUILDER Jewett Car Company 1913
WEIGHT 38,000
SEATS 36
TRUCKS Melbourne
MOTORS 4-40 HP
CONTROL GE K-35 KK
COMPRESSOR CP 27

CAR #531

BUILDER (M&MTB) Melbourne, Australia 1928
WEIGHT 36,000
SEATS 56
TRUCKS Melbourne
MOTORS 4-40 HP
CONTROL GE K-35 JJ
COMPRESSOR CP25

CAR # 124

BUILDER American Car Co. 1912
WEIGHT 38,000
SEATS 36
TRUCKS Power- Brill 27G 4'6" wheel base
Trailer- Brill 27G 4'10" wheel base
MOTORS 2 Brown Bovarie 65 HP
CONTROL GE K-35KK
COMPRESSOR CP25

CAR #2001

BUILDER Officine Neccaniche Lodigiane-Lodi 1929
WEIGHT 36,000
SEATS 29
TRUCKS Milan 1928
MOTORS 4-Milan 27 HP
CONTROL GE K-35KK
COMPRESSOR CP 27

OPERATING COSTS

1991 Trolley Operation-Approximate Costs per year

PERSONNEL - SALARIES & BENEFITS

6.0	Operators	\$275,000.00
1.0	Manager / Supervision	80,000.00
2.0	Electro-Mechanics	100,000.00
	Administrative Support and Overhead	115,000.00

SERVICES AND SUPPLIES

	Insurance	\$16,000.00
	Traction Power	21,000.00
	Vehicle Parts	20,000.00
	Tools and Equipment	4,000.00
	Vehicle Delivery	2,500.00
	Total	\$641,500.00

FIXED COSTS

Initial cost for construction of maintenance and storage facility for six Historic Trolleys and necessary improvements for their operation including powered switches, trolley pole provisions and transponders: \$1,900,000.00

LEASE AGREEMENT FOR SIX HISTORIC TROLLEY CARS

The Santa Clara County Transit District Board of Supervisors leases completed trolley cars from the San Jose Trolley corporation at a nominal one dollar per year. The district is also responsible for all operations and maintenance. Historic trolleys run on the San Jose Transit Mall and other such sections of the Guadalupe corridor Light Rail System as permitted by the District.

All operations of the historic trolleys are under the direction of the Transit District including, but not limited to: general purpose and function; method of operation; fare structure and method of collection; and charter usage. The District is unable to alter the appearance of any historic trolley in any way without approval by the Trolley corporation. The collection of fares, operational procedures and security measures are the responsibility of the District. The District is also encouraged to implement such programs to discourage the use of the trolley vehicles for any purpose than public transportation.

If a historic trolley is totally destroyed, the insurance payment covering the necessary parts, components, wheels, body, motor frame, brake system shall be remitted to the San Jose Trolley Corporation. It will be their determination to obtain and rehabilitate another similar historic trolley.

FINANCING

The cost for all materials and parts needed to equip a car body probably rounds out to about \$200,000.00 To this is added a few thousand hours of volunteer labor and supervision. After the vintage car is assembled at Kelley Park Trolley Barn, it is moved on a flat-bed trailer and taken to the Light Rail Maintenance facility where the show crew usually spends three or four weeks to complete detail work and check safety appliances. Lengthy tests are made to insure that the car is ready for revenue service.

Money to purchase wheels, motors, controllers, air brake equipment and all the other required hardware is obtained from various sources. Many of the local business people have contributed generous sums, including: The Fairmont Hotel, San Jose Mercury News, Heritage Cablevision, Hugh Stuart Center Charitable Trust, Collishaw Corporation, Pacific Gas and Electric, California Engineering, UTDC, Peninsula Crane and Rigging, and Kearney Patern Works, along with many donations from the volunteer workers who developed more of an interest as they worked restoring the cars.

DOWNTOWN OPERATION

Operating historic street cars on downtown streets has generated a great deal of public pride by providing visible ties to our community's past. With a mixture of old and new building styles in the downtown, the combination of old and new rail cars present a compatible blend of service.

The pleasant attitude of our regular Trolley car operators gives the old and new passengers a warm feeling as they board and ride through the downtown area. Both LRV's and historic cars make the same stops, with a maximum speed in the mall held to 15 miles per hour. Trolleys tend to stay at 15 miles per hour; however, in separated center sections of track on North First Street, vintage trolleys may increase their speed up to 25 miles per hour or more.

Rail fans and tourists find riding and photography of the old cars a great pastime, but the largest share of the riders are locals. At noon-time there are several large surges of working people that ride downtown for lunch. Many shoppers just ride a stop or two, and then later catch an LRV or a bus home. At nearly any time of the day, you can find families, school groups, business people, and numerous others just taking a ride or two for the pleasure of the trip. During the Christmas season, with an increased shopping push, two cars are usually operated continuously, and the cars remain generally full.

Our historic cars have been involved in a few minor accidents with automobiles, in all no one was hurt. All trolley cars have a standard height anticlimb bumper that also locks with an LRT if bumped together at the end. The anticlimber holds the cars together and prevents them from climbing over each other and wiping out the end of the car. All trolleys have reinforced ends to protect the passengers and operators. Vintage cars are not designed for high speed, main line service; the only exception to this is the Milan car that has been converted from single-end to double-end operation. This steel car has heavy posts at both ends, with reinforced end platforms and a pantagraph. It will be able to operate north to Santa Clara in the median of First Street and Tasman. Here trolley speed will be governed by the trucks and low gear ratio of traction motors, probably not exceeding 25 miles per hour. When operational, this car will be available for charters in addition to regular downtown service.

TRAINING

Prior to running a historic trolley in San Jose, an operator must have a Class B Commercial drivers license, they must have taken the necessary bus operation training to get that license, then complete the light rail training. They may then take the one week "Historic Trolley Training Course", starting with a special "book of rules" section and test, followed by a review of the car equipment and operating procedures .

A "hands on" examination is given, including use of air brakes, the controller, trolley pole power pick up, transponder, running lights and emergency stops without air brakes. All of this is followed with an operation qualification test. Portions of the examination must be 100% correct or the course must be taken over.

INCLEMENT WEATHER

During inclement weather, patronage on the historic trolleys usually drops. In addition, four trolley cars are "California Cars" and have open ends, with much exposed finished wood and rattan seats, so these cars are kept inside during the rainy season. However car #531 is enclosed and has windshield wipers and is usually operated during the rainy season. When completed, the Milan Car #2001 will also be enclosed and have windshield wipers.

SUMMARY

Bringing back a group of Historic Trolleys cars to operate in downtown San Jose on the Light Rail tracks has helped to develop a new interest in the heart of the city. Vintage trolley cars add a lot to the personality of the rail system, particularly if they are like the cars that use to operate in the same area. A few of the cars should be just like the originals painted as they were 75 years ago. Additional trolleys can be obtained from other countries, such as "sister cities" in maybe Japan or Russia. San Jose's Australian and Italian cars add a lot of culture and charm to the downtown with their different colors and signs.

Each historic trolley may have a big price tag attached, whether it was restored by volunteers, purchased as a replica or obtained from another country. However, when one considers the civic pride that these beautiful pieces of transportation history bring, and the way a historic program can strengthen visible ties to the communities past, it is well worth all the time and money invested. With a little work, local dollars can usually be located that will gladly be invested in living history. Brass plaques on each car indicate who the contributors were that supplied money or material to restore each vehicle.

The City of San Jose, County of Santa Clara and the San Jose Trolley Corporation, all working together have set an excellent example of how an historic trolley system can really work. Trolleys are in operation every day from 11:00AM to 7:00PM and everyone is welcome to come and spend some time and ride the vintage cars at San Jose.