

The Puerto Los Cabos Marina Trolley – Designed and Built by TIG Scheduled for completion in early 2007



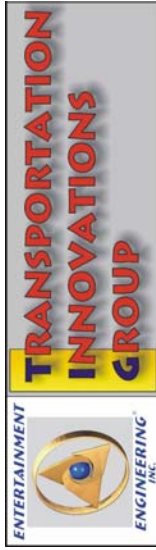
Puerto Los Cabos
san José del cabo, Baja Mexico

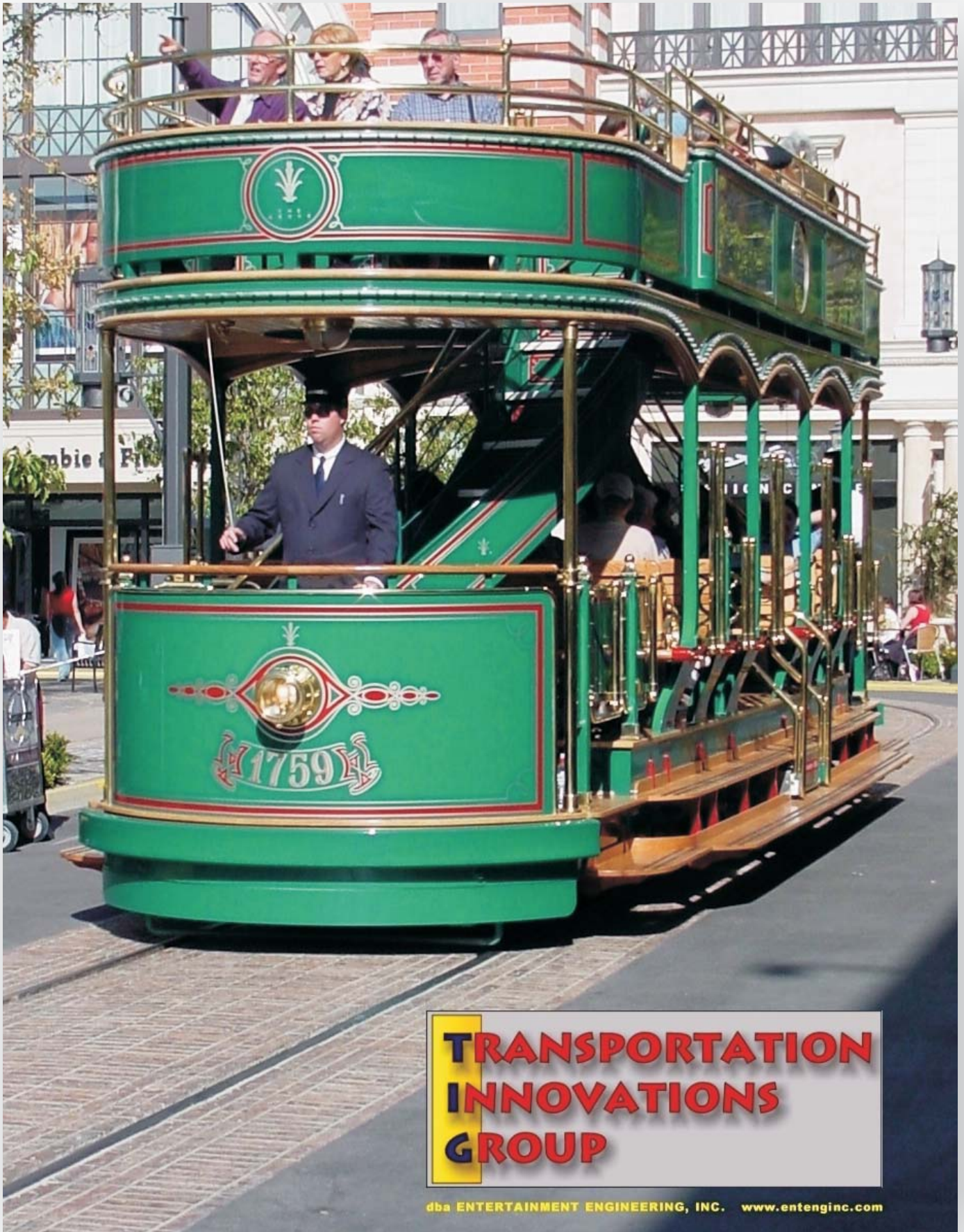


The Puerto Los Cabos Marina Trolley



THE PUERTO LOS CABOS MARINA TROLLEY





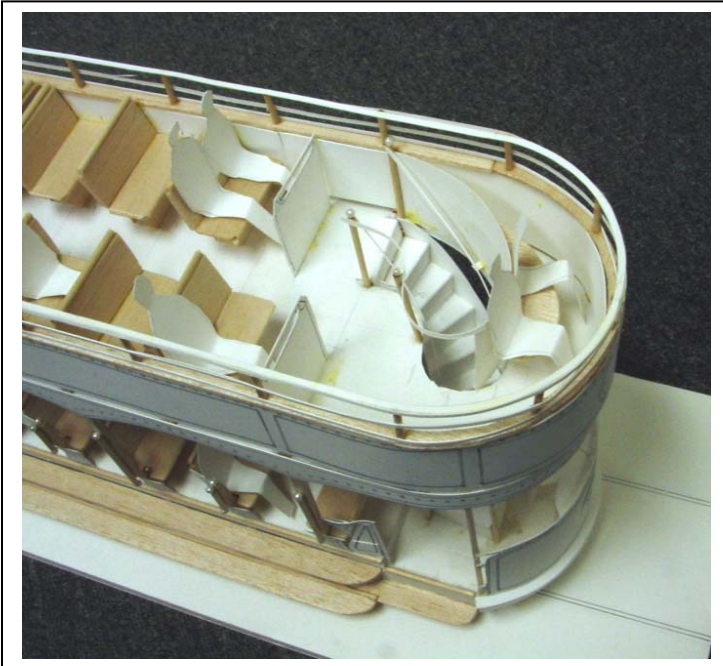
**TRANSPORTATION
INNOVATIONS
GROUP**

dba ENTERTAINMENT ENGINEERING, INC. www.entenginc.com

The Farmers Market Trolley at the Grove in Los Angeles is a battery powered inductively charged steel Trolley

The PLC Trolley is derived from our Farmers Market Trolley with much of its elegant styling and details, yet creating a distinctly different look unique to the Puerto Los Cabos environment.





THE FARMERS MARKET TROLLEY
DESIGNED TO BE A PEOPLE PLEASER, AND SO IT IS



Trolley System Spec (Farmers Market Trolley)

SYSTEM CAPACITY

TROLLEY CAPACITY: 70 passengers
 THROUGHPUT: 560 passengers per hour
 MAXIMUM WAIT TIME: 15 minutes
 ONE WAY TRAVEL TIME: approx. 5 minutes
 NUMBER OF INTERMEDIATE STOPS: 3 stops
 INTERMEDIATE STOP DWELL TIME: 1 minute
 END OF TRAVEL CHARGING STOPS: 1 stop near storage barn
 CHARGING DWELL TIMES: 3 - 4 minutes
 OPERATING HOURS: 9 A.M. - 10 P.M. daily

TRAIN PERFORMANCE

OPERATIONAL SPEED: 6-8 Mph
 MAXIMUM SPEED: 30 mph
 GRADE: 7% max
 ACCELERATION: 0.1-g (0.125-g max)
 DECELERATION: 0.1-g (0.125-g max)
 E-STOP: 0.15-g (0.3-g max) 3-sec, 22.4-ft
 DIRECTION: reversible
 TRAVEL DISTANCE: 1230 ft.

TROLLEY DESIGN

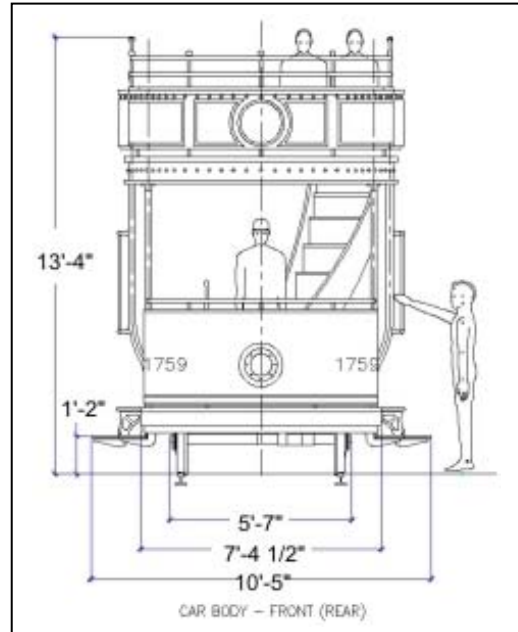
LENGTH: 31' 8"
 HEIGHT: 13' 4" (top of finial)
 MAX WIDTH: 10' 5" (running boards)
 COACH WIDTH: 7'-4 1/2" (lower level)
 ESTIMATED WEIGHT: 41,400 lbs.
 PASSENGER LIVE LOAD: 11,900 lbs. (170 lbs. each)
 TOTAL WEIGHT: 53,300 lbs.
 FRAME: steel
 RAIL: ASCR 60# minimum
 TRACK GAUGE: 4' 8-1/2" standard gauge rail
 TRUCKS: two trucks. Two axles each truck, steered optional
 COMMUNICATIONS: PA with 4-microphone jack locations:
 one at each operator console and one each directly
 above at upper deck
 HANDICAP: wheelchair lift and tie-down provisions

PROPULSION, BRAKING AND SENSING

MOTORS: 300 VAC 20 HP (4 per train). Each axle is powered with an electric motor
 MOTOR CONTROLS: variable frequency drive. Operator speed control
 MOTOR SENSING: encoder for each motor
 SECONDARY POSITION SENSING: in ground magnets and onboard receiver
 NORMAL BRAKING: a fail safe is mounted to the back of each motor
 E-STOP & PARKING BRAKE (OPTIONAL): wheel shoe brakes (4 per train)
 POWER: 300 VDC (quantity 26, 12 VDC sealed lead acid batteries)
 E-STOP INTERLOCKS: operator dead-man switch, under chassis trip hazard bar, (collision avoidance sonar with adjustable distance optional at extra cost)

CHARGING SYSTEM

TYPE: contactless inductive power transfer at one location
 THREE COUPLINGS: three phase power
 SUPPLY VOLTAGE: 480 VAC
 POWER TRANSFER CAPACITY: 30kW (10kW/phase)
 TROLLEY NET CONSUMPTION: 0.75-1.0 kWh/trip





TRANSPORTATION INNOVATIONS GROUP

A DIVISION OF ENTERTAINMENT ENGINEERING
2025 N. GLENOAKS BLVD. SUITE 201
BURBANK, CA 91504
PH 818.954.9100 FX 818.954.8994

UNIQUE FEATURES of TIG TROLLEYS

May 16, 2006

- 1- Our Trolleys as well as our other vehicles are state-of-the-art Electric Vehicles using the best components available today, built for transit service, but also operating as amusement rides.
- 2- All of our vehicles are custom designed, using all new materials and components. Our trolley trucks are newly rebuilt from the original classic PCC streetcar trucks. For Trolleys, we can reproduce any classic trolley from the past, and put them into service without the need for overhead power lines, and can deliver them using steel wheels and rails, or alternatively, using rubber tires and electronic guidance systems.
- 3- We are open to using any available battery systems, but presently find the use of sealed (low maintenance) lead acid batteries to be the most cost effective. We use the type of battery commonly known as “gel cells”, and also known as absorbed glass mat (AGM) valve regulated lead-acid (VRLA). With opportunity charging, energy balancing devices, and voltage and temperature monitoring, we can achieve up to 5 years life on a battery that presently costs about \$200 per 12V package.
- 4- Handicapped access is guaranteed by the use of ADA compliant wheelchair lifts on all of our vehicles.
- 5- Our Trolleys are designed to be an attraction all by themselves, and to further attract people to the environments in which they operate. This is accomplished by themeing, art direction, careful attention to every detail, and the very best workmanship.
- 6- Any Trolley configuration can be designed and built on our electric vehicle platform. This includes double or single decks, open or closed, with heating and air-conditioning in harsh environments, with any style of decorative lighting, and a full compliment of electronic entertainment and audio systems are available on special order.
- 7- Battery powered vehicles can safely operate in any environment for they emit no pollutants, and are ideally suited for indoor use.
- 8- The energy cost to operate our electric vehicles is less than half the cost of a vehicle powered by fossil fuels.
- 9- Our vehicles are designed and built in accordance with industry standards for “Amusement Rides and Devices” as governed by ASTM Committee F24. This incorporates many other standards such as UL, IEEE, etc. In addition, ASCE standards for transportation vehicles are followed where applicable. Our vehicles are generally designed for service in low speed pedestrian corridors, but are capable of operating in higher speed environments.
- 10- We also follow the APTA standard for vintage/heritage trolley vehicle equipment APTA-SS-HT-001-05.





EEI/TIG is a full service design/builder of turn-key Transportation Systems. We provide a full range of fully automated to manually operated vehicles for any application.



Automated/Manual Tram systems



WIRE GUIDANCE ANTENNA



APM Wire Guidance Demonstration
San Diego Zoo's Wild Animal Park
December 2, 2005

Automated/Manual People Movers



Personal Rapid Transit



Rail Vehicles

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