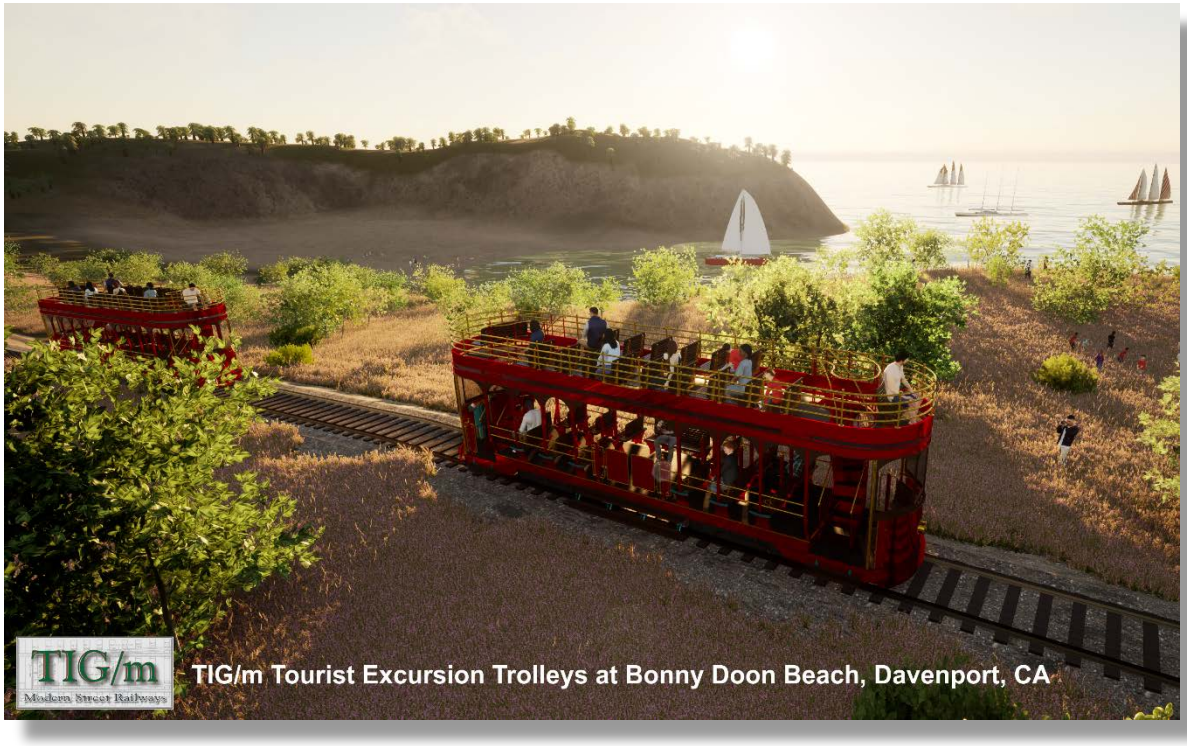
SANTA CRUZ BRANCH LINE RAILWAY

CONCEPT PROPOSAL

with Preliminary Project Cost Model



For submittal to the SCCRTC

By

TIG/m ViaTran®
The art of transportation

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CONTENTS

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Section 1: Project Summary

Summary

A consortium of railway professionals under the TIG/m banner offers to design, build, and deliver a railway Tourist Excursion Service from Capitola to Davenport and all beaches in between. Under a privately funded initiative TIG/m proposes to provide all Financing, Design, Build, Operate and Maintain services to this portion of the SCCRTC for the Branch Line Railway.

1.1 The Story

Brad Read, President, TIG/m, LLC

The City of Santa Cruz, the boardwalk, and the coastal areas surrounding Santa Cruz have always been some of my favorite California destinations. Over the years I have independently developed a vision for the long dormant railway in the area. My background is in developing **and building** transportation solutions, first for the entertainment industry at internationally known theme parks, zoos, and municipal parks, and subsequently in cities around the world for municipal transit purposes. So, I was excited to find that the SCCRTC Rail Transit Feasibility Study came to some of the same conclusions I had about the potential for servicing the local population and tourism industry by utilizing the Branch Line. The difference between the two visions is; mine is more complete, more exciting, more attractive and therefor more economically feasible. But the main advantage of our approach is that my company, TIG/m, has assembled a delivery a team with the experience necessary to envision, finance, design, engineer, build and operate the entire multi-function system through a consortium of industry experts, eliminating the need for the SCCRTC to take each individual scope of services out to bid. This approach, a privately financed sole-source DFBOM project, will save the County many years of effort, hundreds of millions of dollars and will provide the citizens of Santa Cruz county with the fastest means to vastly increased connectivity, pride of place, and prosperity.

We are aware of the sensitivities of the local population to rail vehicles operating along this alignment, the competing uses for this valuable asset including cyclists and pedestrians, and the pressing need for solutions to the county's dilemma of utilizing the right of way to its utmost potential while relieving existing stresses on transportation in the area and complementing and supporting bus service.

1.2 The Team

TIG/m, LLC in coordination Roaring Camp Railroad, Joe Kneib Consulting, and Mark Johannessen are intent upon bringing together our respective teams and industry partners to create a joint development partnership that will be unparalleled in its ability to deliver an excursion railway service to the Branch Line Railway.

TIG/m's delivery team comprises a group of industry experts with years of proven success in each of our respective fields related to railway funding, project management, design, construction, rolling stock manufacturing, safety certification, delivery, and operations and maintenance.

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We believe that the Commission was wise to acquire this right of way and that it represents one of the most unique and attractive potential railway operations in the country today, if it is developed correctly by taking advantage of the innate beauty of the location, ambient attractions, and prime location as a excursion corridor.

It is our goal to work with the SCCRTC, the local interest groups and, indeed, all of the stakeholders and potential users of such a system to assure that everyone is heard and the best possible outcome for everyone is achieved. However, we feel strongly that the guiding ideas of the industry experts included in our team are essential to pushing past the endless rounds of study and review that plague projects like this, delaying progress until such fatigue sets in that nothing ever gets built.

At TIG/m, we get things built!!

Please see APPENDIX A to review the team company overview documents and individual CV's relative to the principals involved in this endeavor.

We hope you see the promise in us that we see in the Santa Cruz Branch Line Railway!

1.3 The Vision

The green line in the illustration below represents the excursion alignment.

Figure 1-1: Our vision for the Santa Cruz Branch Line:

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1.4 The Rolling Stock

1.4.1 The Excursion Lines. The tourist excursion functions will be serviced by TIG/m's revolutionary **self-powered electric rolling stock.** These vehicles utilize a battery-dominant/hydrogen fuel cell hybrid propulsion system, making them completely silent and zero-emission. The vehicles operate on track, with no need for traditional wayside power systems, and are operated and serviced by TIG/m O&M teams. This ground-breaking propulsion system has been proven in service for 20 years, carrying millions of passengers in public operation in the U.S, Aruba, the UAE, and Qatar. All TIG/m rolling stock is designed and built under European Norms EN-50126, 8, and 9 for the highest standards of safety and reliability.

Figure 1-2, Passenger systems rolling stock:

Tourist Excursion Trolleys operating in the Country of Aruba

TIG/m designed and built the first modern-era battery powered streetcar in 1998 and it went into service at the Grove/Framers Market line in Los Angeles in 2000. It has been operating for the last 20 years carrying millions of satisfied passengers at a reliability rate of 99+%. Since that time TIG/m has significantly advanced and improved the design of its proprietary battery-dominant propulsion system and standardized it under the most stringent railway applications standards in the world; the EN-50126-8-9 Codes.

As of this date, TIG/m, LLC has designed and delivered Streetcar and Tram systems for projects and cities in the US, Mexico, Aruba, The United Arab Emirates, Qatar, and China. We were the first company in the world who successfully delivered zero-emission electric rail vehicles that can operate a full 20-hour passenger service day without the need to stop for the

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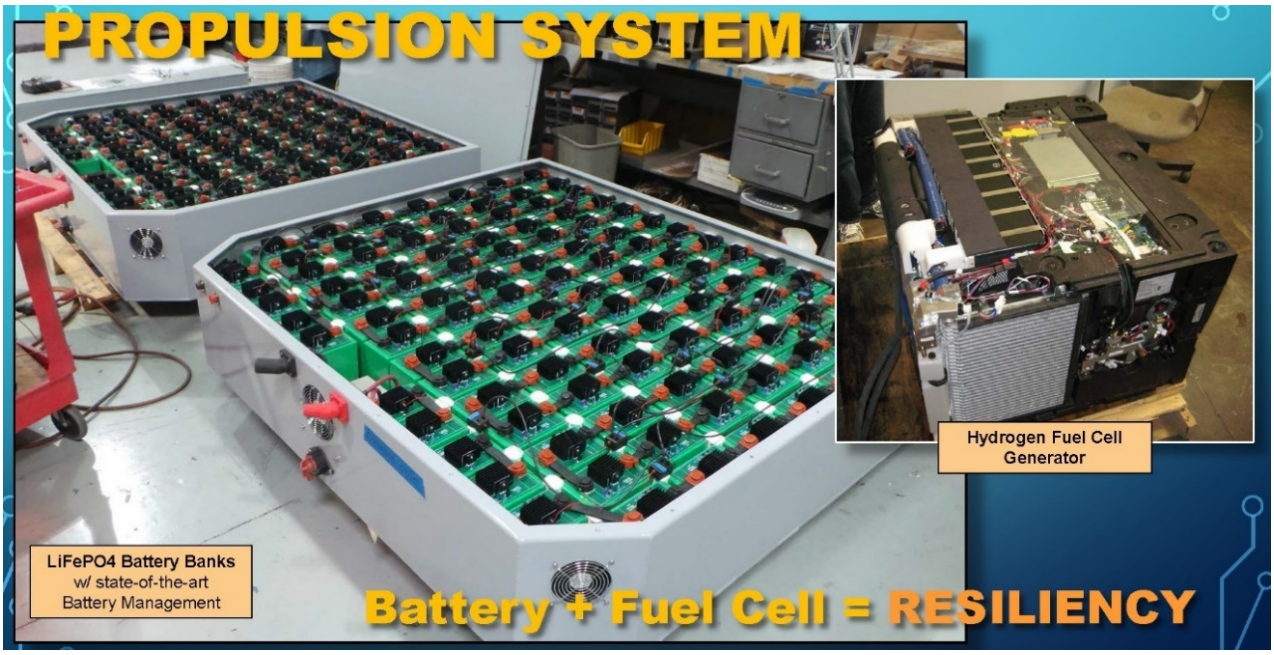
acquisition of additional power during that time. We achieved this by combining the very latest, high energy-density LiFePO⁴ (Lithium Iron-Phosphate) battery systems with a super-efficient regenerative braking function, and an on-board HFC (Hydrogen Fuel Cell) generator that can produce additional electrical energy to further charge the batteries during passenger service if required by conditions of service during the day. At night, during maintenance service hours, the battery systems are charged and balanced for a period of four hours. **See Appendix A**

1.4.2 Zero Carbon Transit. The on-board generator is a hydrogen fuel cell (or an ICE consuming a gaseous fuel such as CNG or LPG if the client prefers). The H² fuel cell option delivers a **zero-emission** vehicle, and if the H² is produced by electrolysis using renewable energy (wind, solar, etc.) the entire transportation system can be qualified as a **zero-carbon system**. We have delivered two such systems (the first in the world) at the eilan project in Texas and the Downtown Streetcar System in Oranjestad, Aruba.

Figure 1-3, Battery Dominant Propulsion system:



It is quite plausible to install a solar/hydrogen/battery energy cycle in Santa Cruz based on the yearly available hours of sunshine and the availability of land for solar collection. TIG/m can engineer, design, and build the system should the RTC decide that zero-emission, zero-carbon transportation is a priority in Sant Cruz.

1.4.3 Silent Operation. TIG/m Trams are exceedingly quiet. The following picture shows an MRV-3A Tram at 20mph, with the air-conditioning running, passing by a sound meter. 70 dB is the sound level of normal conversation.

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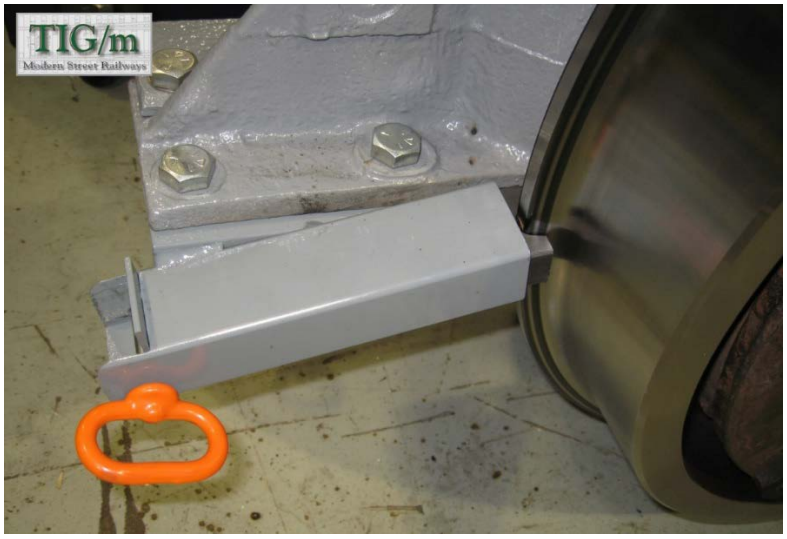
Figure 1-4, dB rating of operational TIG/m Tram:

Wheel noise is mitigated in all TIG/m Trams and Streetcars by our proprietary wheel-flange lubrication system. This system eliminates flange squeal at corners by applying a lubricant to the front and back face of the flange of every wheel on the vehicle.

Figure 1-5, TIG/m proprietary flange lubrication system:



1.4.4 Heritage Trolley Style and Convertibility. For the Tourist excursion services portion of the railway TIG/m has a number of heritage-style trolleys that are suitable, however, we recommend the Double Deck HRT-2A. These beautiful and robust works of art are attractions unto themselves. Their impressive craftsmanship coupled with the high-quality materials (solid bronze castings, solid oak and steel construction, custom hand pin-striped painted finishes) entice all who see them to experience a thrilling open-air excursion; while at

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the same time serving a workmanlike transportation function. The propulsion technology is identical to our modern tram systems making the silent-running, zero-emission electric vehicles. The wide canvas awning on the lower deck provides a shaded breezeway for ultimate comfort on hot sunny days or rainy afternoons. The upper deck, at 12 feet high, provides the ultimate viewing platform for scenic tours of the stunning California coastline and in our operations around the world, these seats are always in demand. The curved ”bow-benches” at the front and rear of the car are the best seats in the house!

Figure 1-9, TIG/m Open Double -Deck Trolley

Seating configurations can be tailored to the type of viewing experience desired as well as the passenger demand and requirement for space devoted to bicycles, picnic baskets, parcels, etc. Coachwork on the lower deck can be customized to provide and open, closed, semi-closed, or convertible passenger compartment.

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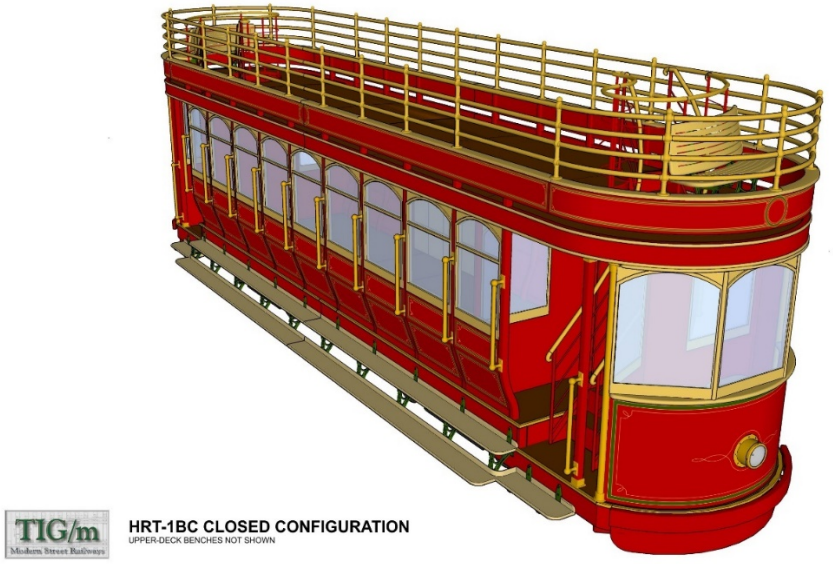
Below you will se a model depicting the convertible coachwork function. This allows the lower-deck to be heated and cooled in inclement weather and opened up for the ultimate passenger experience during mild weather.

Figure 1-10, TIG/m convertible Heritage Trolleys



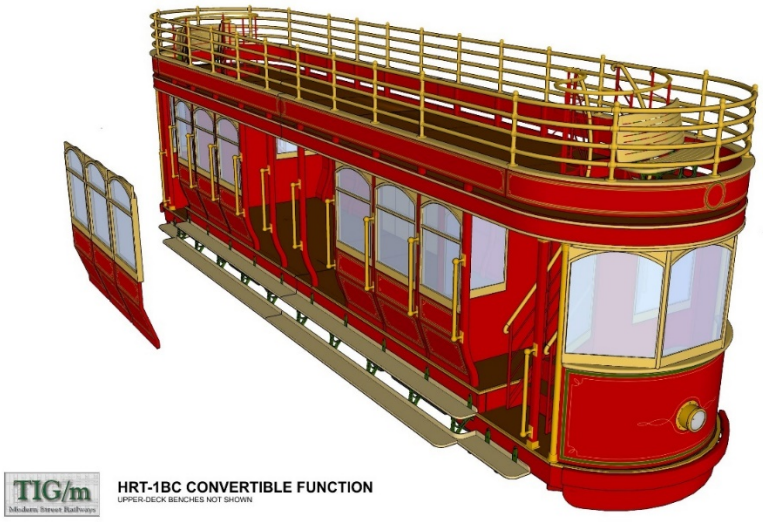


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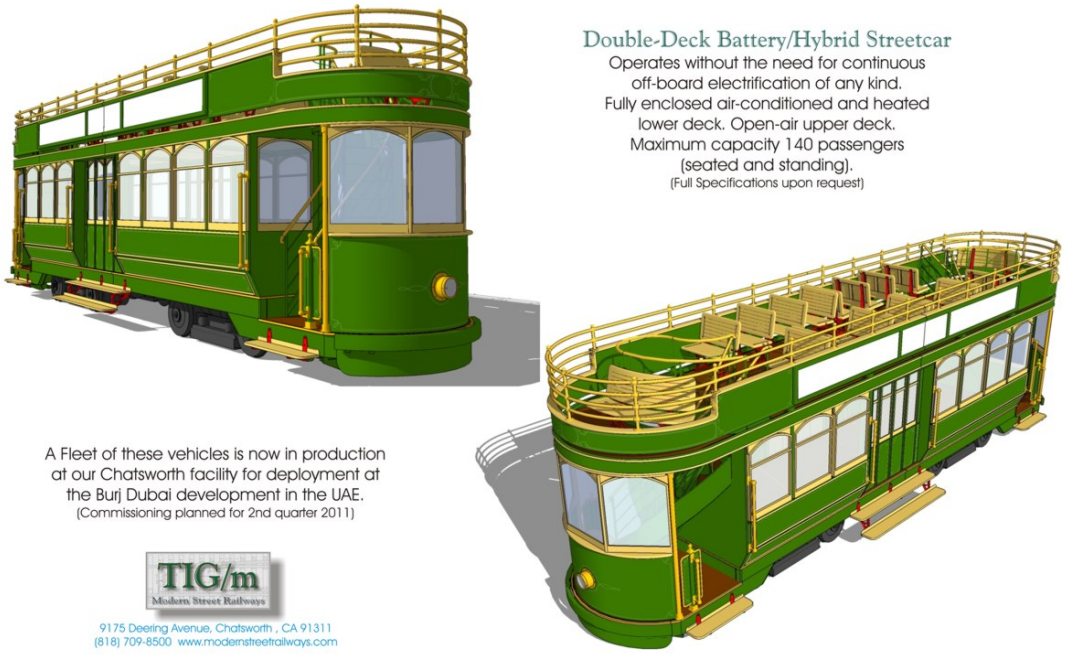
Figure 1-11, TIG/m Convertible Double-Deck Trolly in closed configuration for summer in Dubai.

Figure 1-12, TIG/m Closed Double-Deck Trolley



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1.5 The Track

All Track work will follow the recommendations of TCRP Report 155: Track Design Handbook for Light Rail Transit. The excursion line will consist of approximately 17.5 miles of track with one passing siding (so that 2 trolley can operate in reciprocating fashion at the same time) and a O&M Depot

1.5.1 New Track

At the site determined by operational simulation models to be the optimal locations for bypass sidings, TIG/m will install equilateral double-point switches and 200' long double track sections using high-grade 110# relay rail and composite cross-ties. There will also be a requirement for an O&M rail spur to the new Operations and maintenance facility which will include a switching and stabling yard as well a double track spur through the facility passing over a 60' long maintenance trestle pit. For the purposes of this Proposal 1 mile of new open track have been included to address the above requirements.

1.5.2 Existing Track Remediation

Along the existing 17.5 (approx.) miles of existing Branch Line track, TIG/m, along with our construction partners, will remove and replace approximately 18,000 cross-ties (every 3rd cross-tie) with new hardwood ties, adjust the gauge and grind the railhead where necessary, remove all angle bars, bolts, and fish plates and replace them with 4,350 aluminothermic welds. Expansion joints will be added in the locations indicated by engineering design calculations. Additional new clean ballast will be added wherever needed. All special work will be inspected and regauged where necessary, and switch components, rail crossings and other casting will be replaced if worn or deformed beyond the limits for condemnation per safety standards.

1.5.3 Passenger Stations

Passenger Stations will consist of a platform at the level of the Trolley's lower running board, an open sided structure with roof for sun/rain protection and a bench.

1.6 The Operations

At TIG/m we have developed a set of computer simulations using the AnyLogic software program to model the Santa Cruz Branch Line railway and prepare duty-cycle calculations that provide some realistic estimates of system passenger capacity based on the physical aspects of the existing rail line. Of course, as with any study of projected ridership, there are several key assumptions that are utilized, and we will need to clarify exactly what the difference is between Maximum Capacity Projection and a Demand Analysis.

The Maximum Capacity Projection tells us that under certain conditions, and using certain assumptions, the transit operation, as conceptualized in the model, will provide a defined maximum number of passenger trips. It does not make any predictions about how many passengers will show up to ride on the system.

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The Demand Analysis tells us that under certain conditions, and also using certain assumptions that a potential for a certain number of passengers to show up to ride the system exists.

A proper 4-step demand analysis requires a great deal of on-site reconnaissance; gathering data from the populations of the communities that are to be served, and correlating it with statistical data gathered form government and transit agency studies produced over time, in an attempt to predict what the population of a defined travel market will do when given a choice of travel modes. For this reason, this type of study is performed under contract for a substantial fee.

For the purpose of this proposal we will be comparing the results of our computer simulation with the ridership projections from a demand analysis that was performed for the Rail Transit Feasibility Study.

When estimating the maximum capacity of a transportation system it is important to make an assumption, based on experience and logic, of the average number of stops that each passenger will remain on the vehicle. This is how we estimate the maximum number of passengers per seat that can be accommodated during each cycle. For example: There are 13 stops on the trip from Watsonville to Santa Cruz. If the assumption is made that all passengers will remain on the tram for the entire trip, then we must assume that the system will accommodate only one passenger per seat per cycle. If the assumption can be supported that, on average, the passengers will remain on the tram for 6 stops, then the system will accommodate 2 passengers per seat per cycle (effectively doubling the capacity). For the purpose of this Preliminary Cost Model we will make the conservative assumption that each passenger will stay on the vehicle for the entire cycle, giving us the capacity if 1 passenger per seat per cycle.

On the next two pages you will see a computer simulation for the Excursion Line, accompanied by an overview of the Factors and Results of the simulation. These Factors and Results are looked at in closed detail in Section 2 Capital Expense and ROM Estimates, of this Proposal.

Figure 1-15, The Excursion Line computer simulation

COMPUTER SIMULATION IS AVAILABLE ON REQUEST.

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Figure 1-16, The Excursion Line factors and results

Section 2: Capital Expense ROM Estimates

2.1 Discussion:

For the purposes of this discussion, the system consists of a single track, line-haul system with passing sidings at appropriate intervals to allow passengers to be shuttled between Capitola and Davenport with several stops in between the two areas. an excursion line operating heritage style double-deck trolleys will carry tourists, commuters, and sightseers as well as beach traffic between Capitola, the Santa Cruz Boardwalk, and the town of Davenport. TIG/m self-powered, Heritage-styled rolling stock comprise the vehicle type in this concept. These trams do not require any form of wayside power, thus eliminating the costs associated with overhead catenary systems and allowing us to use the low-impact TIG/m passive track-form where new track is required. Cost and capacity are governing factors. Since we do not have guidelines from the County on theses parameters we have developed computer simulations using the Anylogic Software system to investigate headways and number of cars per mile for both configurations in order to illustrate their effect on cost and capacity. The assumptions used are subject to change and will be informed by actual project specifications developed during the course of Schematic Design.

It is important to note that the passenger quantities discussed going forward are based on percentages of system capacity, not on projected potential ridership.

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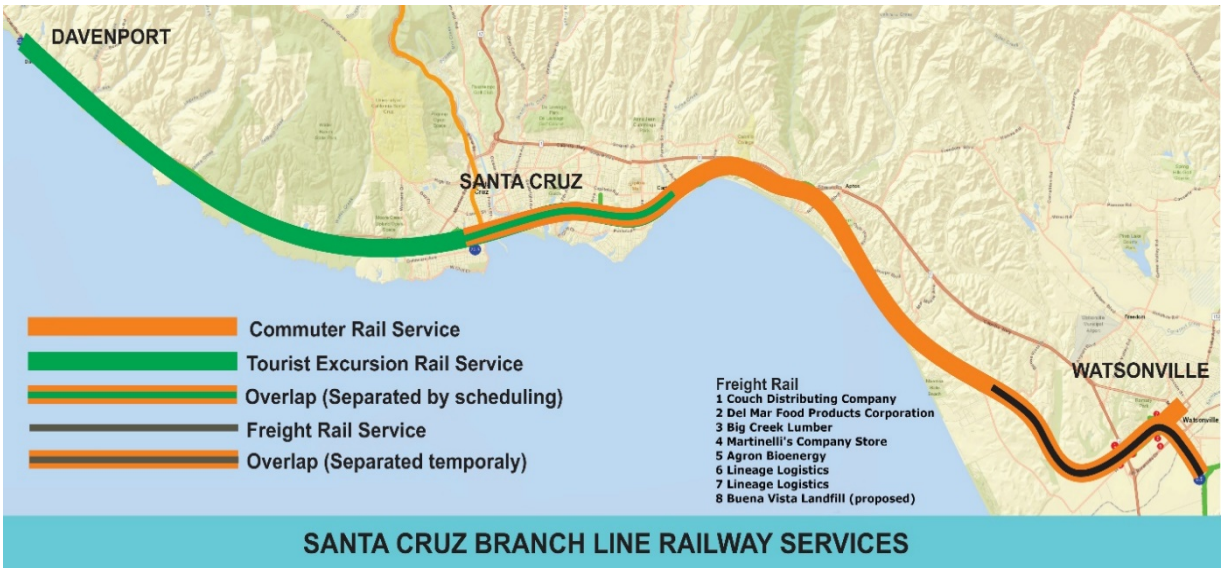
Figure 2-1, Santa Cruz Branch Line Operations: Green line only is under consideration.



2.2 Factors and Asssumptions

2.2.2 EXCURSION LINE (Capitola to Davenport)

Length of Alignment:	17.5 mi. (Overlapping SC to Capitola)
Number of Passenger Stations:	8
Average Speed:	30 mph
Dwell Time at Stations:	125 sec.
Number of HRT-1B:	2
Hours of operation/day:	15

RESULTING IN:

Number of cycles per hour:	1.16 (A to B, one way)
Headway:	50 min.
PPH EW:	120
PPH Total:	240
PPD EW:	1,800
PPD Total:	3,600
PPY EW:	648,000
PPY Total:	1,296,000

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2.3 Unit costs (US$ MM):

Track - New = $6/mi. (Construction only. Does not includes soft costs, civil works, utility relocation, signalization & signage, passenger station & street furnishings)

Track - Remediation = $.625/mi. (includes replacing 33% of ties, welding all joints, gauging, additional ballast)

New track construction is limited to building 1 new passing siding and the installation of a rail spur and switching and stabling yard at the Maintenance Facility (Total: approximately .5 miles). Remediation of existing infrastructure and track to Class 1 Standards is assumed to be the responsibility of the Riverside County Transportation Commission.

Rolling Stock-Excursion Line = $2/vehicle (**HRT-1B** 100 passenger Tram).

Passenger Station (Platforms, Signage, furnishings) = $.25

Operation & Maintenance Facility = $.000165/sq. ft.

2.4 Extended costs (US$ MM):

Track:
New Open Trackwork = $3 (.5 @ 6)
Remediate existing track= $10.9 (32 @ .625)

Rolling Stock:
Excursion Line = $4 (2 @ 2)

Operation & Maintenance Facility/Factory = $1 (6,000 sq. ft. @ $165)

Passenger Stations = $.2 (8 @ $.025)

2.5 Project cost (US$ MM):

Combined Commuter and Excursion Lines:

New Track =	3
Remediated Track =	10.9
Rolling Stock =	4
O&M/Facility =	1
Civil works =	1
Passenger Stations =	.2
Signage & Signalization =	1
Soft Costs =	1
Contingency =	2
TOTAL =	**$24.1**

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Section 3. Operations and Maintenance Cost Model

3.1 O&M Staffing Recommendations

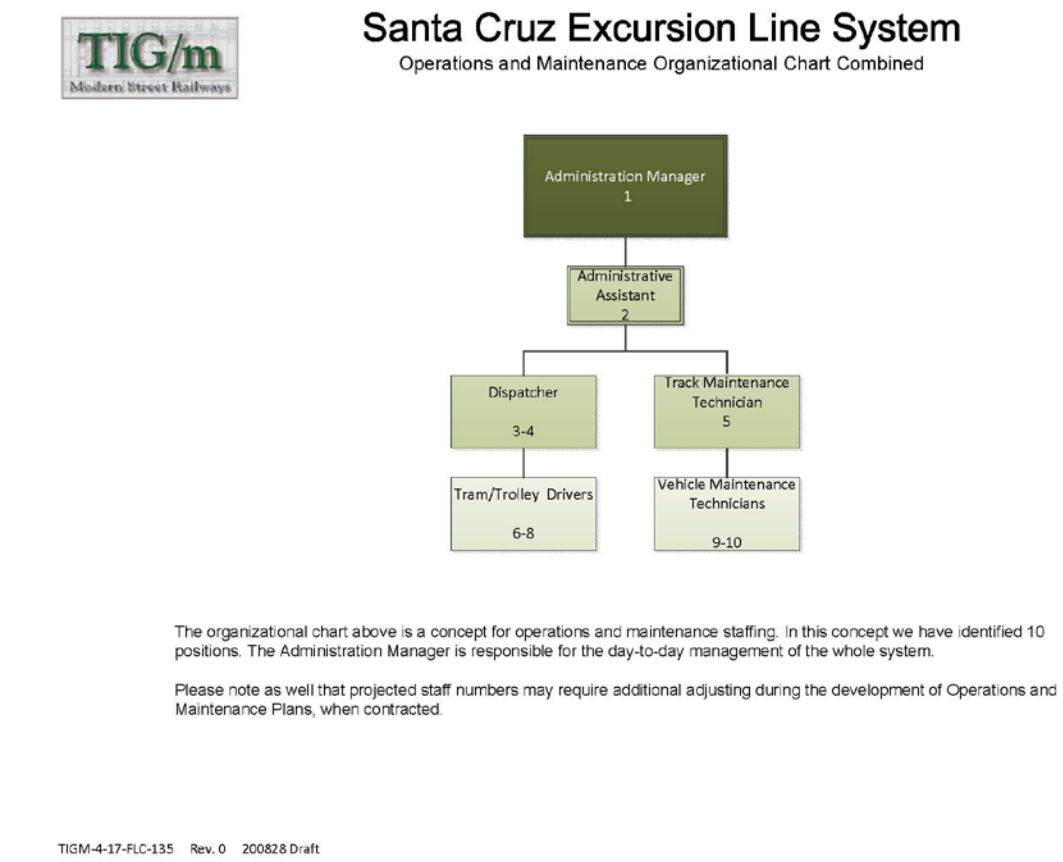
The following draft organization chart is based on our experience with actual O&M organizations at our projects elsewhere around the world. The numbers of staff included may change when we receive confirmation of daily hours of operation for the Santa Cruz Branch Line project. Please note as well that projected personnel numbers may require additional adjusting during the development of Operations and Maintenance Plans, when contracted.

The following O&M staffing recommendations table (Table 3-1) and organization chart (Figure 3-1) are based on two full shifts of drivers—with one driver for each vehicle plus one "extra board"—and maintenance personnel. Until we have a confirmed daily schedule of hours, we will not be able to value engineer the personnel configuration. However, it should be noted that most maintenance functions are performed at night and a small maintenance staff is required to be present throughout the day to respond to any issues that may arise during passenger service operations. This fact always requires that two shifts of maintenance personnel are always required.

Table 3-1, O&M Staffing Recommendations

STAFFING RECOMMENDATIONS 2 (7.5 hr.) Shifts per 15 Hour Day	
Personnel	**Per 2 Cars in Service**
Office staff	
Administration Manager	1
Administration Assistant	1
Dispatcher	2
Rolling Stock Operators	
Drivers	3
Conductor	0
Maintenance staff	
Maintenance/Machinist	2
Maintenance/Welder/Track	1
	Total 10
Max. Total Staff per Shift 5	

Figure 3-2, O&M Organizational Chart



3.2 Cost Model

A preliminary operating cost model was developed for the Santa Cruz Branch Line that is based on the current costs for labor, power, and other materials purchased by systems in the US.

The cost model is based largely on information gathered from submissions to the National Transit Database. Costs were calculated using an inflation factor of 1.1 to inflate 2016 costs to 2020.

The cost model assumes that all functions related to the operations and maintenance of the streetcar line are performed by Santa Cruz Branch Line. To account for a possible allocation of overhead and general administrative expense, actual costs of operation are inflated by 10.5% for the overall total

The cost model is designed to provide a rough yet comprehensive estimate of operating and maintenance costs for the Santa Cruz Branch Line. It is possible that Santa Cruz Branch Line may wish to contract for some services, or to operate them differently than a standard “turnkey”

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operation. These alternatives may have an impact on the overall costs, may allocate some costs differently between partner agencies and vendors. In addition, it should be noted that this model is not intended to be directly scalable as the service increases. For example, operating a 15-hour service day can be done with two eight-hour drivers being assigned to each streetcar. Should service increase to a 16-hour service day, overtime may be required to fill the hours, at a higher rate. This makes changes in the scale of service more difficult to cost. This cost model is not intended to develop a line item budget, but rather to break the cost of providing streetcar service down to its basic elements. These elements are set forth in Table 9-2, below.

3.3 Operations Materials and Services

While most of the cost of operating the streetcar line can be attributed to the hourly labor costs, the costs of materials, supplies and services are charged on a per mi. or per peak vehicle basis. Costs for materials and services were based on the current TCRP streetcar data, validated by NTD data, and modified to represent the actual cost for TIG/m vehicles based on our operations in other locations.

Table 3-3, SCRL Operating Cost Model – Key Elements

Cost Item	Major Cost Elements	Unit Cost
Vehicle Operations	**Streetcar operators (fully burdened).** **Other salaries including supervision and fare inspection (fully burdened).**	**$57.00 per revenue hour**
Material and Services	**Materials and Supplies.** **Power.** **Parts including lubricants and consumables.**	**$3.00 per revenue mi**
Vehicle Maintenance	**Maintenance Labor (not during operations). Other salaries and support contracts.**	**$64,600 per peak vehicle**
Non-Vehicle Maintenance	**Maintenance of trackway and stations.**	**$35,750 per track mi**
General Administration	**Allocates costs for system overhead as well as line level overhead to the streetcar system.** **Costs maybe lower if the route is operated directly by Santa Cruz Branch Line than if full allocation is required for contract.**	**10.5% add-on to sum of above factors**

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3.4 Vehicle Maintenance

Costs for vehicle maintenance were based on the current TCRP streetcar data, adjusted for the actual cost experience with TIG/m streetcar vehicles. Daytime maintenance personnel are accounted for under Revenue hours in Table 9.3

3.5 Non-Vehicle Maintenance

Non-vehicle maintenance includes maintenance of right of way and stations. It must be emphasized here that due the Santa Cruz Branch Line stipulation that there be no OCS, a self-powered vehicle system has been assumed and a correspondingly low cost of trackway maintenance has been used based on TIG/m's experience with such systems.

3.6 General Administration

The overhead factor of 10.5% is taken directly from TIG/m experience with similar systems, dividing the total administrative cost over all revenue hours of service. We assume that overheads will be uniformly spread over the entire system.

3.7 Start-Up Costs

No specific allocation for start-up costs was included in the model. We assume that first year start-up costs would not exceed 10% of the operating budget for the first full year of operations, based on the anecdotal examples of other systems. Start-up costs include vehicle inspection, testing and break-in, driver and mechanic training and training for other staff involved in streetcar operations. These onetime costs are enumerated in the following section and are included in the model.

3.8 Initial and Yearly Operating Cost Estimates

Using the cost model described above and the duty-cycle for Santa Cruz Branch Line Streetcar System including both the Commuter and the Excursion Lines, the initial operating cost for the Santa Cruz Branch Line Streetcar is expected to total approximately $2.6 MM. This estimate includes all administrative overheads and is based on a conservative assumption about labor productivity. An additional 10% of the initial operating budget or about $.9 MM is budgeted in one-time startup costs for testing, trial running, training, certification, and implementation of the operations.

The calculation of operating costs is shown below:

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Table 3-5, Yearly Operating Costs (Years 1-5)

Yearly Operating Costs - Excursion Line **Assumes 50-minute headways and 15-hour service days - 360 days per year**			
Cost Model Factor	**Unit Cost**	**Initial Number of Units from Operating Plan**	**Total Cost**
Revenue Hours	$57.00	26,250	$1,496,250
Revenue miles	$3.00	140,000	$420,000
Peak Vehicles	$57,600.00	2	$115,200
Track miles	$35,750.00	11	$393,250
Subtotal			$2,424,700
Administrative Overhead	10.50%	-	$254,593
TOTAL			**$2,679,293**

3.8.1 Staffing Requirements

Staffing required for the streetcar operation includes drivers and maintenance staff, as well as supervision and administration. These positions have all been accounted for in the cost estimates.

3.8.2 Drivers and Line Management

The streetcar will operate 15-hours each day, 7 days per week. This operating plan can be met with one Operator (driver) per car, each driving a 7.5-hour shift. At least one “extra board” driver will need to be available to the streetcar system at all times. Santa Cruz Branch Line may choose to train a pool of potential streetcar drivers who may all alternate as the extra board for the streetcars. To cover all shifts 7-days per week, a minimum of 3 drivers will need to be trained to drive the streetcars for the Santa Cruz Branch Line Streetcar system.

Line supervision and dispatch for the streetcar line will be incorporated into the responsibilities of the Administrator and dispatcher. A total of 18 hours per week of passenger station supervision are budgeted in the initial operating plan, as reflected in the efficiency factor.

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3.8.3 Maintenance Staff

Santa Cruz Branch Line will have some flexibility in staffing this small facility. A total of 3 full time maintenance workers per day are assumed to be on site and will be needed to fill all shifts, seven days per week.

3.8.4 Fare Inspection and Supervision

Every transit line requires some level of supervision, to maintain reliability and provide assistance during incidents and delays. For a system of this size, the Administrator (manager) has been allocated several tasks as part of his management duties. One of these duties would be inspections of the operations during service. About 18 hours per week has been budgeted to cover supervision needs, which would be done periodically, at various times of day and on various days of week. Costs for supervision have been included in the cost factor for operating costs.

3.8.5 Draft O&M Personnel Shift Scheduling and Transitions

TIG/m does not yet have enough information to produce a scheduling and transition plan for Santa Cruz Branch Line Operations and Maintenance. Two full shifts of Operators and Maintainers are used in the Cost Model, Section 3.2, above. Please note as well that projected staff scheduling may require additional adjusting during the development of Operations and Maintenance Plans, when contracted.

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9160 Jordan Ave.
Chatsworth, CA 91311
Ph 818.709.8500 fx 818.709.8508
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Section 4: ROM Project Cost Model

4.1 Project Costs and Revenues

The forgoing Conceptual Design (Section 2) with System Capacity and ROM Estimates for Capital Expense (CAPEX) has been combined with the O&M Expenses (OPEX) developed in Section 3 in the following Spreadsheet.

In this spreadsheet, a 15-year private investment amortization is investigated, with 2 years of capital expense and 15 years of operations. The CAPEX shown in Section 2 is increased by adding two years of pre-paid interest. This is the Loan Amount. Ridership on the excursion line is assumed to increase over time from 50% of capacity to 72% of capacity with fares increasing from a starting fare of $7.00 by $.25 every 3rd year.

There is no subsidy by the public sector in this model. It is conceptualized as a profitmaking venture with 5% of profits going to the SCCRTC on a yearly basis.

Figure 4-1, TIG/m Heritage Streetcars

TIG/m ViaTran
The art of transportation

SANTA CRUZ BRANCH LINE RAILWAY
ROM COST MODEL
CONCEPT - EXCURSION ONLY

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	Total Expense	Total Revenue
CAPEX	$26,066,560																		$26,066,560	
OPEX			$2,679,293	$2,679,293	$2,679,293	$2,947,222	$2,947,222	$2,947,222	$3,241,994	$3,241,994	$3,241,994	$3,566,138	$3,566,138	$3,566,138	$3,992,750	$3,992,750	$3,992,750	$4,392,025	$49,282,191	
Excursion Line (Capitola to Davenport)																				
Max Yearly Capcity (PPY)	1,296,000																			
Estimated Ridership			648,000	648,000	751,680	751,680	777,600	777,600	816,480	816,480	855,360	855,360	881,280	881,280	894,240	894,240	933,120	933,120		
% of Total Capacity			50%	50%	58%	58%	60%	60%	63%	63%	66%	66%	68%	68%	69%	69%	72%	72%		
Est. Fare Box Charge			$7.00	$7.00	$7.00	$7.25	$7.25	$7.25	$7.50	$7.50	$7.50	$7.75	$7.75	$7.75	$8.00	$8.00	$8.00	$8.50		
Revenue - Fare Box			$4,536,000	$4,536,000	$5,261,760	$5,449,680	$5,637,600	$5,637,600	$6,123,600	$6,123,600	$6,415,200	$6,629,040	$6,829,920	$6,829,920	$7,153,920	$7,153,920	$7,464,960	$7,931,520		$99,714,240
Advertising, Sponsorships			$1,000,000	$1,000,000	$1,100,000	$1,100,000	$1,100,000	$1,250,000	$1,250,000	$1,300,000	$130,000	$1,350,000	$1,350,000	$1,400,000	$140,000	$1,450,000	$1,450,000	$1,500,000		$17,870,000
Loan Amount (Private Sector)	$26,066,560		$24,328,789	$22,591,019	$20,853,248	$19,115,478	$17,377,707	$15,639,936	$13,902,166	$12,164,395	$10,426,625	$8,688,854	$6,951,083	$6,951,058	$5,213,288	$3,475,517	$1,737,747	$0		
Combined Annual Income			$5,536,000	$5,536,000	$6,361,760	$6,549,680	$6,737,600	$6,887,600	$7,373,600	$7,423,600	$6,545,200	$7,979,040	$8,179,920	$8,229,920	$7,293,920	$8,603,920	$8,914,960	$9,431,520		
CAPEX Principal Payments			$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$1,737,771	$0		
CAPEX Interest Payments @4%			$973,152	$903,641	$834,130	$764,619	$695,108	$625,597	$556,087	$486,576	$417,065	$347,554	$278,043	$278,042	$208,532	$139,021	$69,510	$0	$7,576,676	
OPEX Costs (Line 7)			$2,679,293	$2,679,293	$2,679,293	$2,947,222	$2,947,222	$2,947,222	$3,241,994	$3,241,994	$3,241,994	$3,566,138	$3,566,138	$3,566,138	$3,992,750	$3,992,750	$3,992,750	$4,392,025		
Annual Net			$145,785	$215,296	$1,110,566	$1,100,068	$1,357,499	$1,577,010	$1,837,749	$1,957,260	$1,148,370	$2,327,577	$2,597,968	$2,647,969	$1,354,868	$2,734,379	$3,114,930	$5,039,495		
%5 of Profit to RTC			$7,289	$10,765	$55,528	$55,003	$67,875	$78,850	$91,887	$97,863	$57,419	$116,379	$129,898	$132,398	$67,743	$136,719	$155,746	$251,975		
Cash Flow	$0	$0	$138,496	$343,026	$1,453,593	$2,498,658	$3,788,282	$5,286,441	$7,032,303	$8,891,699	$9,982,651	$12,193,850	$14,709,420	$17,224,991	$18,512,115	$21,850,914	$24,810,097	$29,597,617		
																			$82,925,427	$117,584,240
															TOTAL				**EXPENDITURE**	**REVENUE**

COMBINED

Total Expense	$82,925,427	
Total Revenue	$117,584,240	
	Operator	**SCCRTC**
PROFIT	**$32,925,872**	**$1,732,941**

APPENDIX A

The following table shows data reported by the on-board analytics program for three typical sessions of three TIG/m MRV-3A Trams operating on the Msheireb Downtown Doha Tramway Transportation System. The passenger conditions during these sessions was AW-1, AW-2 (30-60 passengers) depending on peak, off-peak hours.

During these sessions, operation was fully air-conditioned, the on-board APU (Auxiliary Power Unit) was not utilized, and all power was provided by the Traction Battery System (LiFePO4).

Total projected hours of operation are computed by the analytics program based on distance traveled and total session time. Total hours projected indicates how long the vehicle will operate without the contribution of the APU.

Normally, at approximately 16 hours of session time, the APU (hydrogen fuel cell, or CNG/LGP ICE) will be engaged, if required by the programmed VCU's recommended state-of-charge for the battery system. VCU is programmed to return the vehicles to maintenance (after passenger service) with 30% usable energy in the battery system. Although the analytics presented here show that the vehicles have the capability of 30 hours of uninterrupted passenger service, the duty-cycle recommended for these vehicles is 20 hours of passenger service and 4 hours of maintenance per day.

Date	Tram	Run Time HH:MM	Idle Time HH:MM	Session Total Time HH:MM	Generator Run Time HH:MM	Distance Traveled KM	Amps Used	Amps Gained	Total Energy Used kWH	Total Energy Regen kWH	Range Remaining KM	Total Range	Total Hours
3/8/2021	1	8:14	5:01	13:20	0:00	75.1	230.00	(147.00)	96.50	8.60	95.00	170.10	**30.10**
2/27/2021	1	8:02	4:33	12:39	0:00	72.0	335.00	(170.00)	92.10	9	100.00	172.00	**30.00**
1/21/2021	1	7:57	3:57	11:57	0:00	73.5	290.00	(100.00)	80.70	8.7	130.00	203.50	**33.10**
3/28/2021	2	8:31	3:44	12:18	0:00	76.6	331.00	(98.00)	82.80	4.70	121.00	197.60	**31.70**
2/7/2021	2	8:32	5:43	14:20	0:00	76.6	331.00	(29.00)	78.90	5.9	134.00	210.60	**35.40**
3/30/2021	2	8:34	4:22	13:00	0:00	78.3	257.00	(134.00)	86.50	5.50	115.00	193.30	**32.00**
2/23/2021	3	8:45	5:38	14:28	0:00	76.5	333.00	(175.00)	87.30	6.7	102.00	178.50	**33.80**
1/10/2021	3	8:46	3:29	12:19	0:00	78.2	264.00	(106.00)	87.40	6.9	117.00	195.20	**30.70**
2/16/2021	3	8:48	4:00	12:52	0:00	76.5	266.00	(108.00)	87.60	6.6	115.00	191.50	**32.30**

TIG/M LLC, BRAD READ, PRESIDENT: DESIGN/BUILD OF CUSTOM SELF POWERED RAILWAY SYSTEMS

TIG/m, LLC is a California limited liability company in operation, for the sole purpose of design/building custom self-powered street railway systems, since 2005.

Figure 1: MODERN STREETCAR - TIG/m MRV-3AC single body (passenger capacity 100)

TIG/m, LLC manufactures self-powered electric vehicle systems (trams, trolleys, people-movers) which require no overhead wire or continuous wayside power systems of any kind. The vehicles can be configured with range-extending power generators which allow them to operate for up to 20 hrs. per day without stopping to recharge the battery systems. Heritage-style and Modern type vehicles are available. The newest models, being manufactured for the countries of Qatar, Aruba, Mexico, China, and the United Arab Emirates, are zero-emission ultra-green streetcars which utilize hydrogen fuel-cells to charge the batteries while they are in passenger service. The rail vehicles run on standard gauge track (1,435 mm) and are custom designed and hand crafted to the highest standards of excellence while at the same time adhering to all international standards for LRT vehicles.

Because the vehicles are self-powered, construction of the track and infrastructure is substantially simplified and, by elimination of overhead wire systems, most projects will see a reduction in capital cost of infrastructure construction of up to 50%.

TIG/m, LLC offers full service in each of the following scopes of work:

- Demand Analysis (feasibility studies)
- Alignment design
- Civil and track engineering
- Operations and maintenance planning
- Maintenance facility design
- Streetcar design and fabrication
- Track and special-work construction

- Depot fit-out
- System commissioning
- Operations & Maintenance

TIG/m is a full-service street railway designer, vehicle manufacturer, and infrastructure builder. Our offices and factory at 9160 Jordan Ave, Chatsworth, CA, USA include Departments of Civil, Track, Structural, and Electrical and Mechanical Engineering, as well as state-of-the-art Fabrication Departments for the following disciplines:

- metalworking (machining, forming, welding)
- plastics (machining, forming, joining)
- composites (engineering, forming, lay-up)
- electronics (engineering, fabrication)
- hydraulics and pneumatics
- woodworking
- assembly
- finishing (painting, glazing)

A separate facility in Valle Crucis, North Carolina, USA provides the following discipline:
• Ferrous and non-ferrous metal working, forming, and casting foundry

TIG/m provides on-site services which include:

- Construction Administration
- QCR (Quality Control Review)
- Construction and installation of track, special-work, signalization equipment, maintenance facility infrastructure, and operations equipment.
- Delivery, test and adjust, and Commissioning of rolling-stock.
- Operations & Maintenance.

Figure 2: MODERN STREETCAR - TIG/m Virtual Coupler Demonstration

JOE KNEIB: SHORT LINE RAILROAD CONSULTANT

Since 1970, Joe Kneib has been integral to the growth and development of Herzog from a regional asphalt paving, light grading, small structure contractor into a national heavy/highway and rail company performing environmental, civil and rail construction, maintenance, and operations across North America. Joe was instrumental in early expansions for division operations in asphalt paving, environmental services, and aggregate production. For more than 20 years, Joe was a key advisor and supporter to Stan Herzog (Chairman and CEO) and Al Landes (President and COO) for all aspects of the Herzog organization.

After his initial startup and management of Herzog's asphalt paving operations in northwest Missouri, Joe's concentration has remained focused on business development. He has worked closely with all levels of public and private owners, local, state federal, and governmental entities in the development and performance of projects and contractual agreements for the railroad and transit industry. This has included leading estimating efforts, proposal development (both solicited and unsolicited), advisement, and assisting in project start-ups. As a former colleague put it – "It was Joe's job to uncover every rock to see if an opportunity was there."

In his role, Joe represented all Herzog divisions seeking and developing opportunities both domestically and internationally (such as South America, Australia, and the Middle East). He hosted various foreign dignitaries, rail industry, transportation executives at roundtables, site visits at international industry functions in major U.S. cities as well as in Herzog's corporate headquarters, shops, and projects throughout the U.S. Joe credits these successful site visits to the professionalism, hospitality and expertise of Herzog's project managers and staff. His long-standing strategic relationships with industry advocates, public/private owners, JV partners, and subcontractors have helped to secure key contracts for Herzog in highway, railroad, rail transit, and landfill construction.

Joe is best known for his ability to identify opportunities and bring the right people and resources together to get the job done. He has formed countless relationships within the construction, rail transit, environmental, and railroad industry in North America and abroad. He is constantly searching for potential work while staying current on emerging trends, technology, and opportunities. Joe is open- minded, easy to work with, and always strives to find the best possible solution to achieve success. He provides important context to working with Herzog's various clients and sees connections where others may see a roadblock. Whatever direction you point him, Joe will lay the groundwork for you. And once you've met him, he will know your name for life.

Former colleague, Arnold Shipp, retired Vice President of Operations, was Joe's first direct boss at Herzog. He revealed that "the key to Joe's successful pursuit of opportunities lies in the way he treats those he meets. He goes out of his way to talk to people at their level and demeanor, getting to know them beyond just their name and assets. It has helped him identify and secure a lot of successful work for Herzog over the years." Joe considered Arnold one of finest construction minds, manager, and person he's ever met in his life – so you can imagine he would greatly appreciate that compliment.

Joe doesn't boast about his accomplishments at Herzog but chooses to instead point to the contributions and successes of his colleagues such as Arnold, the Herzog family, and many others too numerous to mention. On several occasions, Joe has shared how intuitive, well-respected, and charismatic Herzog's founder William E. (Bill) Herzog was. Bill inspired Joe to be ethical, productive, and do quality work. He told Joe "If you don't love your family and enjoy getting up for work, you are in the wrong place." Joe also claims that Bill's belief in mentoring,

listening, and encouraging young professionals and peers to achieve success have remained with him to this day. Bill believed that young people are the future of the company and the industry. Carrying that advice with him today, Joe seeks out new talent and treats each new employee to the "Herzog tour," fully educating them on where the company has been and where they are headed.

MARK F. JOHANNESSEN J.D., MBA, CPA, CFLS: ADVISOR AND GOVERNMENT RELATIONS

Attorney-Mediator Mark F. Johannessen, is a Certified Family Law Specialist, certified by the State Bar of California, Board of Legal Specialization, and has practiced civil, business and tax law since 1983.

With an extensive business and financial background and also a Certified Public Accountant (inactive), Mark has extensive experience in preparing licensing, joint venture, business acquisition, business development, distributorship, and other legal agreements. He has advised and consulted on domestic and international transactional and business development issues. He is an experienced litigator, mediator, and collaborative professional.

In addition to his law practice, Mark has decades of community volunteering and political activism including 12 years as a Councilmember on and the Vice-Mayor of the City of West Sacramento, chairing the California State Senate Advisory Commission on Cost Control in State Government, and has been and is currently active in local and regional non-profit organizations, governmental commissions and local issues.

PROPOSAL FOR SHORT-LINE FREIGHT SERVICE

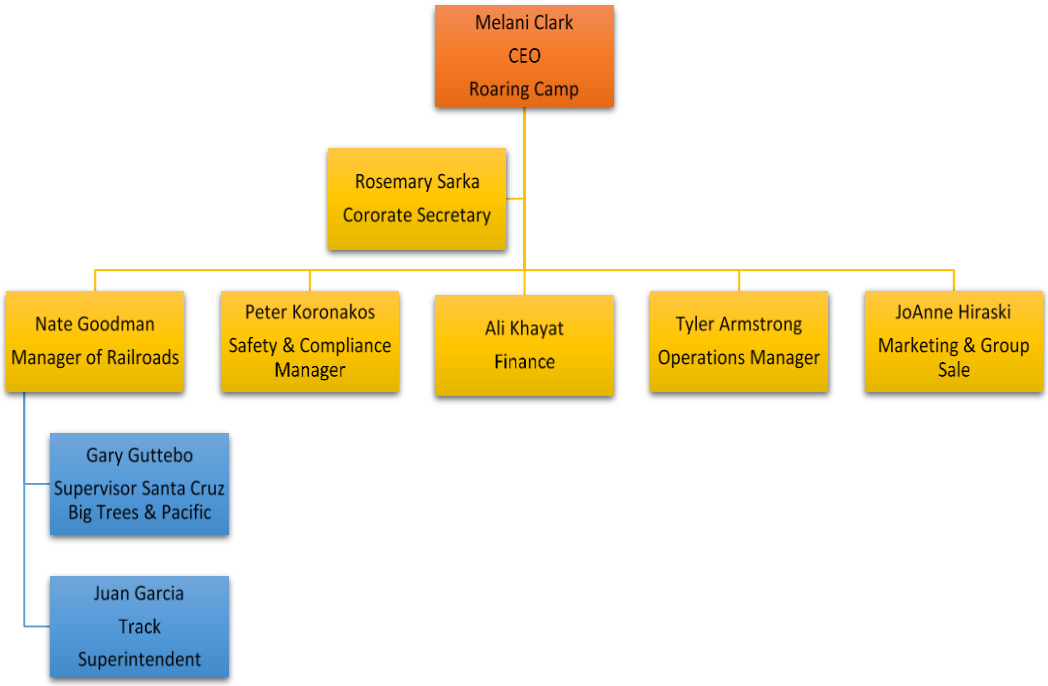
SANTA CRUZ, BIG TREES & PACIFIC RAILWAY
P.O. Box G-1, Felton, California 95018

2. ORGANIZATION CHART

Roaring Camp, Inc. ("Roaring Camp"), through its subsidiary The Santa Cruz, Big Trees and Pacific Railway ("SCBT&P"), currently provides freight and tourist rail service between the cities of Santa Cruz and Felton, operating over the Felton Branch line (between Felton and the wye in Santa Cruz), and a portion of the Santa Cruz line between the wye and Beach Street, adjacent to the Santa Cruz Beach Boardwalk. Collectively, Roaring Camp and SCBT&P, (sometimes herein referred to as the "company"), operate with approximately 50 full time employees, and during the high season the railroad employs an additional 30-40 seasonal employees. The two corporations are jointly managed, under the organizational chart shown below:

2. Roaring Camp Railroads

Organization Chart



Nate Goodman, *Manager of Railroads*: Mr. Goodman oversees all aspects of rail line, equipment, structures and railroad crew training. In addition, he manages all major rail line and structure repair with outside contractors. He is responsible for Federal Railroad Administration (FRA) and California Public Utilities Commission (CPUC) compliance with regard to equipment, track and structures. Mr. Goodman has been with Roaring Camp for 12 years.

Gary Guttebo, *Santa Cruz, Big Trees & Pacific Railway Supervisor*: Mr. Guttebo oversees locomotive and passenger car maintenance, as well as assists with maintenance-of-way along the rail line. He is actively involved with passenger service and special event coordination. He's been a Designated Supervisor of Locomotive Engineers and has been in the railroad industry for 41 years.

Juan Garcia, *Maintenance of Way Supervisor*: Mr. Garcia oversees the repair and maintenance of the SCBT&P. He has over 35 years of industry experience working on the Southern Pacific Railroad and the Union Pacific Railroad, with duties that included Maintenance-of-Way Supervisor on the Santa Cruz Branch Line.

Peter Koronakos, *Safety and Compliance Manager*: Mr. Koronakos oversees all FRA compliance regarding record keeping, and safety and rules training for employees. In addition, he is responsible for ensuring compliance with the Environmental Protection Agency, OSHA and DOSH regulatory agencies. He has been with the company for 18 years.

Ali Khayat, *Finance*: Mr. Khayat manages accounting, finance and insurance for the railroad. He oversees freight billing, Railroad Retirement record keeping and various other FRA reports. Prior to working for the railroad Mr. Khayat worked for McSherry & Hudson Insurance Brokers in Watsonville, California, and the U.S. State Department. He has been with the Company for 31 years.

Tyler Armstrong, *Operations Manager*: Mr. Armstrong is responsible for passenger service, ticket sales, station management, special events and running the day-to-day operation of the railroad. He has worked in multiple capacities in retail, foodservice, marketing, sales and event development. Prior to working for Roaring Camp, he worked for the Santa Cruz Beach Boardwalk. He has been with the Company for nine years.

JoAnne Hirasaki, *Director of Marketing and Sales*: Ms. Hirasaki has over 40 years' experience in the tourism industry. She oversees group sales, international and domestic travel markets, the educational market and advanced public passenger sales. She is a board member of the Santa Cruz County Conference and Visitors Council, and is actively involved with several tourism organizations in California and throughout the

USA. Before working for Roaring Camp, she was the director of the San Jose Convention and Visitors Bureau.

3. SAFETY, TRAINING AND COMPLIANCE

The SCBT&P makes safety its number one priority. Led by a very diligent Safety and Compliance manager, the railroad has a superb safety record. As a result SCBT&P has been repeatedly awarded the American Short Line Railroad Association's annual "Jake" Award for safety performance since 2002.

Safety and Training:

The SCBT&P has a rigorous annual training program that all employees must complete prior to working on the railroad. Having had the Union Pacific as a Class 1 railroad and freight interchange partner, we have adopted its 'General Code of Operating Rules' (GCOR), as a foundation for training all railroad employees. This helps to facilitate seamless interchanges between the two railroads. To obtain and maintain certification, all crew members must:

- Attend annual rules and regulation classes. Classes cover required FRA and CPUC regulations, as well as safety and operational rules specific to the SCBT&P. These classes include both classroom and hands-on portions and culminate in testing on the subject material;
- Attend additional rules classes and testing specific to their position, i.e. locomotive engineer, conductor, maintenance-of-way, etc.;
- Score an 85% or higher on written tests;
- Pass ongoing announced and un-announced performance evaluation and efficiency testing;
- Complete a minimum number amount of field training hours under the supervision of a designated senior crew member;
- Pass random drug testing;
- Pass hearing and vision testing.

As a result of our commitment to our internal safety and prevention program, we continually operate well above average in reporting injury-free days.

Compliance

Over its 30 years in operation, the SCBT&P has continued to comply with all applicable FRA regulations. The railroad receives annual and courtesy inspections from various departments within the FRA to ensure compliance with the Code of Federal Regulations (CFR). The railroad continues to meet current requirements and integrates new requirements as they are added to the CFR. Managers on the railroad take a preventative approach to safety by initiating and continuing close communications with inspector's year around. Over the past several years, due to a diligent internal control program, regulatory agency visits have been standard annual

inspections, interlaced with occasional courtesy drop-ins to provide communication and support.

In addition, the SCBT&P complies with all regulations set forth by the California Public Utility Commission (CPUC) as it pertains to the Felton Branch Line. The railroad has annual and courtesy inspections of crossings and signals administered by agency inspectors. The railroad remains in good standing with the CPUC.

In addition to the FRA and CPUC, the railroad works with CALOSHA, Environmental Health Services, various Federal, State and Local agencies, as well as Insurance Industry requirements. The Company also maintains a:

- Spill Prevention Control and Counter Measures Program
- Injury and Illness Prevention Program

4. MOBILIZATION PLAN

The Santa Cruz, Big Trees & Pacific Railway is the only common carrier railroad that is located in the county of Santa Cruz. We are the community railroad, having train crews, support staff, locomotives, passenger cars, administration offices, and maintenance yards established and ready to start operations on the branch line immediately. Unlike other railroads, there is no delay in setup time needed to find sufficient facilities, qualified staff or deal with the arduous task of moving train equipment. Our location is established with a facility ready to provide the requested rail service at a moment's notice.

More importantly, we have a reputation and brand that takes many years to build. Visitors from around the world come to our website and social media sites looking to ride our railroads. This has given us an important advantage which has been underestimated by prior competitors.

5. SERVICE PLAN

Equipment

The SCBT&P has the following equipment:

- *Locomotives:*
    - *4 CF7 EMD Locomotives = (2) Felton & (2) In transit to Felton.*
- *Passenger cars:*
    - *3 Coaches – capacity 180 passengers & ADA access*
    - *8 passenger cars – capacity 600 & ADA access*

- *Maintenance of Way:*

    - *1 Center dump ballast car*
    - *2 Crew inspection speeders*
    - *1 Ballast regulator (in transit to Felton)*
    - *1 Tamper (in transit to Felton)*
    - *2 Flat cars*
    - *1 Hi-rail Case backhoe*

All equipment is maintained to FRA requirements and specifications by SCBT&P staff. While the majority of maintenance and repair is accomplished in house, major repairs are contracted out. Equipment safety inspections are performed each operating day, and all locomotives undergo FRA required 92-day inspections. Passenger cars also undergo extensive annual testing and inspection which includes structural, mechanical, and braking systems.

Community Sensitivities

Roaring Camp, Inc. the parent company of SCBT&P has been operating trains in Santa Cruz County since 1963. With over 50 years of experience in railroad operations, it has become an integral member of the community. The key to achieving so many years of successful operation has revolved around listening to community issues, responding to concerns, as well as understanding the public's sensitivity to train operations through neighborhoods and business corridors.

For more than 30 of those years, SCBT&P trains have run directly through downtown Santa Cruz residential and commercial streets. Since its inception SCBT&P has worked to maintain good relations with the neighbors through whose community it passes.

The Company is also proactive on maintaining the aesthetics of the right-of-way in regard to trash, vandalism and debris related to pedestrian traffic and homeless encampments. Several times a year SCBT&P collaborates with Santa Cruz City Police, County Parks & Recreation, Santa Cruz County Homeless Services, and Santa Cruz County Sheriffs in an organized clean sweep through high traffic areas. In addition, SCBT&P does not store railroad tank cars along its Felton branch line, and does not handle hazardous materials.

As a part of Roaring Camp Railroads, SCBT&P rightfully benefits from community service provided by its parent corporation. For example, the company donates its facilities each year to hold events put on to benefit various local charities. SCBT&P Thomas the Tank Engine events "employ" many local non-profit organizations, from San Lorenzo Valley High School Athletics, to the Mountain Parks Association, to Friday Night Live Watsonville, all of whom provide volunteer staff for the events in return for donations to their organizations.

A representative of Roaring Camp serves on the Board of Directors of the Santa Cruz County Conference and Visitors Council, and cooperative ventures between SCBT&P and other area attractions such as the Santa Cruz Beach Boardwalk have been mutually beneficial. The annual Santa Cruz Holiday Lights Train, now in its 17th year, is a good example of this.

The SCBT&P presence in the community is well known, and generally speaking, SCBT&P is appreciated by the business community as a tourist draw and generator of revenue to the County. SCBT&P's regularly scheduled Beach Train delivers train loads of tourists to the highly traffic-impacted Main Beach area without their cars.

Most importantly, as mentioned in the opening letter, the SCBT&P along with its parent company Roaring Camp, is staffed by of many locals who live in all five of the county districts. Our employees are as concerned as anybody with maintaining the appealing qualities of the communities they live and raise their families in.

Freight Service

The SCBT&P is exited to provide reliable freight service to businesses along the Santa Cruz line. Initial service would begin in the Watsonville area with existing customers that already utilize the railroad to ship their goods. The SCBT&P will work closely with those customers to optimize their shipping needs.

The railroad would take all precautions to avoid any disruption of service by stationing a locomotive in the Watsonville area. With several backup locomotives on our roster, we feel confident that disruption of service due to equipment issues would be resolved in a timely and efficient manner. With staff members and consultants who represent decades of railroad experience, the SCBT&P is equipped to handle various anticipated and unanticipated circumstances. We have a full crew experienced in the rerailing of cars and locomotives, as well as recovery of track challenges that arise from environmental issues. Regardless of various past challenges, including washouts, landslides and minor derailments, the SCBT&P has never had service interrupted for an extended period of time. Our focus is on safety, reliability, and great customer service.

We believe that future economic growth and technological advances will generate new customers along the Santa Cruz lines right of way. By working closely with state and local economic development agencies, we believe freight will develop on the Santa Cruz line as business will recognize the advantages of using rail to move their goods to destinations throughout the country, while reducing the number of trucks on local highways. Upon acceptance of our proposal, the SCBT&P will be contracting with Alan Lambert to further develop freight business on the Santa Cruz Branch. Mr. Lambert is a specialist in developing railroad freight business, and worked with Sierra Northern during their time operating the Santa Cruz Branch.

Trackage Rights Agreement

The choice of the SCBT&P as the Operator of the Branch Line will alleviate any concerns regarding the trackage rights agreement as it pertains to the requirement stated in the Request for Proposal (RFP). As noted previously, SCBT&P has provided passenger train service between the communities of Felton and Santa Cruz for 33 years. Passenger service has included public trains, private charter trains, and variety of special event trains.

The majority of those years, the SCBT&P worked simultaneously with the Union Pacific (UP) sharing track usage in the area of the wye and Beach Street. In 2011, Big Trees worked with the Sierra Northern when it assumed freight operation on the branch line. Since 2012 the SCBT&P shared track usage with the Iowa Pacific. In all situations the SCBT&P demonstrated its ability to cooperate with the railroads that were operating on the Branch Line, including providing assistance to them when they faced challenges with their equipment, track and operations.

Passenger Service

Passenger service is our primary business. The SCBT&P operates more than 500 scheduled passenger trains per year between Felton and Santa Cruz. To begin service on the Santa Cruz Line, the SCBT&P would introduce special excursions on selected weekends throughout the summer months (see above sample excursion schedule).

In addition, along with its parent company, the railroad has over 20 Special Events on its public calendar and hosts numerous other private events throughout the year. In 2014, the SCBT&P approached the SCCRTC and its selected operator Iowa Pacific Holdings about working together to bring a locally historically significant steam locomotive home to Santa Cruz County for a special event. This event was extremely successful and operated several sold-out trains between Felton and Wilder Ranch. These trains utilized SCBT&P historic passenger equipment and were powered by the Santa Cruz Portland Cement #2, a steam locomotive which originally operated at the Davenport Cement plant between the early 1900's to the 1920's.

Upon selection by the SCCRTC, the SCBT&P could host additional events similar to the above, as well as:

- Wharf-to-Wharf race transportation support;
- Pumpkin Trains to Watsonville or Davenport;
- First Friday Art Train;
- Wilder Ranch Special Events Train;
- Holiday themed Excursions;

Event trains are a specialty of ours, and tourist railroads from around the country watch our events to get ideas. Having had so many years in the Santa Cruz community we know what works and what doesn't.

In addition, as the SCCRTC looks to expand usage of the rail line in the future, the SCBT&P would like to work together in whatever capacity it can contribute. SCBT&P shares the goal of providing a rail line that supports the community's transportation and environmental needs, and believes the development of passenger service to Watsonville where interchange with a main line provider is obtainable.

6. MAINTENANCE PLAN

Maintenance for the Santa Cruz line will be maintained to Class I standards by the SCBT&P maintenance-of-way crew. Crew will utilize hi-rail equipment, speeders and other equipment owned by SCBT&P and stored at the Felton location. Maintenance will include but not be limited to:

- Regular FRA required inspections on track and structures;
- Joint maintenance, tie replacement, tamping and switch maintenance;
- Maintenance of culverts and ditches;
- Weed and brush control and abatement.

SCBT&P recognizes that current damage to the Santa Cruz line exists from winter 2017 and the SCCRTC is working to rehabilitate damaged sections. Structural damage that is not normal wear and tear, such as Acts of God, or pre-existing conditions, shall not be the responsibility of SCBT&P, but will be considered capital projects to be funded by SCCRTC. SCCRTC will hold SCBT&P harmless from the physical condition of the track or any liability associated with any pre-existing environmental contamination or hazardous commodity contamination. At execution of the administration and coordination license agreement, the SCBT&P proposes to assist SCCRTC with any storm damage rehabilitation project management that complies with SCRTC and 3rd party agencies.

Maintenance and repair of signals will be performed by West Coast Signal, who provides signal services on the SCBT&P Santa Cruz to Felton branch line, as well as currently providing signal services on the Santa Cruz Branch for the current operator.

Maintenance on rolling stock is performed routinely and is compliant with federal laws governing locomotive and passenger equipment. SCBT&P carries out all maintenance of its locomotive and passenger equipment at its facilities in Felton, California. Roaring Camp, the parent company of SCBT&P, has a Spill Prevention Counter Measure and Control program as mandated by the state. The same diligence would be extended to all locations of SCBT&P operations.

7. REFERENCES

Passenger Service:
Mr. Dave Burns
Director of Adult Ministries
Mount Hermon Christian Conference Center
P.O. Box 413
Mount Hermon, CA 95041

Services: Mount Hermon Christian Conference Center charters private train excursions from its Redwood Camp location in Mount Hermon to the Santa Cruz Beach Boardwalk and return. The Center arranges approximately 6-8 charters each summer for groups of 350-450 conference attendees per chartered trip. Big Trees has continued to provided charter service to the conference center for over 10 years.

Freight Service:
Mr. Lee Jardine
Area Vice President
San Lorenzo Lumber
P.O. Box 1808
Santa Cruz, CA 95061
(831) 420-3557

Services: SCBT&P has provided freight service to the ProBuild Lumber Yard located in Felton, California for over 22 years. Lumber cars are delivered to the wye in Santa Cruz via Union Pacific and then transferred to ProBuild in Felton via the Big Trees.

Event Service:
Ms. Kiera Moore
Event Planner – Day Out with Thomas
Mattel
501 Meacham Blvd.
Fort Worth TX 76106
(817) 302-3321

Services: SCBT&P has hosted a Day Out with Thomas for 15 years, and Thomas & Percy's Halloween Party for the past 4 years. The summer event draws over 5000 people a day, with as many as 10 train departures with 600 passengers per train, while the Fall event attracts close to 2500 people a day, with as many as 6 train departures with 400 passengers per train. Mattel Event Coordinators consistently rank the SCBT&P as one of the best railroads for operations and train ride experience in the nation.


SANTA CRUZ BIG TREES & PACIFIC RY.
2641
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UCSC


2641


HOLIDAY LIGHTS TRAIN

APPENDIX OF COMPANY PROFILES AND RESUMES

28637 Acacia Glen St.
Agoura Hills, Ca 91301
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Chatsworth, CA 91311

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Cell 818.815.9119
Email brad@tig-m.com

Bradley L. Read

Mr. Read is a proven executive with over 30 years of experience as a corporate officer with an education, background, and extensive experience in Civil, Structural, and Mechanical Engineering. His combination of executive experience and engineering background has resulted in a successful hands-on approach to company leadership and project management which has culminated in the successful implementation of many large scale new construction and capital improvement projects. These include the design and installation of transportation systems in municipal streets, mixed-use developments, zoos, and parks in the United States, Mexico, Aruba, China, and the Middle East; projects of up to 4,000 acres, and 16 kilometers in scope.

Some recent examples are the design and installation of the world's first solar-powered street railway system at the éilan development in San Antonio, TX, and the design of the new Tramway Transportation System for the Mshiereb project in Downtown Doha, Qatar, the largest LEED Project in the world

Experience

2005- Present **TIG/m, LLC Modern Street Railways**

President

- Acquisition of Contracts, principal product/service representative.
- Streetcar designer; civil, structural, and mechanical designer.
- Managed design and installation of street railway system for Clients in the U.S., Mexico, Aruba, and countries of the Middle East.
- Hired, trained, and managed engineers, designers, and draftsmen.
- Performed all the usual duties of a Corporate President.
- Visit the TIG/m website for details. www.tig-m.com

1998–2008 **EEI/TIG**

President / Transportation Innovations Group

Director of Engineering / Entertainment Engineering, Inc.

- Managed design of projects up to $60 million in capital cost.
- Crafted and negotiated individual Contracts up to $38 million in value.
- Designed transportation systems for Clients in several Countries.
- Hired, trained, and managed engineers, designers, and draftsmen.
- Performed all the usual duties of the above Corporate Offices.
- Visit the EEI/TIG website for details. www.entenginc.com

1989–1998 **Laurence/Wayne Research and Development, Inc.**

President and co-Founder

- Created and Directed the Engineering Department.
- Developed solutions for aerospace, military, and commercial applications.

- Invention, design, and engineering of the patented **ROCLOCK™** fastening systems.
- Performed all the usual duties of a Corporate Officer.

1994–1997 Crush Innovative Sports Systems, Inc.

Senior Vice President / R&D

- Director of Engineering Dept.
- Design and engineering of all products including the patented **T-Bone™** snowboard binding system.
- Managed product development from blue-sky design through manufacturing.
- Performed all the usual duties of a Corporate Officer.

1980–Present BCM / Art Services

Owner / Principal

- Design / Engineering / Product Development.
- Commissioned and non-commissioned art works (painting, sculpture)
- Art restoration, Byzantine Water Gilding.
- For documentation of Collections, Exhibitions, Collaborations, Work Affiliations, and **Film Industry Resume** contact **brad@artstax.com**

Education

- School of the Museum of Fine Arts, Boston, MA.
- School of the Society of Arts and Crafts, Detroit, MI.
- Center for Creative Studies, Detroit, MI.
- Cosanti Foundation, Scottsdale, AZ.
- Arcosanti, Mayer, AZ.
- San Francisco Art Institute, San Francisco, CA.
- University of Arizona, Tucson, AZ. Master of Fine Arts, 1979.

Disciplines of Study

- Fine Art
- Architecture
- Art History
- Astronomy
- Civil Engineering
- Mechanical Engineering
- Structural Engineering
- Finite Element Analysis

Recent Awards

- LEED Platinum Certification, Doha Tramway Maintenance Facility, First LEED Platinum building in Qatar
- ACEC Diamond Award for Design Excellence, Aruba Streetcar System, Co-recipients Sam Swartz Engineering, Prime Minister Mike Eman

Patents

Sixteen U.S. Patents awarded:

- Locking Mechanisms; Multi-point load bearing, quick-release fastening systems; their configurations and applications.
- Composite wheel/rail configurations.

Conference Presentations

Numerous international transportation conference presentations.

"New Transportation Solutions as an Outgrowth of the Entertainment Industry"
American Society of Mechanical Engineers
Howard Hughes School of Engineering, University of Las Vegas, NV

"Hydrogen Embrittlement of Ferrous and Non-Ferrous Materials"
American Society for Metals, Detroit, MI.

Licenses and Certificates

1983 PE- Civil, Structural Engineering, CA
1994 Structural Research and Analysis Corporation
2001 AutoDesk Corporation, Developer
2003 Solidworks Corporation, Developer
2004 Corporate Performance Institute, CC Master of Negotiation
2005 DestiNY USA, CT Destinomics

Major Projects Mr. Read has been involved in:

(Most recent first)

Transportation:

Chimelong Railway	Zhuhai, China
Mshiereb Doha Tramway	Doha, Qatar
Downtown Dubai Trolley	Dubai, UAE
Oanjetstad Streetcar System	Aruba
éilan Streetcar System	San Antonio, Texas
Puerto Los Cabos Tram	San Jose Del Cabo, Mexico
Polo Square Streetcar	Indio, California
Maymont Park Peoplemover	Richmond, Virginia
Grand Station Trolley System	Loveland, Colorado
Wild Animal Park RoadTrain	Escondido, California
Chicago Metra Locomotive	Chicago, Illinois
The Grove Trolley	Los Angeles, California
Phase I Monorail	Las Vegas, Nevada

Ride, Show, and Facility Engineering:

Staples Center	Los Angeles, California
Hollywood Bowl	Hollywood, California
Crystal Cathedral	Garden Grove, California
Fremont Stages	Las Vegas, Nevada
Disney's California Adventure	Anaheim, California
Experience Music Project	Seattle, Washington
Universal City	Hollywood, California
Disneyland Hotel	Anaheim, California
Salt Lake Paralympics	Salt Lake City, Utah
Lost Continent	Universal Studios, Florida

Sony Pictures Studios	Culver City, California
Tokyo Disneyseas	Tokyo, Japan
Snoopy Studios	Universal Studios, Japan

Brad Read with Prime Minster Mike Eman of Aruba at the reception for the Diamond Award for Design Excellence, at the Waldorf Astoria Hotel in NYC.

Summary of Accomplishments – Joseph A. (Joe) Kneib

OVERVIEW

Since 1970, Joe Kneib has been integral to the growth and development of Herzog from a regional asphalt paving, light grading, small structure contractor into a national heavy/highway and rail company performing environmental, civil and rail construction, maintenance, and operations across North America. Joe was instrumental in early expansions for division operations in asphalt paving, environmental services, and aggregate production. For more than 20 years, Joe was a key advisor and supporter to Stan Herzog (Chairman and CEO) and Al Landes (President and COO) for all aspects of the Herzog organization.

After his initial startup and management of Herzog's asphalt paving operations in northwest Missouri, Joe's concentration has remained focused on business development. He has worked closely with all levels of public and private owners, local, state federal, and governmental entities in the development and performance of projects and contractual agreements for the railroad and transit industry. This has included leading estimating efforts, proposal development (both solicited and unsolicited), advisement, and assisting in project start-ups. As a former colleague put it – "It was Joe's job to uncover every rock to see if an opportunity was there."

In his role, Joe represented all Herzog divisions seeking and developing opportunities both domestically and internationally (such as South America, Australia, and the Middle East). He hosted various foreign dignitaries, rail industry, transportation executives at roundtables, site visits at international industry functions in major U.S. cities as well as in Herzog's corporate headquarters, shops, and projects throughout the U.S. Joe credits these successful site visits to the professionalism, hospitality and expertise of Herzog's project managers and staff. His long-standing strategic relationships with industry advocates, public/private owners, JV partners, and subcontractors have helped to secure key contracts for Herzog in highway, railroad, rail transit, and landfill construction.

Joe is best known for his ability to identify opportunities and bring the right people and resources together to get the job done. He has formed countless relationships within the construction, rail transit, environmental, and railroad industry in North America and abroad. He is constantly searching for potential work while staying current on emerging trends, technology, and opportunities. Joe is open-minded, easy to work with, and always strives to find the best possible solution to achieve success. He provides important context to working with Herzog's various clients and sees connections where others may see a roadblock. Whatever direction you point him, Joe will lay the groundwork for you. And once you've met him, he will know your name for life.

Former colleague, Arnold Shipp, retired Vice President of Operations, was Joe's first direct boss at Herzog. He revealed that "the key to Joe's successful pursuit of opportunities lies in the way he treats those he meets. He goes out of his way to talk to people at their level and demeanor, getting to know them beyond just their name and assets. It has helped him identify and secure a lot of successful work for Herzog over the years." Joe considered Arnold one of finest construction minds, manager, and person he's ever met in his life – so you can imagine he would greatly appreciate that compliment.

Joe doesn't boast about his accomplishments at Herzog but chooses to instead point to the contributions and successes of his colleagues such as Arnold, the Herzog family, and many others too numerous to mention. On several occasions, Joe has shared how intuitive, well-respected, and charismatic Herzog's founder William E. (Bill) Herzog was. Bill inspired Joe to be ethical, productive, and do quality work. He told Joe "If you don't love your family and enjoy getting up for work, you are in the wrong place." Joe also claims that Bill's belief in mentoring, listening, and encouraging young professionals and peers to achieve success have remained with him to this day. Bill believed that young people are the future of the company and the industry. Carrying that advice with him today, Joe seeks out new talent and treats each new employee to the "Herzog tour," fully educating them on where the company has been and where they are headed.

MILESTONE ACHIEVEMENTS

While attending college at Missouri Western State College, Joe was first exposed to the railroad industry as a switchman/brakeman on the CB&Q Railroad (now Burlington Northern). A few years later in **1970,** Bill Herzog hired Joe – a young, hard-working, scrappy laborer – for area paving and railroad projects. Taking great pride in his work, Joe began carving his way through the ranks as laborer, foreman, superintendent, and in **1973** earned his first big promotion to General Manager of MoKan Paving – Herzog's asphalt operations serving Northwest Missouri and Northeast Kansas. He transitioned into a larger role serving as Vice President of MoKan from **1975** until **1981**, supervising more than 150 employees.

During this period of asphalt operations growth, Herzog began to diversify and explore work in the railroad and waste management industries to offset costs during the winter months. With Joe's early experience on the railroad, he also became intimately involved in the development and expansion of Herzog's rail division and civil construction. He had a key role in the bidding and negotiation of Herzog's first big railroad contract for the U.S. Corps of Engineers in **1975** at the Clinton Dam/Truman Reservoir in Benton County, Missouri. This 12.5-mile relocation of MK&T Railroad (now the UPRR) from Shell City to Clinton, MO was the largest dollar contract for Herzog at the time (serving as a subcontractor to Luhr Brothers Company) and served as an important lesson in stakeholder coordination for the company.

In **1978**, Joe and Al Landes managed Herzog's first significant involvement with grading, electrical, sewer, utility, drainage, structures, and concrete work with a series of seven Interstate 229 projects near downtown St. Joseph, MO. The amount of civil work Herzog completed for MoDOT within a complicated and demanding schedule gave Herzog the necessary experience to begin pursuing rail construction projects with substantial heavy civil components.

In **1979**, Joe helped Herzog bid and win the southern California Tijuana Trolley contract. Herzog served as the prime contractor to build the trolley line from downtown San Diego to San Ysidro, CA for the Metropolitan Transit Development Board (MTDB). This project set the stage for Herzog's entrance into national transit work and future projects with MTDB.

Just as Herzog was experiencing newfound success in the rail industry, Herzog's asphalt division began bidding asphalt construction work outside of Missouri. As a result, Joe began setting up a strategic partnering, subcontractor, and supplier network for asphalt paving and rail construction projects throughout Texas, California, Arkansas, New Mexico, and Oklahoma. In **1980**, Joe helped Herzog secure

its first large-scale asphalt project as a prime contractor on a substantial section of Interstate 20 in Marshall, Texas. This work ultimately led to additional Texas asphalt contracts, significantly expanding Herzog's operations across the entire state and later into New Mexico.

In **1981**, Joe's responsibilities officially transitioned into the special projects and business development role he has today. He became instrumental in another diversification of Herzog's business – waste management. Joe's personal relationship with Les Haug of ECHO Engineering and Equipment Co. in Santa Ana, CA provided the foundation for a 20/80 venture on a 7-year operations contract with the County of San Diego to operate their six landfills (1982-1995). This long-term contract in environmental services allowed Herzog to incorporate as Herzog Environmental, Inc. and pursue additional work for landfills in Kansas, Colorado, New Mexico, and the U.S. Territory of Guam. This company has since evolved into a 50/50 joint venture company (between Herzog and Philips & Jordan) known as Green Group Holdings, LLC.

In **1985**, Joe learned that the Kansas City Southern (KCS) railroad sought a way to easily obtain ballast near their railroad line. Joe spearheaded the effort to find a suitable area to develop and startup a rock quarry in West Hatton, AR. Shortly after quarry production began, Herzog built a rail spur from the quarry to the KCS railroad to expedite transport. As many of 100 cars plus per day were loaded with riprap, asphalt materials, concrete rock, and railroad ballast. When the quarry was sold in 1995, the 1,000+ acre quarry was producing approximately 2.2M tons of rock per year. The sale to Meridian Minerals/Martin Marietta led to Herzog's ownership of over 5,000 railcars giving a healthy boost to Herzog's Railroad Services, Inc's equipment inventory. The success in the quarry business also enabled Herzog to incorporate as Herzog's Stone Products, Inc. and open portable quarry operations throughout Kansas, Oklahoma, Arkansas, Texas, and New Mexico.

Joe's other notable achievements during this period include winning a 15-year contract with the Metropolitan Council in St Paul, MN for beneficial reuse of incinerator sewage sludge ash and a 13-year contract with the BNSF for the transport and unloading of aggregate for the American Crystal Sugar Company. Joe was also involved with the acquisition of Herzog's wholly-owned subsidiary, Tru-Flex Manufacturing, in **1988**. This metal hose manufacturer in West Lebanon, IN supplied the asphalt paving equipment industry with necessary metal hoses. Not only did Joe bring the entity to Herzog's consideration, but also identified buyers for the sale at 15 times the purchase price in **2008**.

Working behind the scenes, Joe has had significant involvement in the partnering, proposal strategy, negotiation, and start-up of nearly all of Herzog's major rail transportation projects throughout the U.S. One of his first efforts, included serving a key role in the preconstruction and start-up for the Southern Pacific (now UPRR) relocation and the construction of the LACMTA Blue Line and Long Beach segments in Los Angeles, CA, in **1987**.

In the **1990s**, Joe began exploring work abroad, building teams to propose on newly privatized rail projects. In Australia, Herzog pursued 14 different railroad construction projects in New South Wales. In Chile, Herzog proposed on the reconstruction of 900 km of track infrastructure, rolling stock, and operations for the Empresa de los Ferrocarriles del Estado (EFE) railway from Puerto Montt to Santiago, Chile. After putting in years of work towards these pursuits, clients halted these projects for various reasons.

In **1997**, Joe helped convince Herzog's project manager Frank Storbakken (and the construction team) to utilize an alternate construction method for the rail construction of the Red Line Tunnel project in North Hollywood, CA. This change resulted in a swing of more than $9M from what could have been a negative profit project should it have been built how it was bid and the way a previous contractor constructed an adjacent project.

From **2002-2005** on the $130M CTX North & South in San Francisco, CA, Joe served as a liaison between the Herzog/Stacy and Witbeck joint venture's project manager, the Caltrain project manager, UPRR freight service, and Amtrak passenger service for track access, scheduling, property acquisition, and material acquisitions. This project gave Herzog significant credibility for completing necessary construction work in live track environments. Caltrain experienced on-time delivery and assessed no liquidated damages. Today a subsidiary for Herzog's operation and maintenance arm, Herzog Transit Services, Inc. (HTSI), operates the passenger rail service along this corridor.

New Mexico Council of Government's (NMCOG) $128M RailRunner II and $20M RailRunner III project in Santa Fe, NM was on and off for several years while necessary funding was secured. Once the project was out for bid, from **2004-2005**, Joe was integral in the proposal, negotiation, procurement, and startup efforts for both Herzog Contracting Corp. (construction) and HTSI (operations and maintenance).

From **2005-2006**, Joe, and former colleague Jim Cunningham, shaped the Herzog/Stacy Witbeck JV winning project strategy and managed the proposal development for the $370M RTD West Corridor LRT. This project became the first CM/GC project in Colorado and was awarded one of the safest, linear heavy civil projects in the state due to project manager John West and Herzog's commitment to safety.

Between **2010-2015**, Joe sought out more international work for Herzog – leading teaming efforts on mega rail projects in the United Arab Emirates (UAE) for Etihad Rail as well as the Kingdom of Saudi Arabia (SAR) & Saudi Railways Organization (SRO). Although the construction contracts that Herzog bid on with the Saudi Bin laden Group were ultimately cancelled, Herzog was invited back in September in 2017 to propose on the operations and maintenance for the Etihad Rail project. In **2011**, Joe also led proposal efforts with HARSCO Rail on the 281-mile, $1.8B Haramain Phase 1 High Speed Rail project.

From **2008-2013**, the Regional Transit District (RTD) in Denver, CO put several projects out for bid on multiple expansions to their LRT system. Joe served as Herzog's proposal sponsor for both Herzog and Stacy and Witbeck within the construction joint venture on the $3B Eagle P3 rail construction project running from Denver International Airport to Union Station in downtown Denver, CO. He also led the strategic efforts for the Herzog/Stacy and Witbeck JV (within the Bechtel team) on the P3 pursuit for the construction of five new LRT lines in Denver. The contract ultimately evolved into a design-build for only one of the lines (North Metro). Herzog's team was announced as the low bidder but not awarded the best value project contract.

Back stateside, from **2011-2012**, Joe served as a sponsor for the Herzog/Stacy and Witbeck JV in the pre-proposal, proposal, and interview efforts for the $88M KC Streetcar construction project with the City of Kansas City, Kansas City Streetcar Authority, and representatives from the four stakeholder areas (Union Station, Crossroads, Power and Light, and River Market). Joe's ability to connect with the necessary people laid the groundwork for Al Landes and Stacy and Witbeck partners to work through negotiations with the city during contract award. With Herzog's subsequent award of the operations and maintenance contract, transit management provided valuable electrification system and operations input into the KC Streetcar construction.

From **2015 to 2018**, Joe continued to attend annual industry conferences both nationally and internationally, mentor and advise our next generation of leaders at Herzog, and serve an integral role in the pursuit of various civil and rail projects such as the $1.3B MBTA Green Line project, recently awarded to the design-build joint venture (Fluor/Middlesex/Herzog/ Balfour Beatty) in 2017. Joe was also recently bestowed an Outstanding Service Award for his tireless efforts and dedication to the support of the National Council for Public-Private Partnerships (NCPPP).

PROFESSIONAL AFFILIATIONS

Joe's tenacity, positive attitude, and strong work ethic within the construction industry has led him to get involved, build teams, and earn credibility with industry associations throughout his career. His continued involvement is due to his genuine interest in supporting infrastructure development in the U.S. and teaming up with the new faces in construction.

- Associated General Contractors (AGC) of America – Public-Private Partnerships (PPP) committee, task force & member
- AGC local chapters (MO, KS, CO, MN, SD, ND, IA, NE, OK, NM, TX, AR, CA, AZ, UT, NV) – member
- AGC International Division – member
- American Road & Transportation Builders Association (ARTBA) – PPP, High Speed Rail, Rail Mass Transit committees, task forces & member

- National Council for Public-Private Partnerships (NCPPP) – Transportation Institute board member
- Canadian Council for Public Private Partnerships - member
- National Railroad Construction and Maintenance Association, Inc. (NRC) – member
- American Railway Engineering and Maintenance-of-Way Association (AREMA) – member
- Solid Waste Association of North America (SWANA) – member
- National Waste & Recycling Association (NWRA) – member
- Associated Builders and Contractors (ABC) – member
- American Association of Railroads (AAR/GO-21) – member
- Greater Kansas City Chamber of Commerce – Transportation task force & member
- National Right to Work committee – member
- St. Joseph, MO, Chamber of Commerce – Transportation and Industrial Development task force, Industrial Development committee member
- U.S/UAE Business Council – member
- Mayor's 5-year Oversight Committee for 2-C Tax Referendum ($250M street reconstruction), Colorado Springs, CO
- Northwest MO/Northeast KS Building and Industry Association – former President & member
- United Arab Emirates (UAE) Chamber of Commerce – former member

JOE KNEIB

Consultant

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Profile

- 50 years of management and business development experience in the rail, highway, and heavy construction industry
- Played an integral role in developing Herzog Contracting Corp. from a regional highway construction company to a national and international construction, operations, and maintenance firm
- Has built long-standing relationships with public/private owners and stakeholders
- Strategically identifies project needs, innovations, and market trends

Relevant Experience

Herzog Contracting Corp. : St. Joseph, MO : 1970-2018

Senior Vice President, Market Development

- Organized construction and equity participation in public private partnerships for domestic and international transportation projects
- Worked closely with local, state, federal and international governmental transportation entities for the development of contractual agreements and innovative solutions for complex transportation problems
- Instrumental in advancement of Herzog's environmental division for construction of landfills, beneficial reuse of municipal and industrial waste materials, and transportation and disposal of hazardous materials
- Involved in the early concepting and marketing of Herzog's proprietary material-handling rail equipment
- Instrumental in the expansion of Herzog's rail car leasing, ballast transportation, and distribution system in North America
- Former Vice President and General Manager of Mo-Kan Paving, Inc. a fully-owned division of Herzog Contracting Corp.
- Former superintendent, foreman, and laborer for asphalt paving, grading, and railroad construction projects

Burlington Northern Railroad, Operating and Maintenance Division : MO/NE/IA : 1967-1969

Switchman/Brakeman

- Performed maintenance of way operations in freight yard and main lines
- Assembled and dissembled trains for destination locations

Land Construction Company : St. Joseph, MO : 1966-1967

Labor and Heavy Equipment Operator

- Varying responsibilities for grading, asphalt paving, and concrete patching

Education

Coursework in Business Administration,
Missouri Western State University,
St. Joseph, MO, 1966-1970

Board & Committee Experience

Associated General Contractors (AGC), International Division and Public-Private Partnerships task force

American Road & Transportation Builders Association (ARTBA), High Speed Rail and Rail Mass Transit committee

National Council for Public-Private Partnerships (NCPPP), Transportation Institute board member

Former Heartland Hospital Foundation board member

Additional Membership Organizations

National Railroad Construction and Maintenance Association, Inc. (NRC)

American Railway Engineering and Maintenance-of-Way Association (AREMA)

Solid Waste Association of North America (SWANA)

National Waste & Recycling Association (NWRA)

Associated Builders and Contractors (ABC)

American Association of Railroads (AAR/GO-21)

References

Les Gruen
President/Owner of Urban Strategies, Inc.
Former Commissioner for CDOT
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urbanstrategies@msn.com

Steve Miller
Founding Partner
Miller Shirger, LLC
(816) 916-9055
smiller@millerschirger.com

Sherry Little
Partner/Co-Founder of Spartan Solutions, LLC
Former Acting Administrator for the Federal Transit Administration (FTA)
(202) 412-2855
sherry@spartansolutions.org

Richard Norment
Independent Consultant
Former Executive Director for NCPPP
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MARK F. JOHANNESSEN
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Aptos, CA 95001

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mfjlaw@gmail.com

Legal and Professional Experience

Attorney - international law and business, Nagashima & Ohno (now Nagashina, Ohno & Tsunematsu), Tokyo, Japan

- Prepared licensing, joint venture, business acquisition, business development, distributorship, and other legal agreements,
- Assisted Japanese counterparts with contract negotiations,
- Prepared memorandum and articles on matters relating to Japanese tax, employment, securities, financing and general corporate law,
- Worked on aircraft leasing projects, the establishment of foreign-owned businesses in Japan and support for Japanese-owned businesses in the U.S., Asia, South America, Europe, Russia, and Middle East.

Attorney in private law practice, Sacramento, Santa Cruz, California

- Advised and consulted on domestic and international transactional and business development issues,
- Experienced family law litigator, mediator and collaborative professional.

Certified Public Accountant and Tax Manager, Price Waterhouse (now PwC) in the Amsterdam, Newport Beach and San Francisco offices

- Consulted on individual, corporate and partnership tax matters,
- Managed compliance work, client projections and forecasting,
- Engaged in practice development,
- Supervised client programs,
- Performed budgeting and billing services,
- Assisted with tax related seminars and research projects.

Political Experience

Mayor Pro Tem/Council Member, City of West Sacramento, California (pop. 55,000)

- Elected November 2006. re-elected November 2010, and again in November 2014. Resigned December 2018,
- Worked with regional, state and federal elected officials on funding and policy support on a variety of city issues including transportation, housing, homelessness, flood protection, and others,

- Spearheaded the development of an award-winning comprehensive active-aging plan to address the city's aging population in partnership with AARP,
- Pushed future-looking initiatives including reduction of the city's carbon footprint and increasing its hydrogen footprint, smart city policy development and implementation, addressing the digital divide, job creation, and mobility,
- Spearheaded the installation of the first public hydrogen automobile fueling station in California, located in West Sacramento,
- Member of the West Sacramento – Sacramento Streetcar Policy Steering Committee.

Business Experience

Environmental infrastructure consultant

- Provided team leadership and legal support for foreign municipal and industrial water and wastewater treatment system pre-development work and other environmental projects,
- Successfully produced a USAID-funded pre-feasibility study for a privatized water and wastewater project in Bulgaria,
- Conducted market surveys and analysis,
- Identified projects and conducted foreign site work in Chile, Argentina, Czech Republic and Bulgaria,
- Consulted with government authorities (foreign and U.S.),
- Located and selected in-country business and project development partners.

International trade consultant

- Coordinated the *ELAN* (Export Legal Assistant Network) for the Northeastern, California region and provided consulting services to regional businesses desiring to enter foreign markets,
- Provided legal support to regional businesses with an established foreign presence.

Software development and sales

- Developed and sold iOS apps specific to Apple devices,
- Consulted and developed web-based, data-driven applications,
- Experienced coder in various languages including Swift, Objective C, JavaScript, Java, PERL, PHP, HTML, CSS and others,
- Produced audio, video and graphics content.

Education

Graduate – Harvard Kennedy School Executive Program "Driving Government Performance", Cambridge, Massachusetts.

Juris Doctor - Southwestern University School of Law, Los Angeles, California and University of the Pacific, McGeorge School of Law, Sacramento, California.

M.B.A. - Golden Gate University, San Francisco, California.

B.S. - Business Administration & Accounting, California State University, Chico, California

Language Schools - Japanese - Tokyo, Japan; Dutch - Amsterdam, the Netherlands

Present civic engagement and public service

Superior Court Judge Pro Tem for traffic, small claims and family law courts in Sacramento and Santa Cruz Counties

Chair of the California Senate Advisory Commission on Cost Control in State Government

Commissioner on the Santa Cruz County Senior Commission

President-elect of the Santa Cruz County Bar Association

Member of Santa Cruz Divorce Solutions, a collaborative professional group for family law cases

Past civic engagement and public service

Commissioner on the Port of West Sacramento governing board

Commissioner on the Yolo Housing Authority board

Commissioner on the Yolo-Solano Air Quality Management District

Commissioner with the Yolo County 10-Year Plan to End Homelessness Executive Commission

Member of the Sacramento delegation of the California Conference of Bar Associations

Volunteer family law mediator with the Sacramento County Superior Court

Member of FLEXCOM (Family Law Executive Committee) review team for pending family law legislation

Member of the Yolo County Economic Development Council. Organized the Yolo County Economic Summit 2004 in February 2004

Board Member of the West Sacramento Chamber of Commerce. Past Vice President and Treasurer and past chair of the Chamber's Economic Development, Governmental Affairs and Public Affairs Committees

Northeastern California Regional Coordinator for the *ELAN* (Export Legal Assistant Network) program, a program co-sponsored by the Federal Bar Association, U.S. Small Business Administration and U.S. Department of Commerce to provide legal and export advice to regional businesses

Founding director and President of West Sacramento Neighbors Fair, Inc., which organized and operated the annual West Sacramento Neighbors Fair and Community Day Parade

Founding director and board member of West Sacramento Community Theater, Inc.

Vice President and board member of the West Sacramento Historical Society

Chair of the St. Francis of Assisi Elementary School Catholic School Advisory Commission

Member of West Sacramento Centennial Rotary Club

Other

Moderator of the panel "Technology and Equipment Sales to Water and Wastewater Projects in Latin America" for the conference entitled "Building and Financing Latin America Water and Wastewater Infrastructure: Focus on Argentina and Brazil" sponsored by the U.S. Trade and Development Agency and the Institute of the Americas in Philadelphia, Pennsylvania, October 1996.

Writer: "Discretionary Powers Can Be a High Hurdle in Japanese Trade", *The Business Journal,* Sacramento, California, April 23, 1990.

Co-Writer with Hiroshi Goto: "Sources of Legal Advice in Japan", *The California International Practitioner,* Vol. 2, No. 1, 1990-1991.

* Currently in inactive status

** Certified Family Law Specialist, certified by the State Bar of California, Board of Legal Specialization

TIG/m SELF-POWERED TRAMS

BATTERY / HYDROGEN HYBRID

ALL POWER CARRIED ON-BOARD

NO OVERHEAD WIRE

NO CHARGING AT STATIONS

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LRT Mexico

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The art of transportation

INTERNATIONAL TRANSPORTATION
DESIGN/BUILD/OPERATE/MAINTAIN

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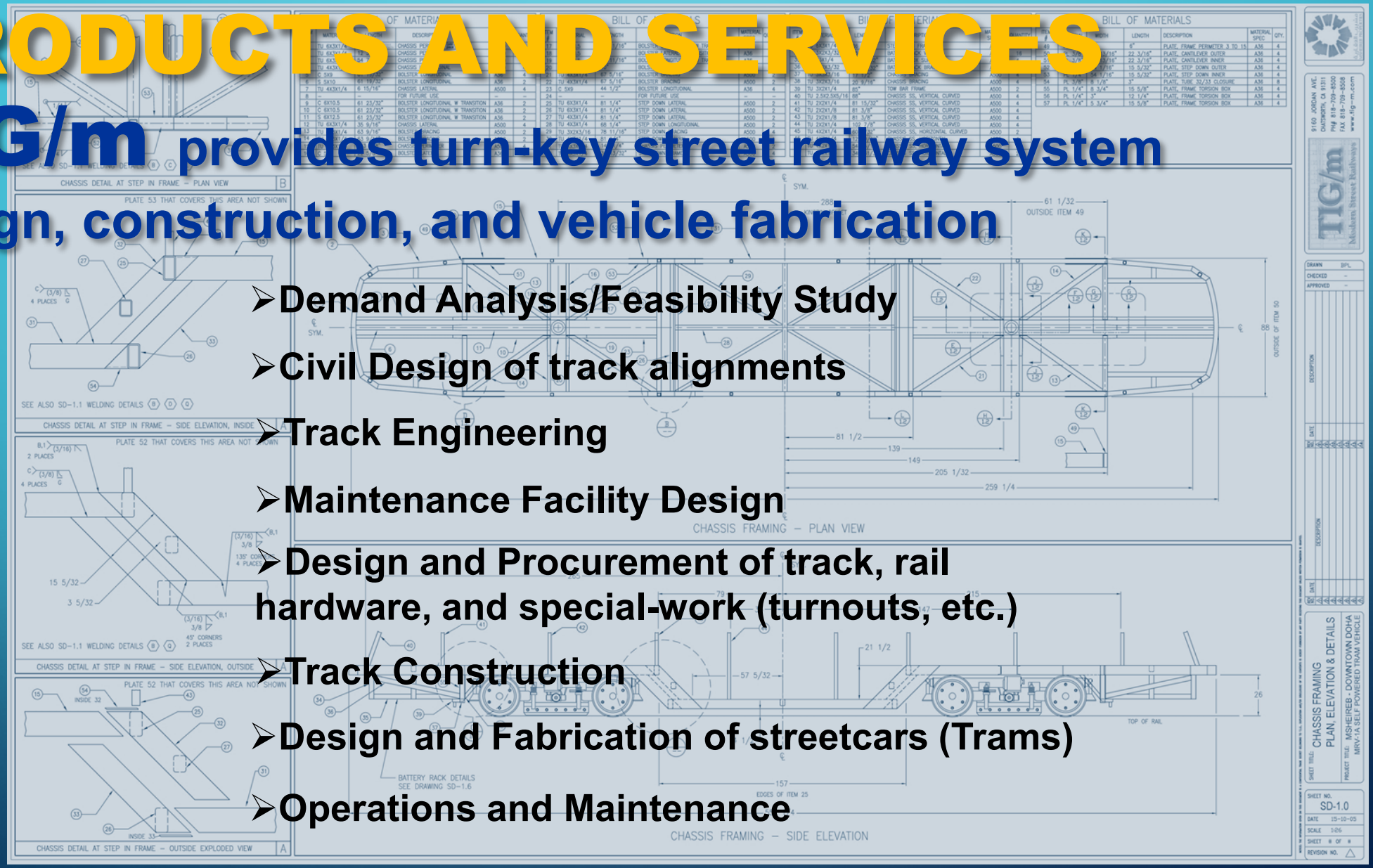
PRODUCTS AND SERVICES

TIG/m provides turn-key street railway system design, construction, and vehicle fabrication

- Demand Analysis/Feasibility Study
- Civil Design of track alignments
- Track Engineering
- Maintenance Facility Design
- Design and Procurement of track, rail hardware, and special-work (turnouts, etc.)
- Track Construction
- Design and Fabrication of streetcars (Trams)
- Operations and Maintenance



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TIG/m MANUFACTURES:
BATTERY DOMINANT SERIAL-HYBRID SELF-POWERED ELECTRIC TRAMS

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Modern Street Railways

MODERN TRAMS

TIG/m MRV-3AC single-body Modern Streetcar.

(pass.cap. 100. 33 seated + 67 standing)

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MODERN TRAMS

Advanced Systems

- Virtual Tram Detection
- Next Tram Arrival
- On-Board CCTV
- IP Camera Broadcasting
- On-Board Cisco WAP

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19-83
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Street Railways

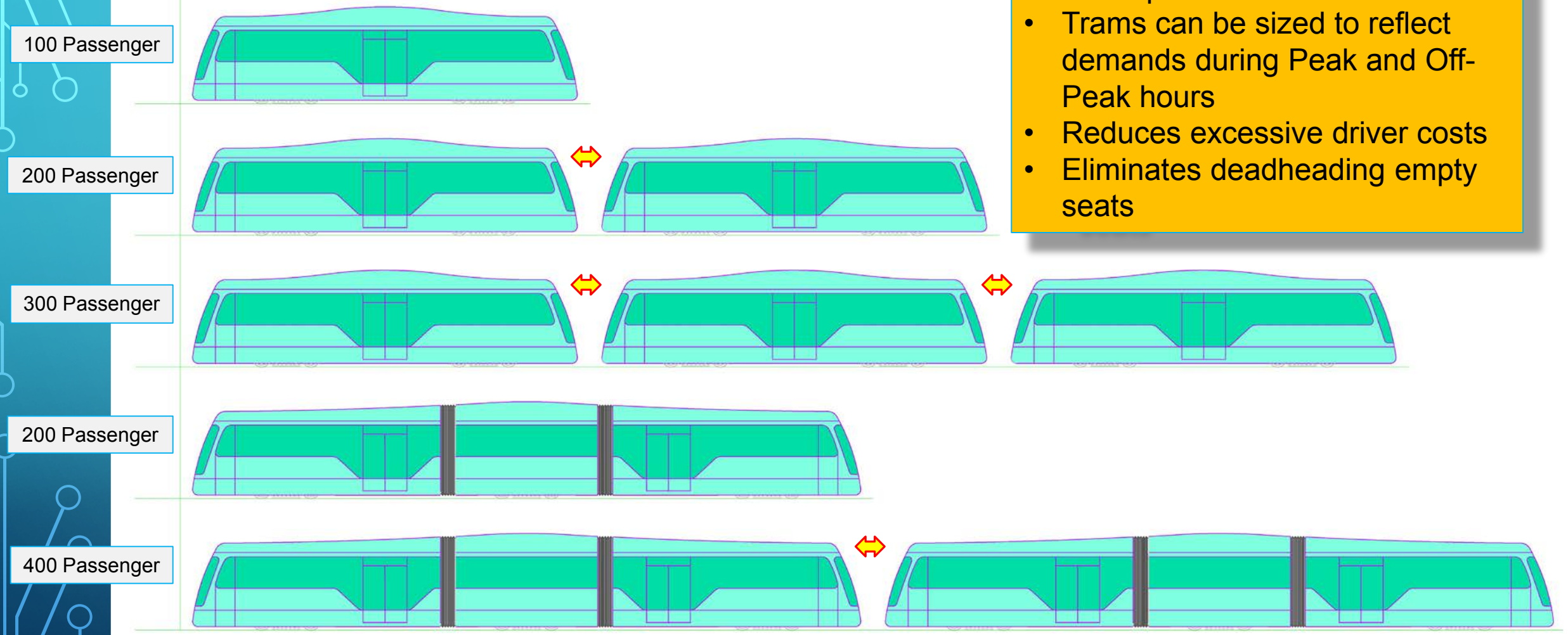
VIRTUAL COUPLER

TIG/m Virtual Coupler™

TIG/m
Modern Street Railways

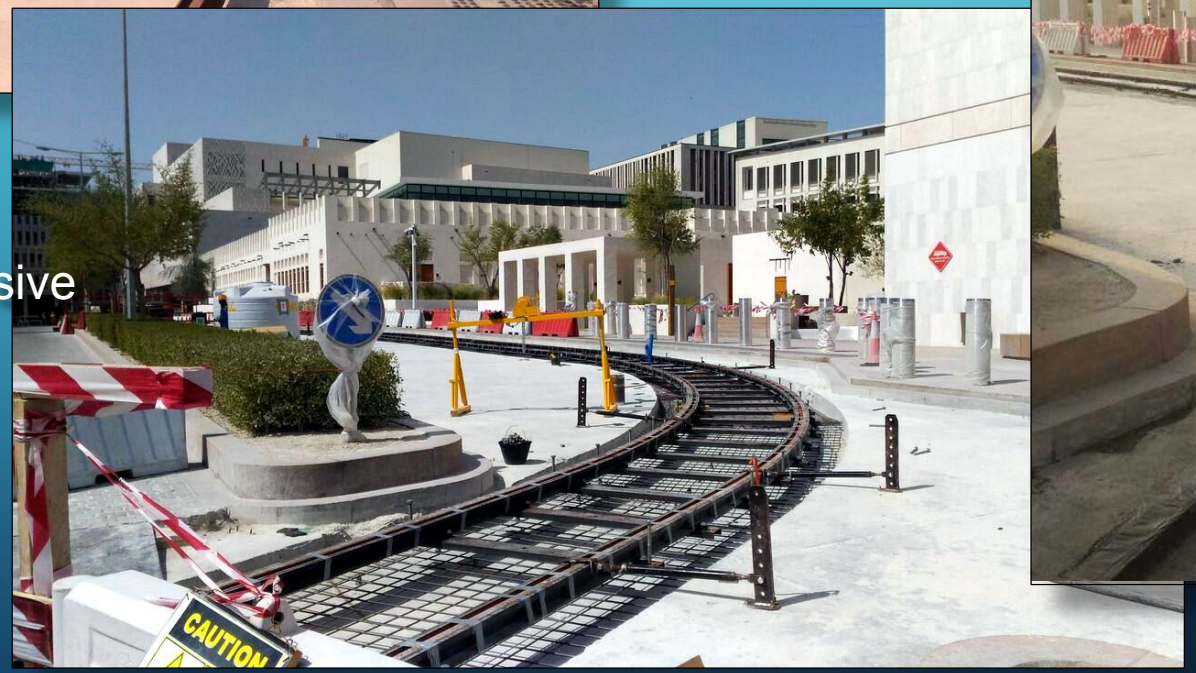
VIRTUAL COUPLER

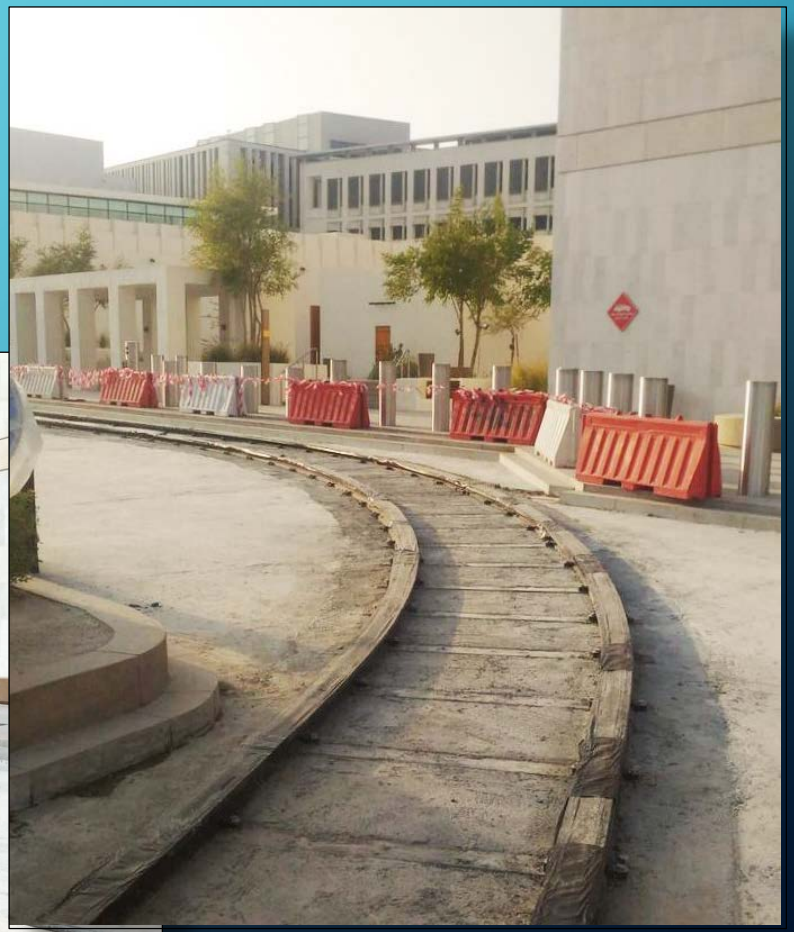
- Scalable Tram Size
- Non-mechanical vehicle coupling at the push of a button
- Trams can be sized to reflect demands during Peak and Off-Peak hours
- Reduces excessive driver costs
- Eliminates deadheading empty seats



TIG/m Virtual Coupler™

TRACK INSTALLATION

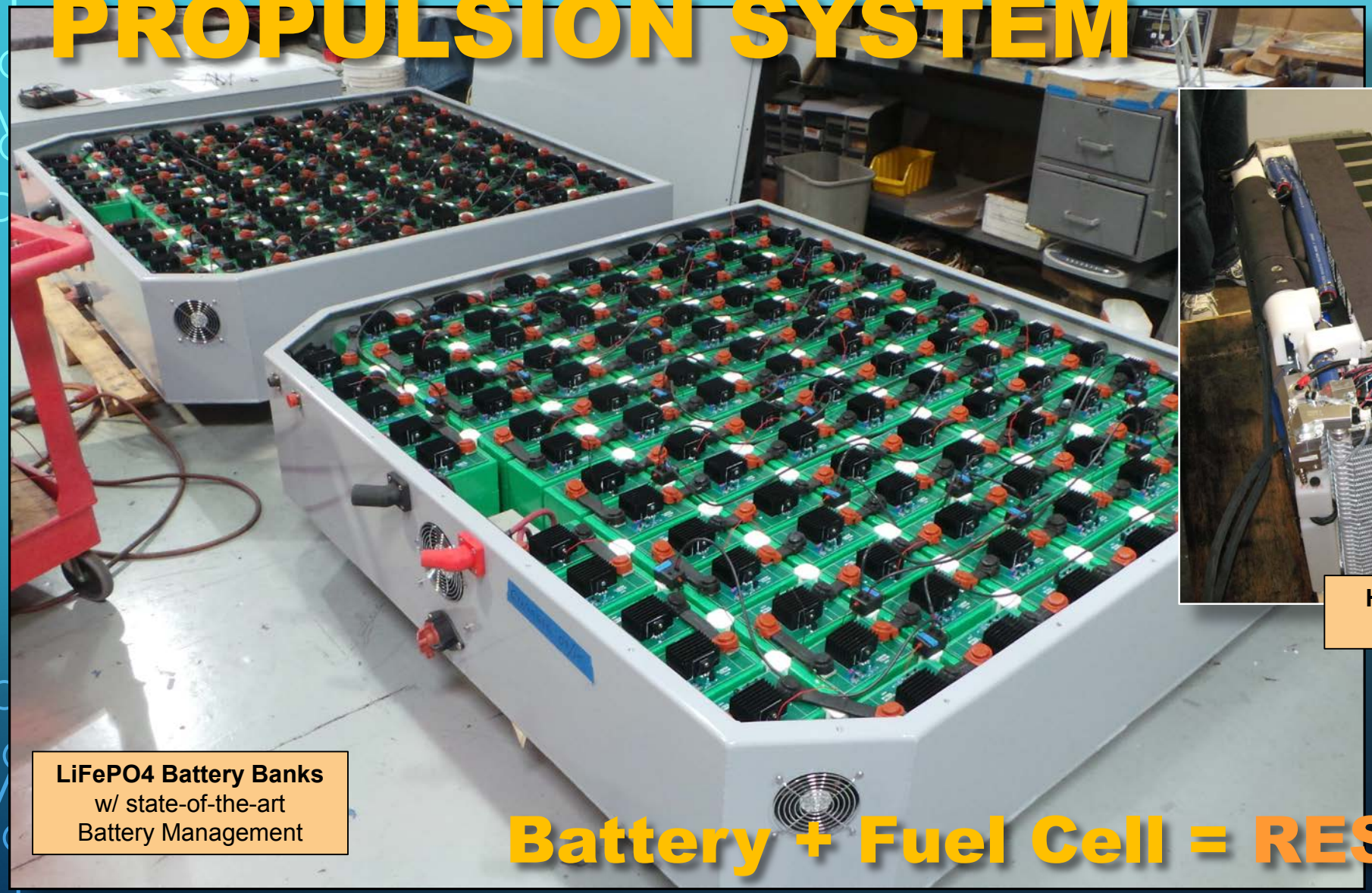




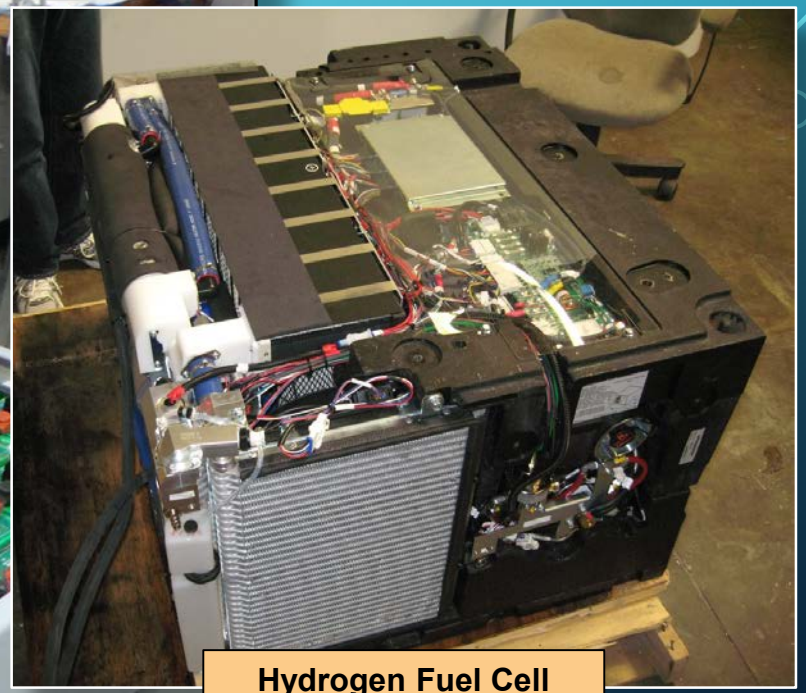
- Non-electrified
- Low impact
- Rapid and inexpensive installation

TRACK INSTALLATION

PROPULSION SYSTEM



LiFePO4 Battery Banks
w/ state-of-the-art
Battery Management



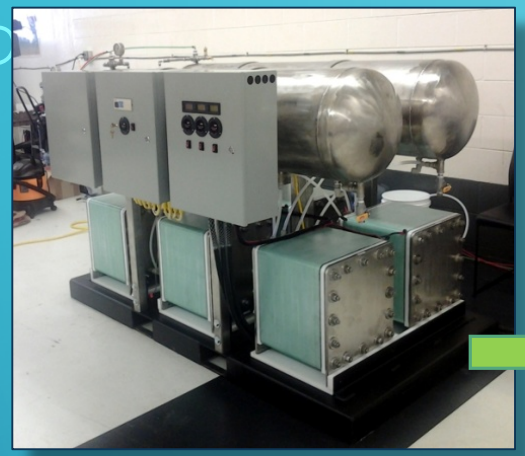
Hydrogen Fuel Cell Generator

Battery + Fuel Cell = RESILIENCY

HYDROGEN FUELING SYSTEMS

On-site hydrogen production

Eliminates high cost of transportation, distribution, and transfer losses



Electrolysis of H^2O

Compression and Storage

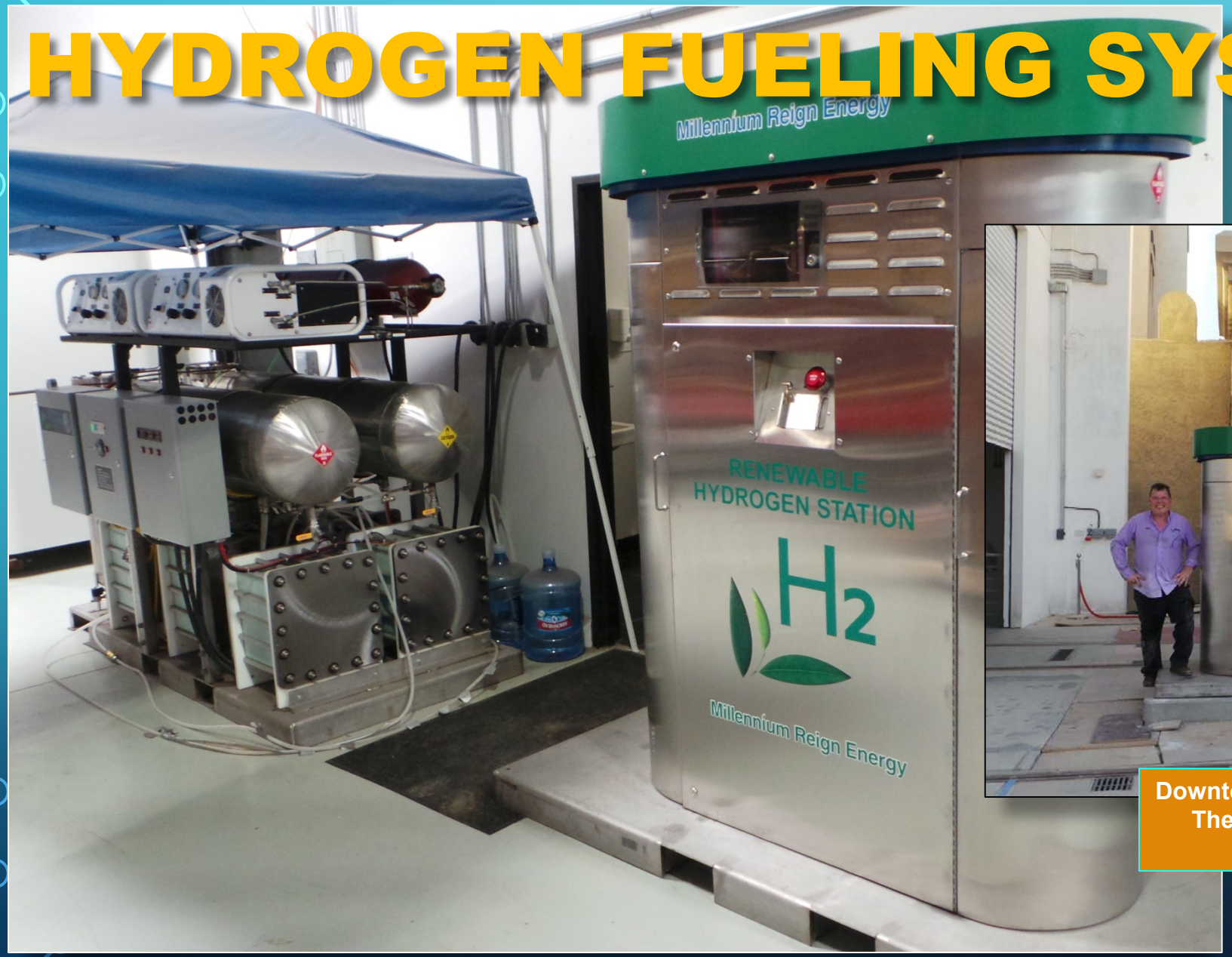
Dispensing System

TIG/m Streetcar

Depending on local cost of electricity, H^2 costs can be as low as $2-4 GGE

TIG/m Modern Street Railways

HYDROGEN FUELING SYSTEMS



Downtown Dubai Trolley System, The first Hydrogen Fueling Station in Dubai

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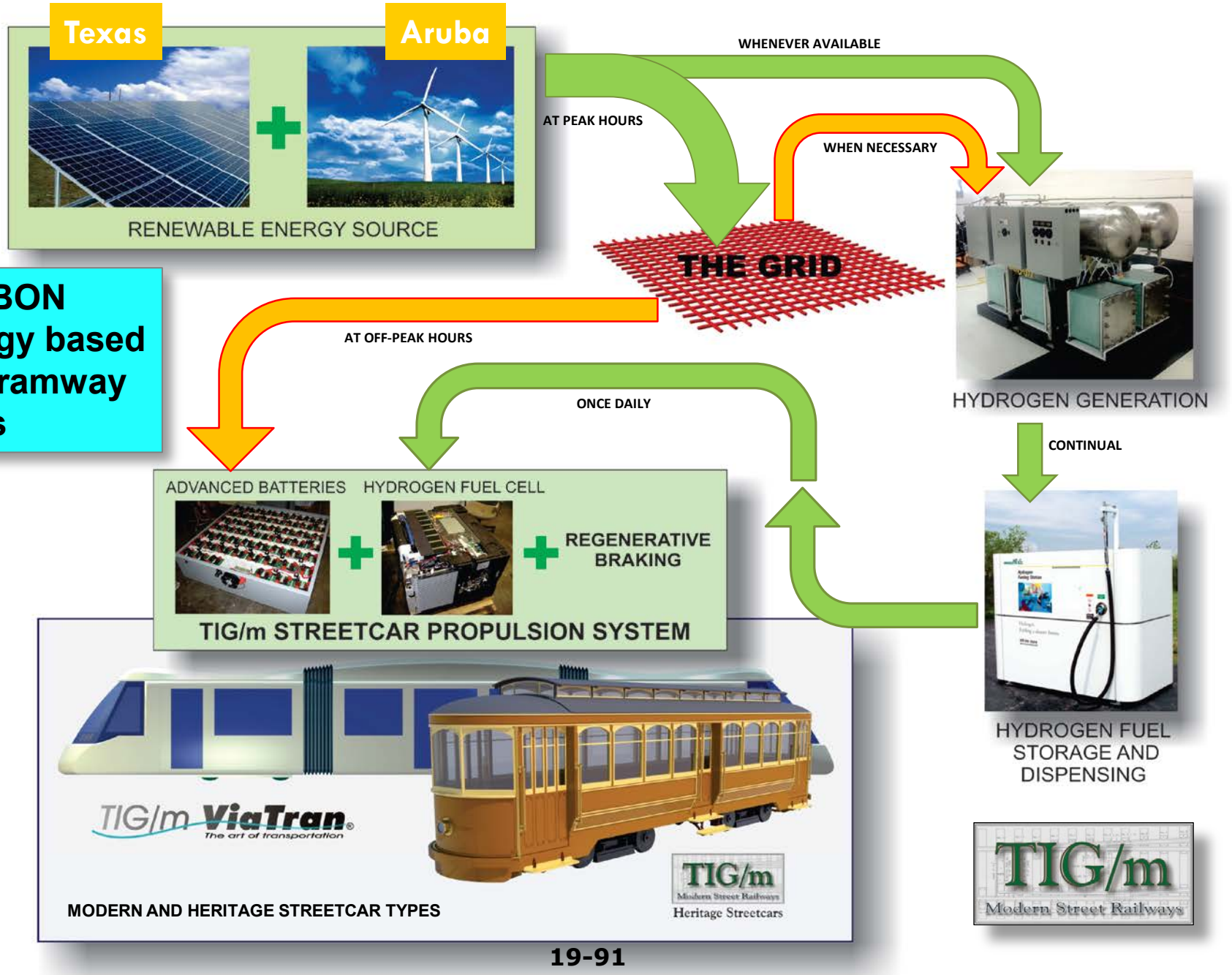
ZERO-CARBON Renewable-energy based Self-Powered Tramway Systems



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Thank you for your interest in our street railway systems

*We hope we can be of **service to you***

MANUFACTURED IN CHATSWORTH, CALIFORNIA, USA

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Modern Street Railways

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TIG/m, LLC ORGANIZATIONAL CHART

January 1, 2020