City of San Jose **9/30/19**

Response to Solicitation RFI 2019-DOT-PPD-4

RESPONDENT PROFILE

I. **Legal name of Company:** CyberTran International Incorporated (CTI)
II. **Address:** 1301 S. 46th Avenue, Richmond, CA 94804
III. **Legal Status:** An Idaho Corporation
IV. **Contact Name and Title:** Dexter Vizinau, President
V. **Contact Email Address:** dvizinau@cybertran.com
VI. **Contact Phone Number:** 510-472-4145
VII. **High Level Description of Concept:**

CyberTran International, Inc.'s (CTI) Ultralight Rail Transit (ULRT) is a grade-separated, point-to-point, on demand transit system. It distributes passenger and vehicle load over the length of the guideway by the use of many nimble, lighter weight rail vehicles (20-30 passengers, 10,000 lbs. loaded) to reduce capital, operating and maintenance costs while providing an enhanced level of service. Stations are located off-line or are incorporated into buildings (such as airport terminals) to provide direct-to-point travel without the need for intermediate stops, which provides a higher effective speed. Automation allows real-time collation of passenger demand to schedule vehicles on-demand, through mobile apps as an option. It also allows the Airport Connector and the Stevens Creek line to be fully integrated and operate as a single system with no need to transfer. The system will be solar-powered and has a zero-carbon-footprint. The system has been designed for speed up to 60 mph, and will ultimately reach 150 mph. Lines can be networked together, allowing any vehicle in the system to travel from any station directly to any other station within a network that can be easily expanded to meet the community's demand and needs. The result provides an environmental and financially sustainable system that can be deployed along and/or within public-right-of-way on trench or tunnel, and/or viaduct (such as in the median of Stevens Creek Boulevard) or over airport parking lots much faster than the legacy transit system.

VIII. **High Level Description of Business Plan:**

The ULRT operation is significantly more cost effective than legacy transit systems. Therefore, the operating costs and farebox recovery ratio will be much more favorable then current systems. In addition to farebox revenue, the system provides multiple opportunities to generate additional revenue including selling energy during peak hours, advertisements, leasing the guideway for utility runs, tax increment from higher development density, carbon credit and vehicle mile reduction credits, etc. CTI is open to multiple operation models with the Design Build Operate and Maintain (DBOM) being a preferred option since this can provide the City with the assurance of the service and quality of the new transit system.

A. PROPOSED CONCEPT

I. Provide a High-Level Description of Your Concept(s):

Ultralight Rail Transit originated at the US Department of Energy's Idaho National Laboratory. Engineers there conducted a system engineering analysis to solve the problem of the high cost of passenger transit services. After extensive research and analysis, they concluded that the primary cost driver of passenger rail is the weight of the vehicle. With the advancements in vehicle automation, additional cost reduction and safety enhancement can be achieved through the use of advanced technologies.

The vehicle weight drives the size and cost of the civil structure that supports it and the footprint of fixed guideway transit projects. It also limits the ability of these systems to serve urbanized area (due to vehicle size and large turning radius) and to provide last mile connection. The civil structure typically comprises 50-70% of the overall system cost. This led to the conclusion that lighter weight vehicles would greatly reduce the total system cost. They are also nimbler and can turn on tighter radius (70 ft. for ULRT) to provide last mile connections.

It was determined that an optimum passenger load to balance vehicle size and economy would be between 6-30 Passengers per vehicle. This provides reasonable passenger capacity (up to 9,000 per line per hour for ULRT) while keeping the vehicle weight and costs low. Because the use of multiple transit vehicles can create complex scheduling challenges, automation is the true enabling technology for ULRT.

All vehicles will be operated in autonomous mode. Central control collates demand from stations or mobile apps and manages vehicle movements in real-time and not necessarily on fixed schedule. This on-demand approach provides superior service and reduces cost as the system does not dispatch empty vehicles without demand.

Traction power is delivered by a third rail and fed by solar panels mounted above the guideway and supplemented by the power of the grid. Depending on the configurations of the solar panels, energy storage systems and vehicle operations, the ULRT system can be a net energy provider.

The vehicles utilize patented single-axle (per bogie) steel wheel-on-steel rail technology. This is more energy efficient than rubber-tired system while the single axle configuration allows the vehicle to handle curves down to a 70 ft. radius.

The guideway will be grade separated to provide safe, uninterrupted and reliable operations. The guideway structure will include either precast pre-tensioned concrete girders or steel trusses that will be fabricated off-site. They will be supported on either concrete or steel columns sitting on piled foundation or footings. The structural system will be designed to minimize cost while allowing for rapid deployment.

All stations will be offline and can either be a standalone station or fully integrated with an existing or planned building, parking facilities, and developments. This provides users with a point-to-point connection with no intermediate stops, thereby providing a shorter transit time. More specifically, offline stations provide the following advantages over legacy in-line transit systems:

a) No online stopping. Vehicles pull off the main line allowing other vehicles going to other stations to bypass the immediate station. This is safer and allows higher average speeds and capacities on the main line.

b) Offline stations allow Transit-Oriented-Developments (TODs) to be located on sidings at any distance from the main line. Vehicles are smaller and lighter (10,000 lbs. full) and can be more easily integrated into TOD building structures.

c) Offline stations can be added in any number because vehicles stopped in stations do not decrease the average speed on the main line. This means that more stations are feasible, producing more origins and destinations and increasing the convenience of the system while creating a larger potential pool of passengers.

d) With a high number of ULRT vehicles and more stations, vehicles can be operated on-demand and direct-to-destination. Line capacities can be up to 9000 passengers/hour/direction with available control technology, and higher as vehicle-to-vehicle (V2V) technology further advances. ULRT has a control system advantage over automobile automation because rail systems are self-steering. There is no steering control technology required. Therefore, vehicle control technology is reduced to acceleration and braking. It is inherently simpler, less costly, more reliable, and safer.

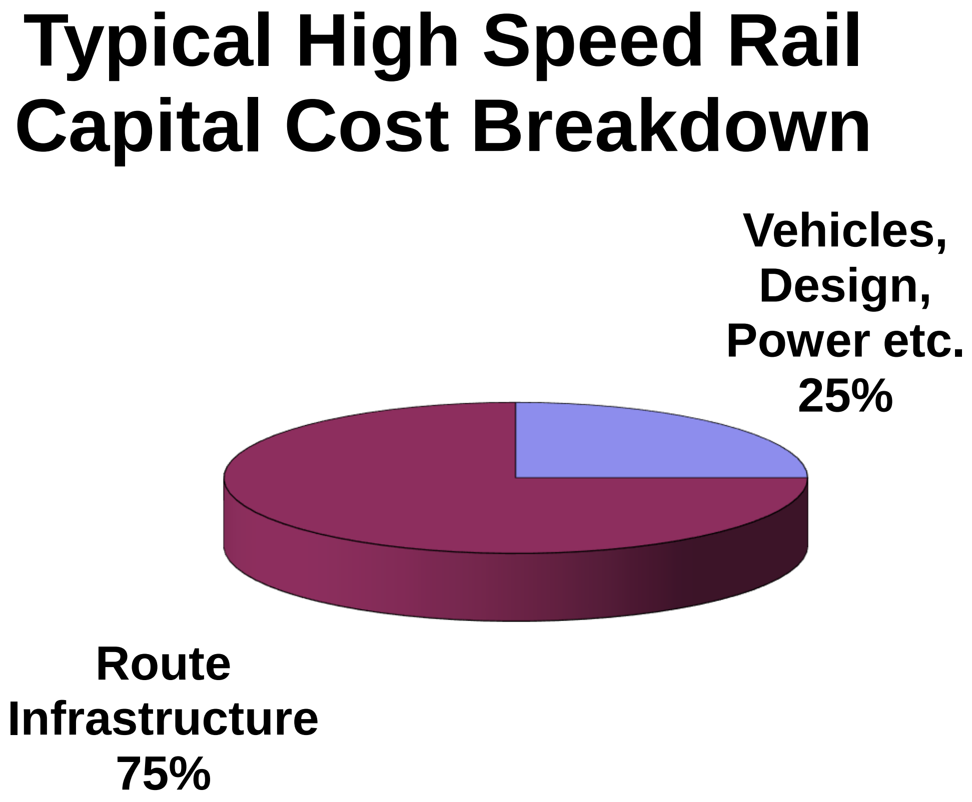
e) Improved energy efficiency. The elimination of unnecessary start-stop reduces energy usage needed for vehicles to accelerate from a station to reach cruising speed on the mainline tracks.

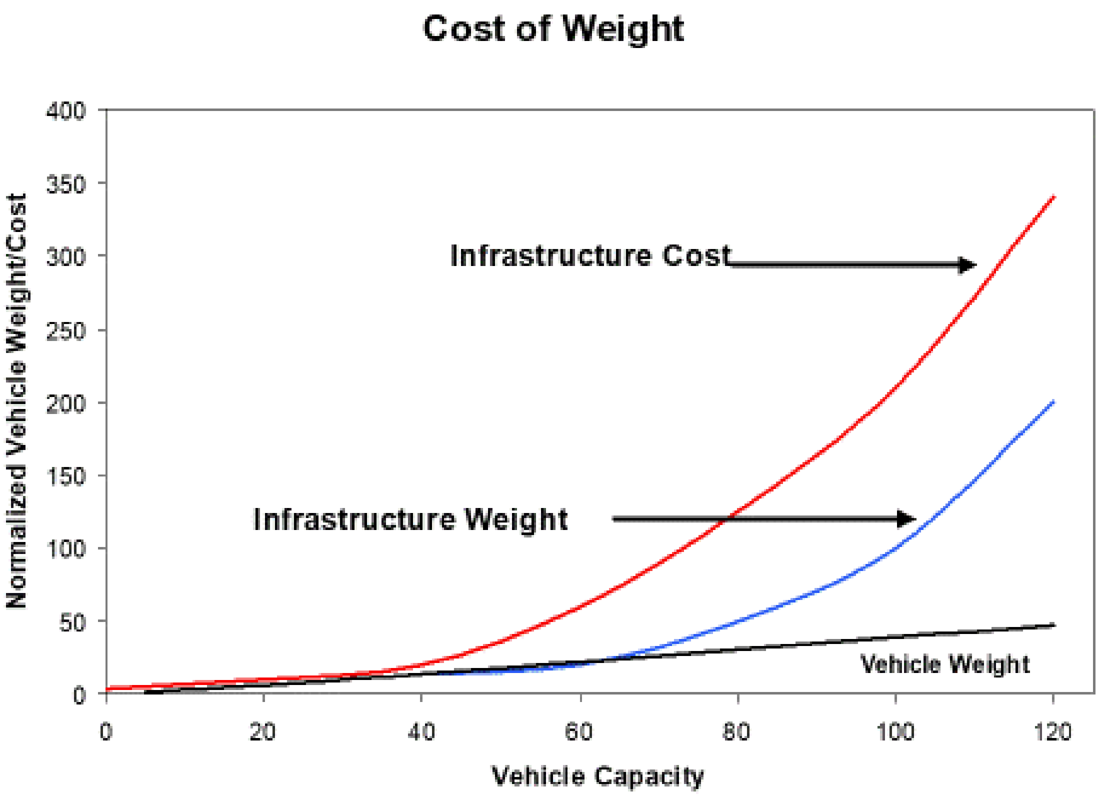
The US DOE ULRT system was conceived to travel at speeds up to 150 mph. The engineers also designed the system to take a 3,000’ radius turn at that speed. This allows a ULRT line to follow the Right-of-Way of an interstate highway.

The vehicles are around 30 ft. long and can turn in a 70’ radius at low speeds in urban setting such as on the Airport Connector or Stevens Creek Line. This allows the ULRT system to act as an all-speed system – low, medium, and high. Thus, networks of local and regional systems can be connected by high speed interregional lines, and also serve as a last mile connection.

Overall, CTI’s ULRT provides high quality service at a significantly lower capital and operating cost than conventional passenger rail technology. Lines can be networked together and further expanded through interchanges, creating a new transportation infrastructure analogous to the interstate highway system. With the use of overhead solar panels on the guideway and station structures, it is capable of generating more net power than the system consumes. ULRT can be configured as a net energy-exporting transportation system.

Multiple cost studies performed by various transit entities and engineering firms have consistently confirmed the capital cost to be in the 25% to 35% of existing passenger rail technologies.





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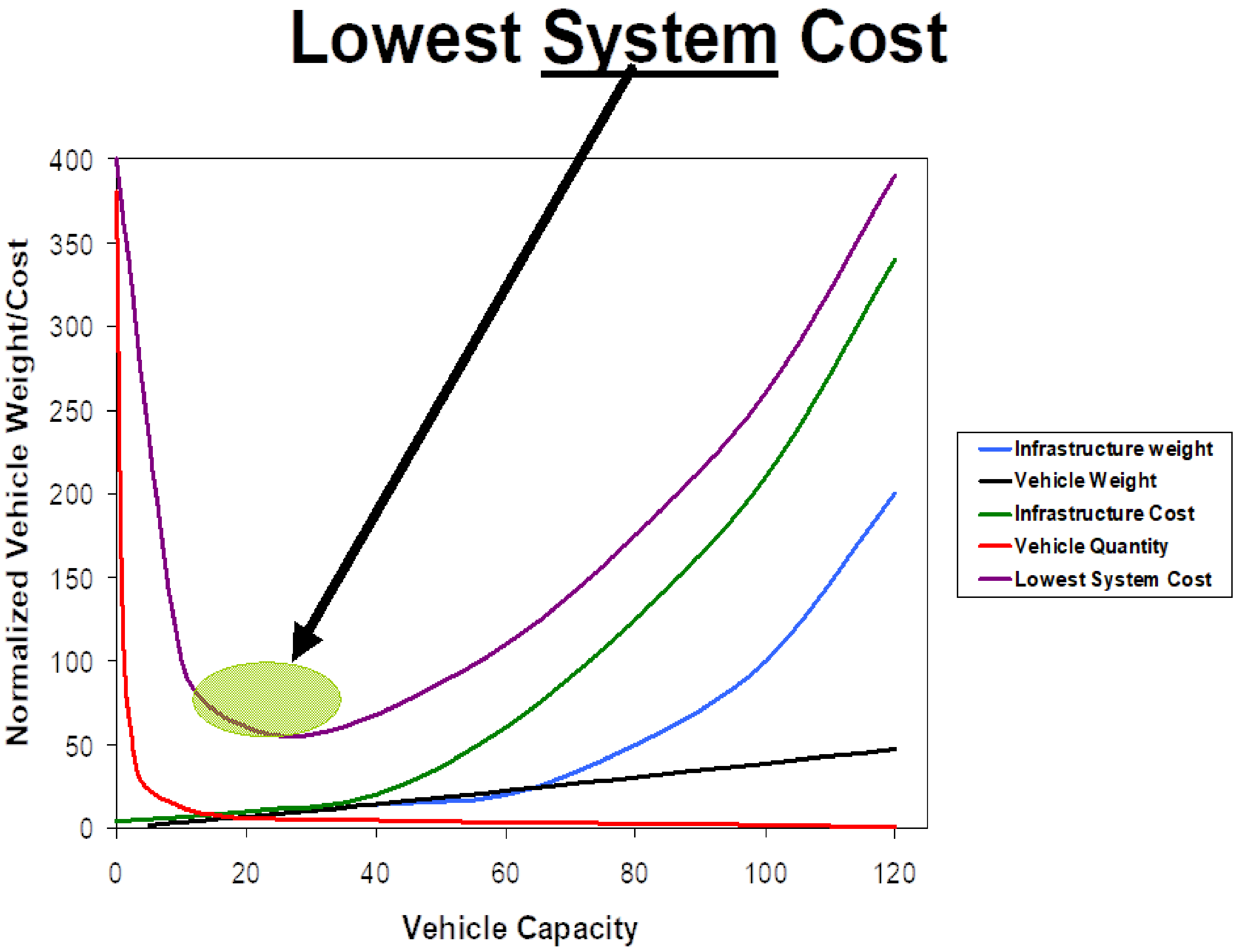

Lowest System Cost
Normalized Vehicle Weight/Cost
0
50
100
150
200
250
300
350
400
0
20
40
60
80
100
120
Vehicle Capacity
Infrastructure weight
Vehicle Weight
Infrastructure Cost
Vehicle Quantity
Lowest System Cost

C. PHYSICAL ELEMENTS

I. Describe the Guideway

a) **What Does It Look Like For A Person Walking By, And For A Person Using The System:** The ULRT guideway will be elevated, sitting on either precast concrete girders or steel trusses. It will be much lighter and slimmer in size and scale, and with a smaller footprint when compared to a conventional light rail guideway structure, which will minimize potential visual impact. The outer dimensions (dripline to dripline) of a double track system is 20 ft. For a person walking by, the guideway may look like a bicycle pedestrian overcrossing. For a passenger in one of the ULRT vehicles, it would look similar to but narrower than the current VTA's light rail guideway structure.

b) **How It Is Grade-Separated:** Above-ground guideways will be grade separated to provide safe, uninterrupted and reliable operations. The guideway structure will include either precast pre-tensioned concrete girders or steel trusses that will be fabricated off-site. To the extent possible, there will be a number of standardized span lengths of between 40 ft. to 70 ft. to reduce cost. They will be supported on either concrete or steel columns, located in the roadway shoulders, median, or over parking lots. The columns will sit on piled foundation which may be a single drilled shaft (short construction time, minimize traffic disruption and utility relocation) or pile caps on precast piles (possibly lower cost) or on spread footings, depending on costs, environmental and other construction considerations. The structural system will be designed to minimize cost while allowing for quick deployment.

At specific locations when there are longer spans, the guideway will likely be constructed using either steel truss of steel box girder. At specific locations where the columns cannot be placed in the median or the median is offset, the columns may include C-bents or outrigger bents.

The guideway within the Airport area can be underground or aboveground. The alignment will be designed to be consistent with the SJC Airport Layout Plan, FAA Advisory Circulars and configurations of the terminals, parking facilities and rental car areas. Given the relatively small size of the vehicle and the dynamic envelop, the cross section, and therefore the cost, of any tunneling work will be approximately 35% to 45% of a typical light rail vehicle tunnel. Aboveground structure will be 25-35% lower.

The station can be designed as a standalone structure or integrated with an existing or new building, either at the ground level or an upper floor, which provides a seamless connection experience for the passengers. All stations will be designed to be ADA-accessible.

As the vehicles are shorter, the platform lengths are also reduced. The single axle bogie design allows for tighter turns to significantly reduce the lengths of turnouts or lead tracks. This provides more flexibility in station placement. The system has also been tested to negotiate grades in excess of 10%, which allows the platforms to be placed at the same elevation as an existing floor if the station is placed within a building. This has the added benefit of being able to utilize the escalators and elevators that are part of the building and reduce the cost of duplicating such facilities. These stations may include amenities such as coffee shops, ATMs, and other services to serve user needs. Stations with heavier traffic may include vehicle storage to handle peak flows in a cost-effective operation.

Revenue equipment and faregates will be designed to accept cash, cashless or contactless payment method including QR code readers.

c) **How Will Stations/Access Points Integrate with the Surrounding Urban Fabric on the Stevens Creek Line:**
The beauty of the off-line station concept allows the main guideway to stay along the median of Stevens Creek Road and the stations be constructed off to the side. It also provides the flexibility for the station to be constructed or added at a later time as part of the new developments, which can greatly simplify project phasing and cashflow.

As previously stated, the station can be integrated into any existing or new buildings, parking facilities, and developments. For example, stations can be located at the access points on Stevens Creek Boulevard with spur guideways into De Anza College and the Vallco mixed-use mall. Station Locations and configuration can be customized to the needs of stakeholders such as the City and property owners. This is made possible because ULRT vehicles can negotiate tight curves and handle 10% grades with short lead tracks. In cases where it is preferable to construct a standalone station, we will work with the City to identify an open area, such as a parking lot area, to construct the station.

d) **How Will the System Integrate with Existing Transit Systems?** Busses are mobile and flexible so information systems can allow coordination of scheduling between busses and ULRT. Busses can service ULRT stations for pickup and drop off. VTA stations can interface with ULRT stations if there is need and space available. Since ULRT scheduling is flexible vehicle scheduling can be coordinated. Fare collection can be integrated using a Clipper card.

e) **How Will the Proposed System Connect with Rail Platforms (Either BART or Other Heavy Rail) at Diridon Station:**
   ULRT system can be configured to provide simple gateless transfer for Clipper passengers to be integrated into the on-going design of Diridon Station. It can be constructed at a different elevation so that transfer passengers will only need to take either an elevator or an escalator or stairs, much like the BART Oakland Airport People Mover. There will be no need for horizontal cross platform connections, which are less convenient for passengers, especially those with baggage.

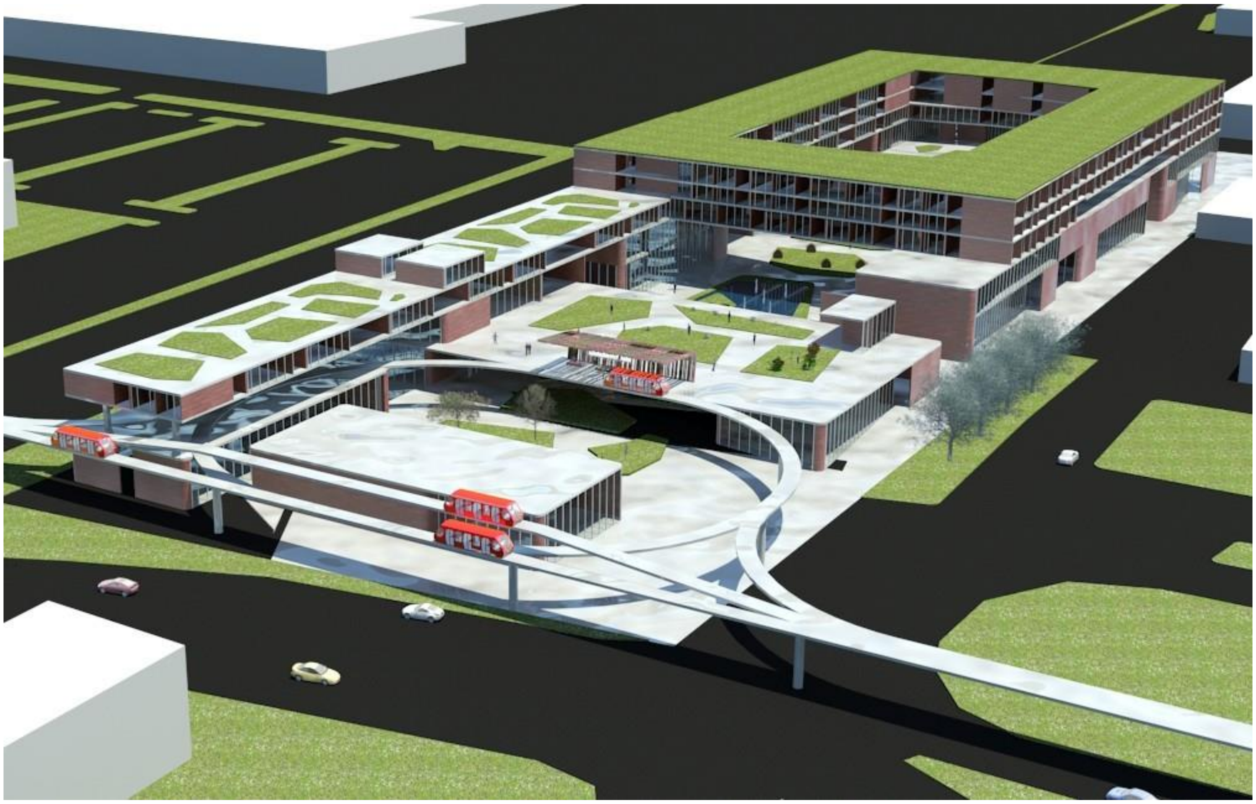
f) **How will the Proposed System Connect with Airport Facilities and Parking at SJC:**
   The guideway within the Airport area may be constructed aboveground and/or underground along roadways and/or within parking facilities. The alignment will be designed to be consistent with the SJC Airport Layout Plan, FAA Advisory Circulars and configurations of the terminals, parking and RAC. One potential alignment will be that previously developed for the APM and updated based on the airport configuration and passenger volumes. The Airport Connector and also the Stevens Creek Line will be operated as one integrated system allowing for direct point-to-point trips between any station on the ULRT system.

g) **How Do the System's Vehicles Operate Within the Network:** The ULRT vehicles will operate on-demand during most periods. In very light usage times, a single vehicle or small number of vehicles can operate on a fixed frequency to pick up the very small numbers of passengers. Both modes are selectable and programmable.

h) **Is There Level Boarding:** Yes, level boarding is provided to better serve bicyclists, passengers with wheeled baggage, strollers and physically challenged passengers.

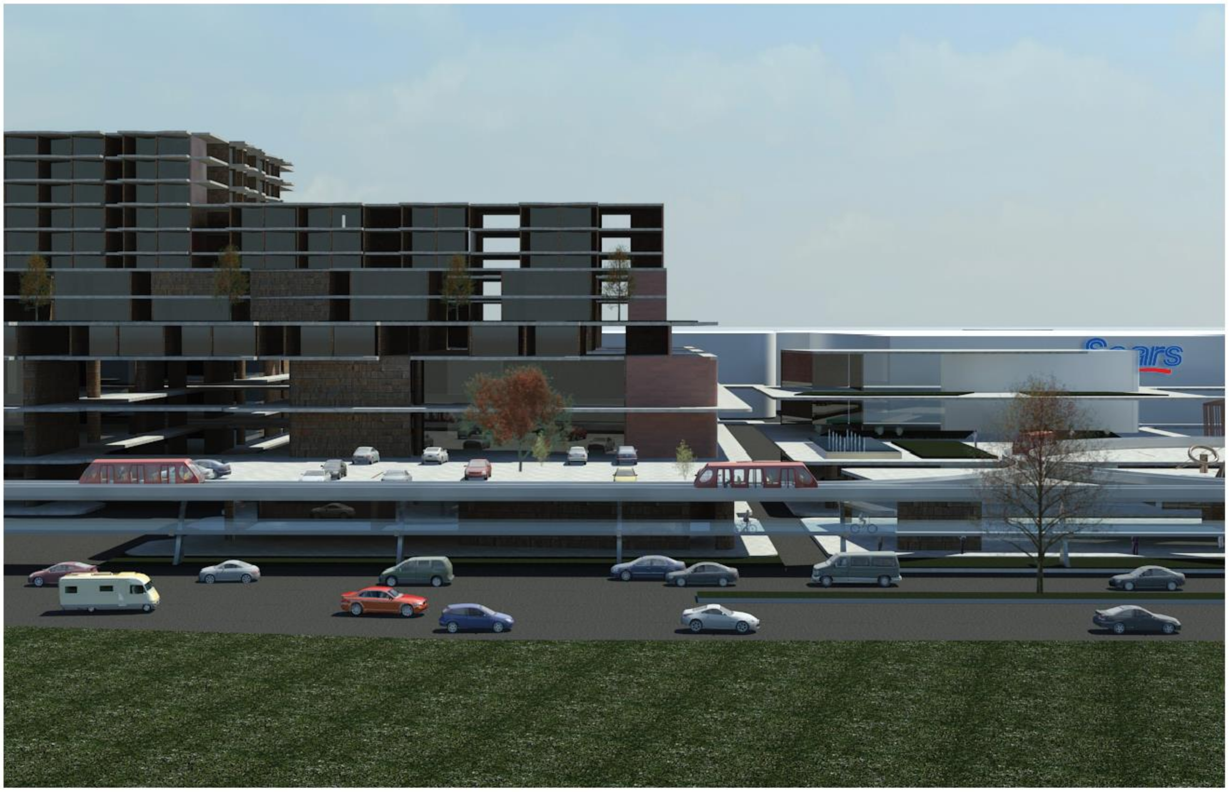
i) **How Will the System be Designed to be Compatible with "Complete streets" if the System is Aerial:**
   The guideway structure will run along the median area of the roadway. The support columns are generally between 2'-6" to 3'-0" in diameter and can be accommodated within the roadway median. This allows the Complete Street, including bicycle lanes, road dieting and bulbouts to be implemented on surface streets. In addition, the system includes vertical circulation for bicycles and passengers with strollers or who are physically challenged. The level boarding feature also provides easy access for such passengers.

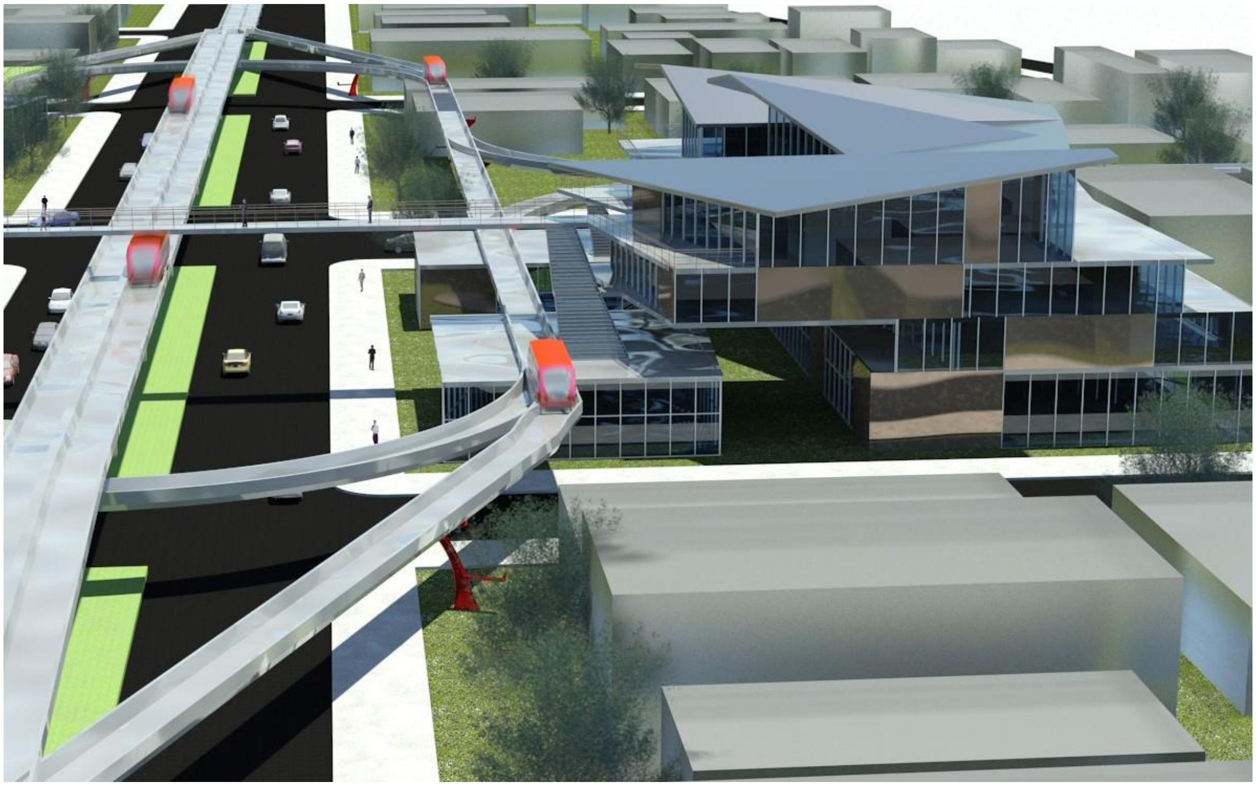
j) **If the Main Guideway is Aerial or Underground, How Do Passengers Get to Grade Level:** The vehicles can be easily integrated into the second or other story of a building. This would utilize the elevators, escalators and stairs in the buildings. Vehicles can also come down to ground level where desired and geometrically feasible. Tests have proven that ULRT vehicles can climb a 10% grade, so ramps up and down are relatively short. If ULRT vehicles are integrated with a tunnel system, periodic exits and stations can be at the top of ramps that come up from the underground lines. This would be less expensive than building off-line stations below ground.



1 ULT TOD Station

2 *ULRT TOD Station*





3ULRT TOD

II. Describe the Vehicles

a) What Do They Look Like for A Person Walking by, and for a Person Using the System: For pedestrians, they will see an ultramodern 32’ long vehicle that is shorter than the current VTA’s 90’ vehicle. Colors and graphics depend on the locale. For a person using the system, they will enter the vehicles through doors on the sides, find seats and sit. Seats will be located along the interior walls of the vehicles. There are message boards in the interior that show destinations and schedules. Seats are comfortable, attractive, and durable.

b) How Many Passengers and How Much Baggage Can Fit in A vehicle: Because there are many vehicles, they can be like aircraft with First-class, Business class, and Coach seats. Maximum seating is 30 passengers per vehicle. First and Business class seats are available for a higher price. Baggage will fit in overhead racks similar to high-speed trains in Europe. Some seats can be converted to storage areas for large bicycles and luggage.

c) How Do Passengers Board and Alight from the Vehicles: Multiple doors on each side automatically open upon stopping. Passengers alight from the cars quickly because there are fewer passengers/door. Vehicles can unload in 10 seconds or less.

d) What is the Top Speed, and How Quickly Is It Achieved: Maximum speed for ULRT is 150 mph. However, for Airport Connector and Stevens Creek Line, top speeds can be limited to automobile speed limits. Maximum acceleration for seated passengers is .4G, reaching 60 mph in approximately 7 seconds.

e) **Are Vehicles Autonomously Operated:** Yes, vehicles are computer operated and radio-controlled.

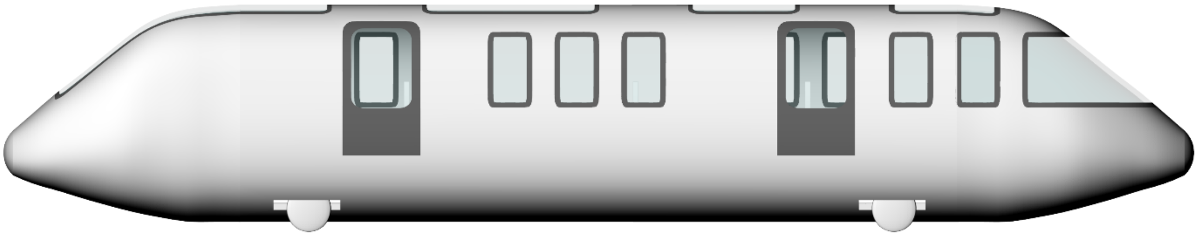
f) **What Do Vehicles Do When They Are Not Operating:** When not in use vehicles are stored in stations and/or at the maintenance facilities.

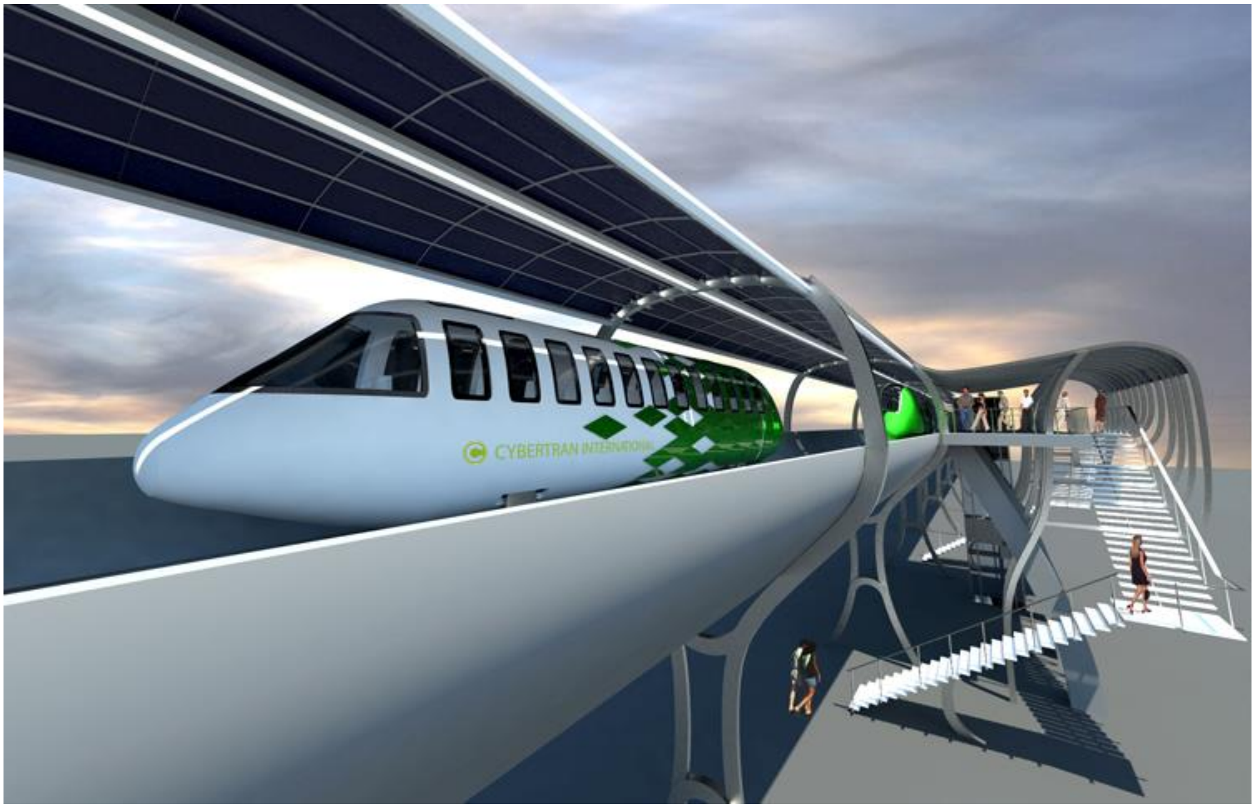
g) **Do the Vehicles Require Space Off the Guideway for Storage:** Vehicles can be stored in stations off the main line, so they do not require any additional space off the guideway.

h) **How Are the Vehicles Powered:** Vehicles are powered by a 3rd rail, which is itself fed by the local power grid and solar panels mounted above the guideway. The solar power can generate a surplus of electric power. This provides zero-carbon-footprint transportation.

i) **Do the Vehicles Require A Maintenance Facility? If So, Describe the Facility Requirements:** A maintenance facility is provided as another off-line station. A single maintenance facility can accommodate the needs of both the Airport Connector and Stevens Creek Line. A single acre will provide enough room for vehicles to exit the main line and enter service bays as well as providing parking for maintenance employees. This maintenance facility also houses the control center where automation and power are monitored and controlled by trained operators.

j) **Do the Vehicles Need to Move or Be Moved in Order to be Redistributed to Meet Demand on A regular Basis:** During the initial operation in fare service, a process of learning passenger demand patterns enables the system to anticipate demand. Algorithms exist to determine how to anticipate demand at startup and over time and to forward deploy vehicles. This process will be automated over time. Vehicles will be moved as necessary per the automated process.




CYBERTRAN INTERNATIONAL

D. OPERATIONAL ELEMENTS

I. Describe the Operational Model

a) **Can the Vehicle Travel Outside the Grade-Separated Guideway:** No, the vehicles must travel within the guideway that can be grade-separated or at-grade to provide point-to-point service utilizing city streets such as shoulders and medians.

b) **What is the Potential Travel Time from SJC to Diridon:** Average speed of 30 mph for 3 miles = 6 minutes. It may be possible to reduce this time with a somewhat higher speed.

c) **What is the Potential Frequency of the Service:** Frequencies are demand and velocity dependent. This is possible because the vehicles are scheduled based on real-time demand. Under heavy pulse loads vehicles can slow down to the maximum carrying velocity. When loads are light vehicles can operate at higher speeds and greater headways. While 10 second headways are possible at 60 mph, allowing six vehicles per minute, greater frequencies at lower speeds are possible.

d) **What is the Potential Passenger Carrying Capacity:** Capacity is driven by seating configurations and are, as above, velocity and demand dependent. The maximum capacity is at approximately 25 mph. Assuming 8 second headways at 25 mph and 30 passengers/vehicle, the maximum capacity would be approximately 12,000 Passengers/hr/direction (pphpd). As a practical matter, some inefficiencies may be taken into account and we would not want to claim more than 9,000 pphpd at this time. However, with the recently developed control system achievements of autonomous automobiles, it is possible to conceive of headways down to 3 seconds or less, achieving much higher capacities.

e) **How Can Capacity Scale Up if Demand Exceeds Initial Supply:** Should the initial capacity fall short of demand, more vehicles can be added to the system. Generally, we recommend eight vehicles/double track mile as an initial estimate. If necessary, more vehicles can be added to a system to increase passenger throughput.

f) **What is the Dwell Time of a Vehicle at a Station:** CTI has developed control software that limits a passenger's wait time in a station to five minutes. Vehicles do not need to be in the station during that time. Vehicles can enter and exit a station after unloading and loading passengers in less than a minute. Multiple vehicles can load and unload at the same time in a single station.

g) **What is the Reliability of the Service:** CTI ULRT technology uses existing technologies – radio control, computer automation, 3rd rail and solar power, brushless traction motors and controls, steel wheel on steel rail, and ferro-concrete structures. What is unique about the CyberTran ULRT system is its integration of existing technologies. All of these technologies exist in other applications. Therefore, it is possible to use off-the-shelf components and technologies. As such, safety analysis and documentation already exist for system components. In addition, all system components will be thoroughly tested before going into use. Therefore, reliability is expected to be very high.

h) **Can the Service be Ticketless? If so, How will Fares be Collected:** While we expect some passengers to need to buy tickets, ticketless travel will be the primary mode. This will be accomplished through smart phone requests for rides. The riders will be charged for the ride through a smart phone application. In addition, credit cards now come standard with a TAP function. Credit cards can be tapped to identify the passenger coming into the system at the station and to pay for the ride. Prepaid cards such as Clipper can function like credit cards and have the same TAP function.

E. CURRENT STATUS OF CONCEPT TECHNOLOGY

I. Provide a Description of the Current Development Status of Your Concept:

To date, CTI has built 3 test tracks as briefly described below -

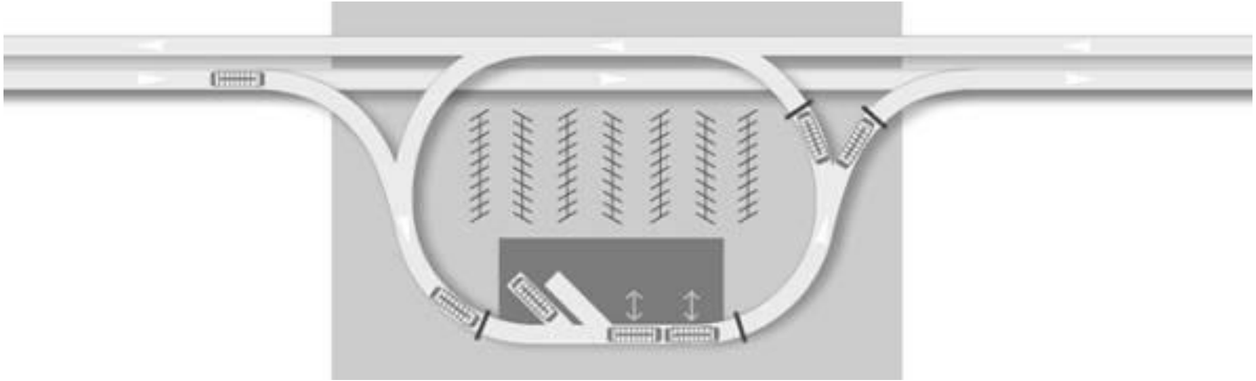
- The first test track tested a full-scale ULRT vehicle up to 60 mph, establishing the ability of the vehicle to "hunt" on rails and to roll smoothly and with stability through curves.
- The second test track and second-generation full-scale vehicle showed the operation of a new kind of switch specifically designed for the ULRT vehicle and track. In addition, a 10% grade section was added to this test track. Tests proved that the ULRT vehicle can climb a 10% grade in wet and dry conditions. Finally, this test track was used to test different propulsion system configurations.
- A third test track was developed to test control system hardware and software. It showed the capability of ¼ scale vehicles to pull off and on at stations, and for other vehicles to bypass those stations.

In addition to the test tracks, software simulation programs have been run to show the following -

- The operation of a ten-mile line with six stations. It showed that the average speed of the vehicles operating in direct-to-destination mode with a 60-mph maximum speed was 52 mph.
- Computer simulation of a system at the Oakland Airport serving the airport terminals from parking and rental car stations.
- Computer simulation of proposed track structures in a 7.2 earthquake on worst case Bay Area soils.
- All tests and simulations were successful.

Patent developments include eight patents, one of which is the ULRT system itself. The other patents involve control system methods for braking, safety, and vehicle headways.

CTI is currently in project development with systems in three states. These systems are all in the planning and pre-funded stage. CTI is in discussions with government officials and private companies regarding these projects.



II. **Include a schedule for Development of a Fully Deployable System, if Applicable**. **Identify Key Assumptions for this Schedule:** Assuming environmental clearance and right-of-way acquisitions, if necessary, for both the Airport Connector and Stevens Creek Line are completed, concurrent implementation of the one integrated system with both lines can be fully deployable within 5 years, estimated as follows using DBOM –

65% Design – 1 ½ years

Final Design, Utility Relocation, and Guideway Construction – 2 years

Testing and Maintenance Facility – 1 year

III. **Include examples of successful Similar Implementations if Available:** The closest example of a system similar to ULRT is the Morgantown PRT. Both systems use on-demand and direct-to-destination service. Both have off-line stations and small transit vehicles. Morgantown can be considered a GRT or Group Rapid Transit System. The differences are in both concept and execution. ULRT is steel wheel on steel rail, providing high speed capability, while Morgantown is rubber tire on pavement. ULRT is extendable and scalable while Morgantown is limited to four miles. Noteworthy is that Morgantown is now a critical part of the City of Morgantown and the University of West Virginia's transportation environment. Morgantown is one of the most cost-effective transit systems in the country and has a perfect safety record since its inception in 1975.

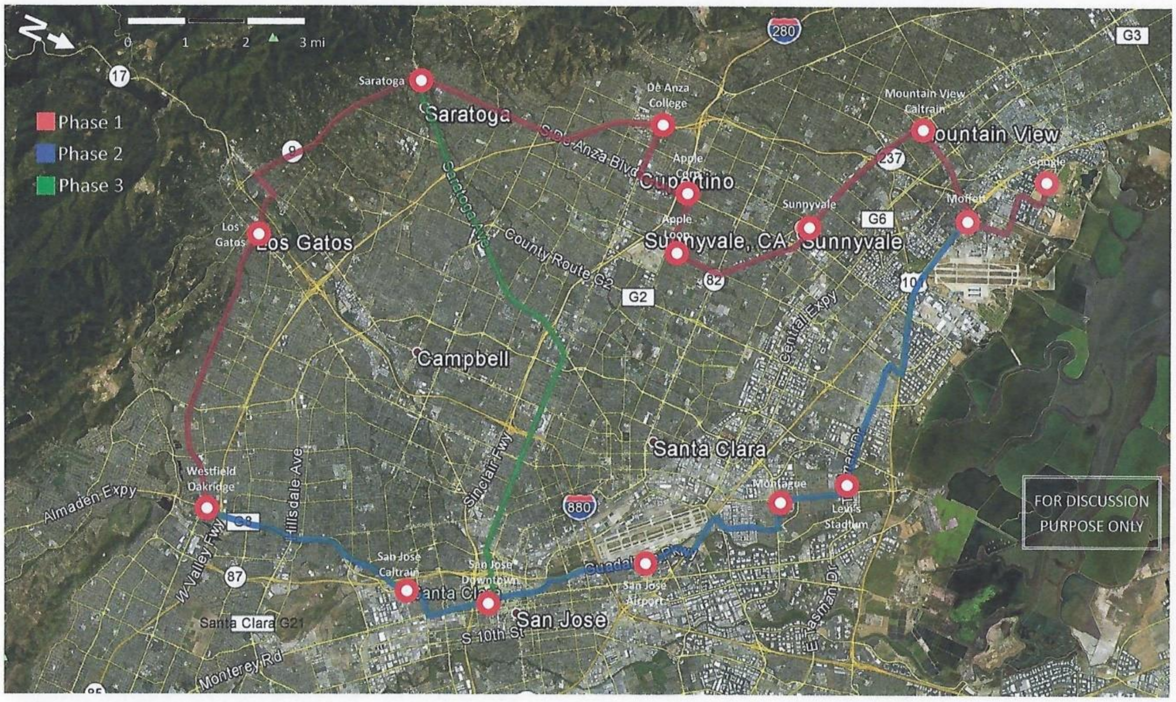
IV. **Identify Areas of Notable Risks That Would be Investigated:** In our first low speed systems, we can expect to have all the conventional risks of a new transit technology. Wheel wear has been tested in the lab up to one million cycles with very little wear. Endurance testing will be required in the pilot track. Mechanical systems will need to be tested for wear. The control system must be tested in the field and for endurance and safety. These risks will be evaluated in the pilot track.

F. CONCEPT REQUIREMENTS

I. **Describe Key Requirements for Implementation of the System (e.g. Infrastructure, Utilities, Regulatory and/or Policy) and Estimated Length of Time Required to Implement the System:** See responses to E.II above.

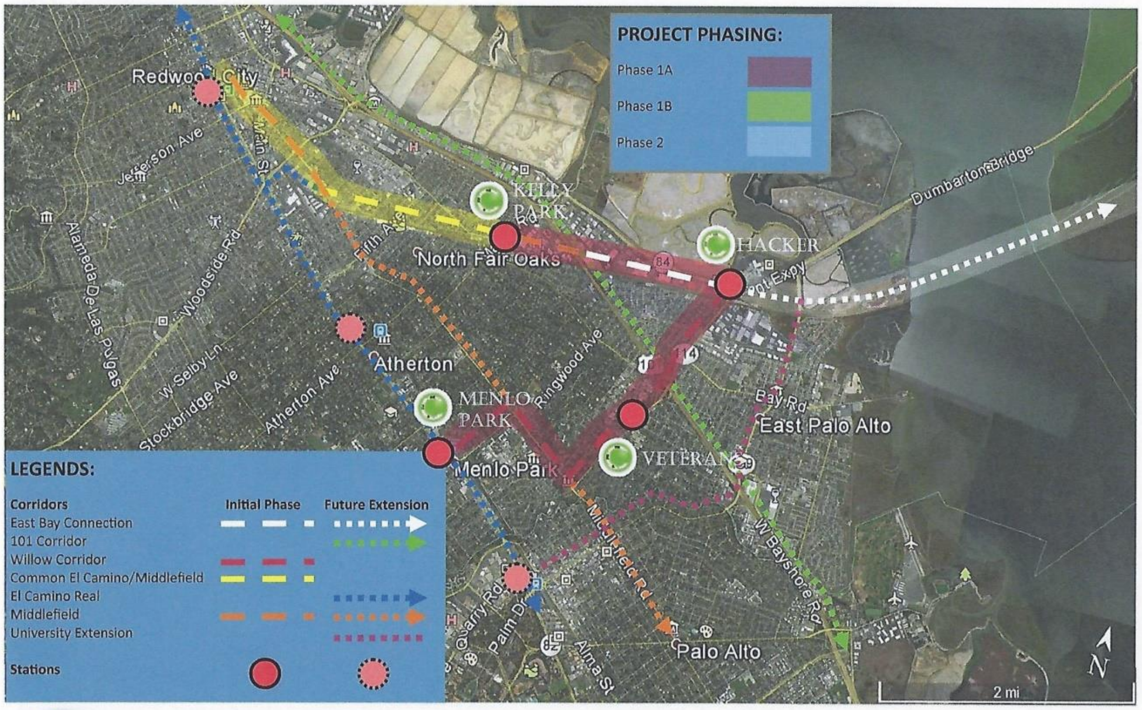
II. **Could the System Function in Either an Aerial or Underground Configuration? Could it Transition Between Aerial and Underground? What are the Maximum Allowable Grades for the System to Ascent/Descend:** Yes, the system can function and transition between aerial and underground configurations. The maximum allowable grade is 10%.

III. **Could the System be extended in the Future?** Yes. ULRT is highly extendable as a network. Small turning radius and off-line stations allow extendibility using the same switching technology mentioned above. High speed capability allows the application of ULRT technology to the creation of interregional networks. Vehicles that can travel at low, medium, and high speeds, with the capability to travel anywhere in the network directly, allow the creation of an integrated infrastructure that can be extended anywhere in the United States, and other countries of course.



West Bay Automated Transit System (*w*BATS)

OPTION 2



DUMBARTON RAIL PROJECT CYBERTRAN ALTERNATIVE PENINSULA CORRIDOR OPTIONS

Revised March 16, 2015

IV. **Could Stations be Added to the System in the Future:** Yes. Stations can be added along the two lines and within the existing and future developments along the service lines.

V. **What are the Maintenance Requirements for the Guideway, Vehicles, Stations, etc.:** ULRT currently uses contactless communication and brushless traction motors. Both these subsystems are low maintenance. The third rail will have standard maintenance. Stations can be in buildings where elevators and escalators already exist. Vehicles can also descend and climb at a 10% grade to and from ground level stations, eliminating the need for elevators and escalators as maintenance items. Beyond that, typical building maintenance and vehicle maintenance operations are required such as cleaning and repair, and the monitoring of operations in a control room is required.

G. COSTS

I. **What is the Cost Per Mile to Deliver the Fixed Infrastructure Needed to Operate the System, not Including Stations and Land Acquisition costs:** Capital costs of system minus stations and land - @$35,000,000 /mile

II. **What is the Incremental Cost of a Station and/or Access Point:** Cost of stations - $2,000,000 each.

III. **What is the Cost of the Vehicle Fleet Needed to Begin Operation:** Vehicles – Cost - $300,000 each. 100 vehicles for this project equals $30,000,000.

IV. **Summarize the Capital Costs for Delivering the Full System for each Potential Project, Airport Connector and Stevens Creek Line.** Assume Six Stations on the Stevens Creek Line and three Stations on Airport Connector, plus Diridon Station for both routes. Capital Cost Total – $433,000,000. This cost is for both lines and includes the Diridon Station interface.

V. **Provide a High-Level Estimate of the On Going Operations and Maintenance Costs, as well as Equipment Replacement Costs and Schedule:** Equipment replacement costs and schedules. 30-year Depreciation - $14.4M/yr., labor and contracts - $6,000,000/yr. Misc. - $600,000/yr. Total - $21,000,000/yr.

H. BUSINESS PLAN

I. **Describe the Business Plan to Deliver and Operate the Proposed Project. The City is Looking for Innovative Ways to Fund and Operate New Transit System:** CTI has a team formed to deliver the project. This team includes vehicle automation specialists, a civil engineering group, electric power specialists, a law firm well known for intellectual property and corporate law, vehicle and rail engineers, and others. We have a property set aside to do all final system development tasks. We are prepared to negotiate a Design, Build, Operate, and Maintain (DBOM) contract with the City of San Jose and other cities who have an interest in extending this first project to their cities.

II. **Who Will Operate the System Once Constructed (VTA, the builder, PPP, Other):** CTI will operate the system. However, CTI is open for any type of partnership.

III. What is the Passenger Fares Strategy: Fares can be variable depending on the user's traveling distance, comparable to the current VTA light rail systems, and policies of the local jurisdictions. The passenger fare strategy depends on the priorities of the owner, presumably the City of San Jose. Since all public transit in the US is subsidized, it depends on whether the City of San Jose wishes to subsidize the system and if so by how much.

IV. **What Are the Expected Fares for Passengers to Use the System:** See lll. above.

V. **What is the Strategy to Maximize Ridership:** The key to maximize ridership is to provide convenient last-mile system to the origins and destinations (O/D). ULRT can easily be extended to the O/Ds from the Airport Connector and Stevens Creek Lin mainline. Beyond reliable operation and comfortable and easy use, CTI also has proprietary technologies to maximize ridership using the ULRT systems.

VI. **Can Capital and Operations Costs be Funded Through Passenger Fares:** With the correct strategy CTI believes that it will be possible to achieve 100% farebox recovery subject to fare strategies and technology strategies briefly described above.

VII. **Describe Opportunities or Strategies to Maximize Farebox Recovery and/or Offset Operations and Maintenance Costs:** See the fare and ridership strategies briefly described above.

I. IMPACTS

I. What Are Potential Negative Impacts During Construction: As an inherently smaller and lighter weight system, ULRT is easier and faster to construct. Guideway trusses support only 10,000 pounds. Trusses and columns are prefabricated offsite and brought in on trucks and set in place. Footings may be poured in place. They are smaller and easier to construct than the massive foundations for larger and heavier vehicles and structures. This will overall reduce construction times and hence lower impacts and costs.

II. What Are Potential Negative Impacts During Operations: Down a heavily used urban corridor, columns must be protected from traffic. This is the primary negative impact of the system on the public. This will be somewhat offset by reducing traffic throughput to the extent that the ULRT network is integrated with other forms of transit, reducing automobile use. However, these impacts can be minimized or avoided if columns can be placed in the roadway median, landscape strips, or back of sidewalks.

III. How Can Negative Impacts be Mitigated: Traffic impact would be minimal since ULRT guideway can be placed within the roadway medians and outside of existing traffic lanes. Some dust control will be required while excavation occurs. Localizing construction to minimize the construction footprint and prestaging the construction for faster build times will greatly reduce the impacts on the public. Maximizing offsite component fabrication will minimize onsite pour-in-place activities.

IV. What Might the Community Outreach and Engagement Strategy Look Like: Outreach to all stakeholders including the public, the elected officials, the property owners and occupants, local community groups and other decision and approving entities would be necessary during the environmental process, 65% design phase of DBOM process. During this period, the outreach will Inform the stakeholders the significance of ULRT not only as a means to make public transit a better value, but also to create a system that can function cost-effectively if properly integrated into the community. In addition, the ability to create a new and more convenient transit system that can be powered by sunlight will bring interested parties from around the world. San Jose can be the first city to implement a transit system that will not be “part of the problem” but “part of the solution”. Given the critique of the Grand Jury, this is as effective a response as is possible: improve convenience, reduce cost, and be part of saving the world. Public Outreach will continue during the construction and installation of the system leading into the testing and initial operation phases.