FASTRAN

DELIVERING THE SOLUTION

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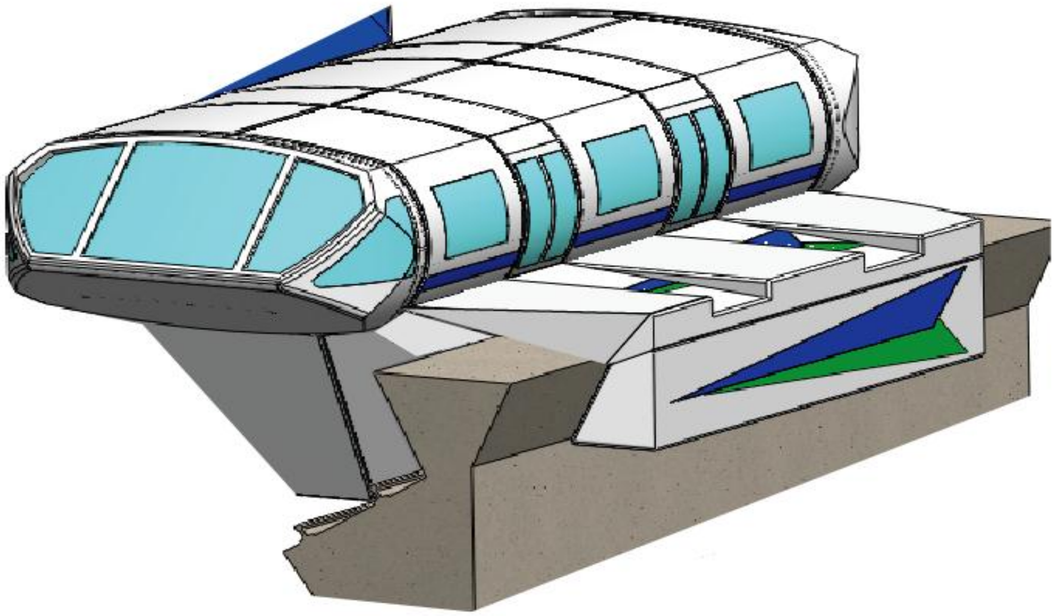
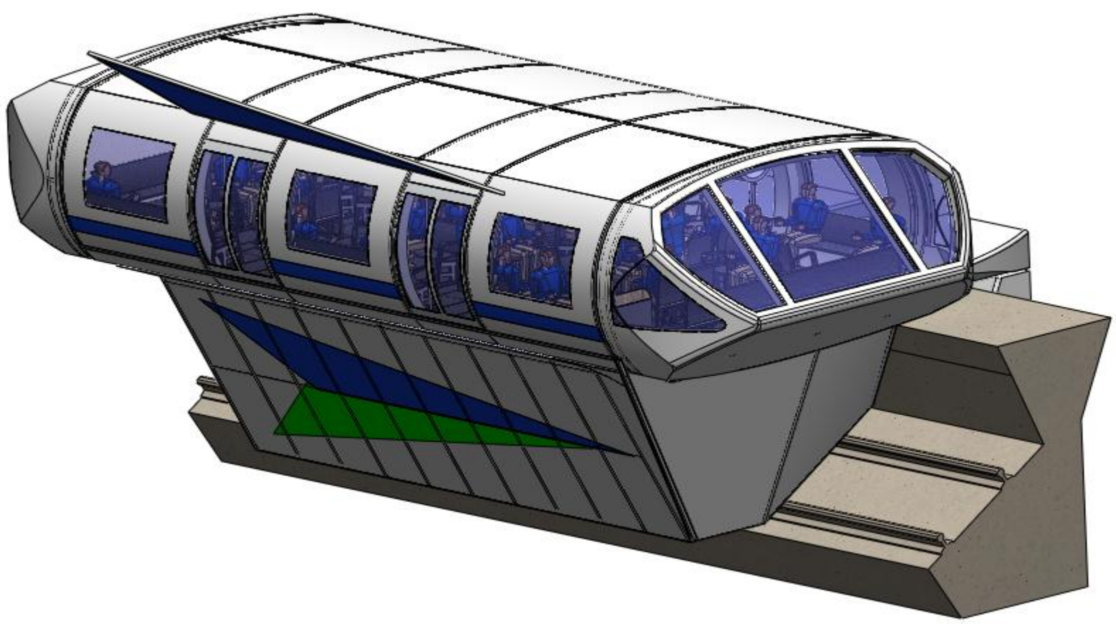
Executive Summary & Technology Brief





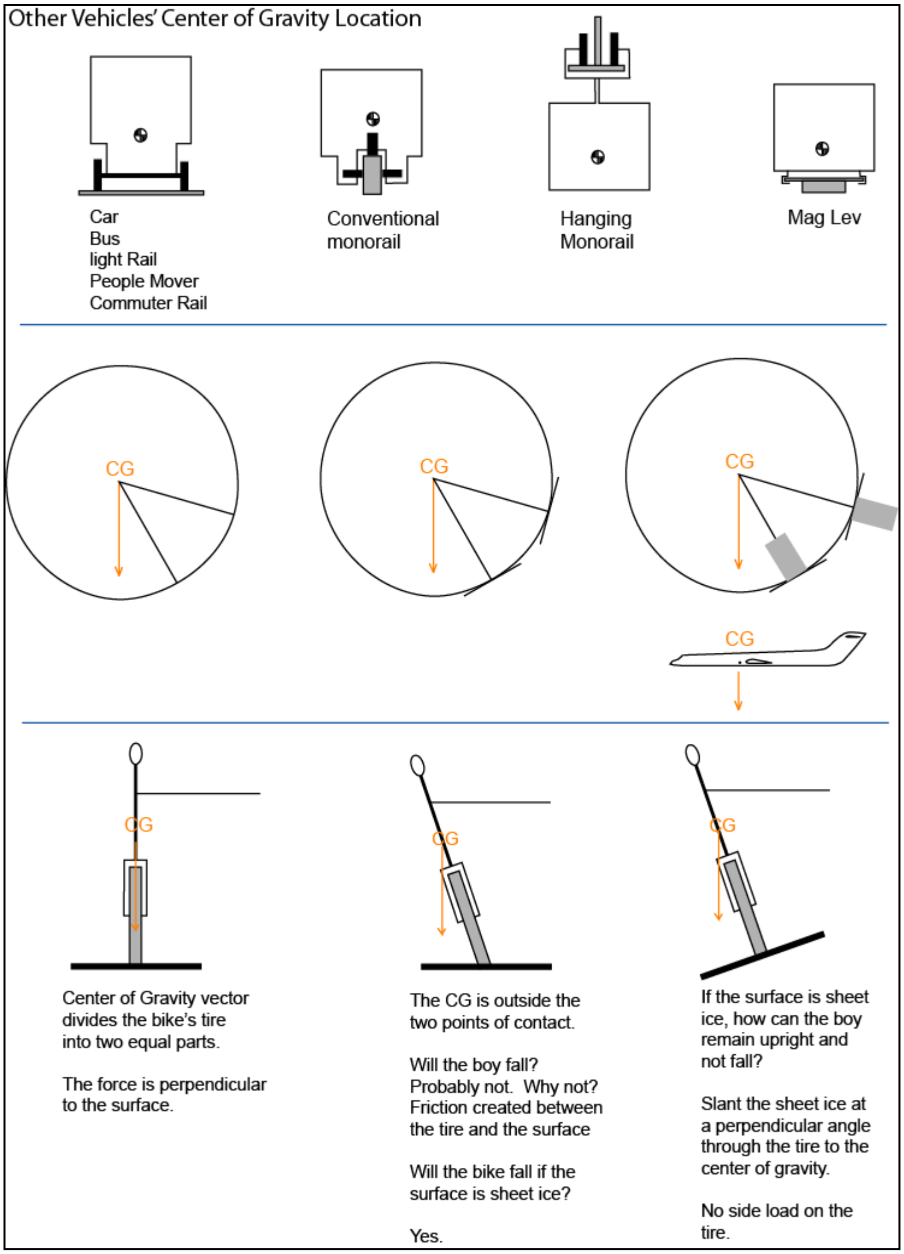
Challenge Questions:

1. **Is 100 Year Old Technology the Best Design for Today's Urban Transit?**
2. **Is the FasTran engineering superior to all other mid-to-high capacity urban transit systems in respect to**

    - Engineering Advancements?
    - Economic Soundness?
    - Physically "Fitting" a City with the most Flexibility?
    - Environmental sensitivity?
    - Political awareness?
    - Market demand?
    - Highest ROI (Return on Investment)?

The purpose of this brief is to answer these questions.

After discussions with mechanical, rail, aerospace and civil engineers, FasTran leadership applied for United States patent protection. Based on **2 patent awards,** leadership then applied for and received a **NASA Grant. City College of New York (CCNY)** conducted grant research. CCNY investigated FasTran's patented concept for soundness in design and engineering. Additional independent study was acquired from **The University of Texas at Arlington's (UTA) Engineering College** elected to sponsor the technology. Engineering Department Dean, Bill Carroll; Mechanical and Aerospace professor, Dr. Robert Woods and 7 engineering students conducted the research. This analysis was developed over 3 semesters using **Computer Assisted Design (CAD)** with *SolidWorks* software. Further scientific soundness and technical feasibility was achieved and no major or minor flaws were found from either the CCNY or UTA studies.

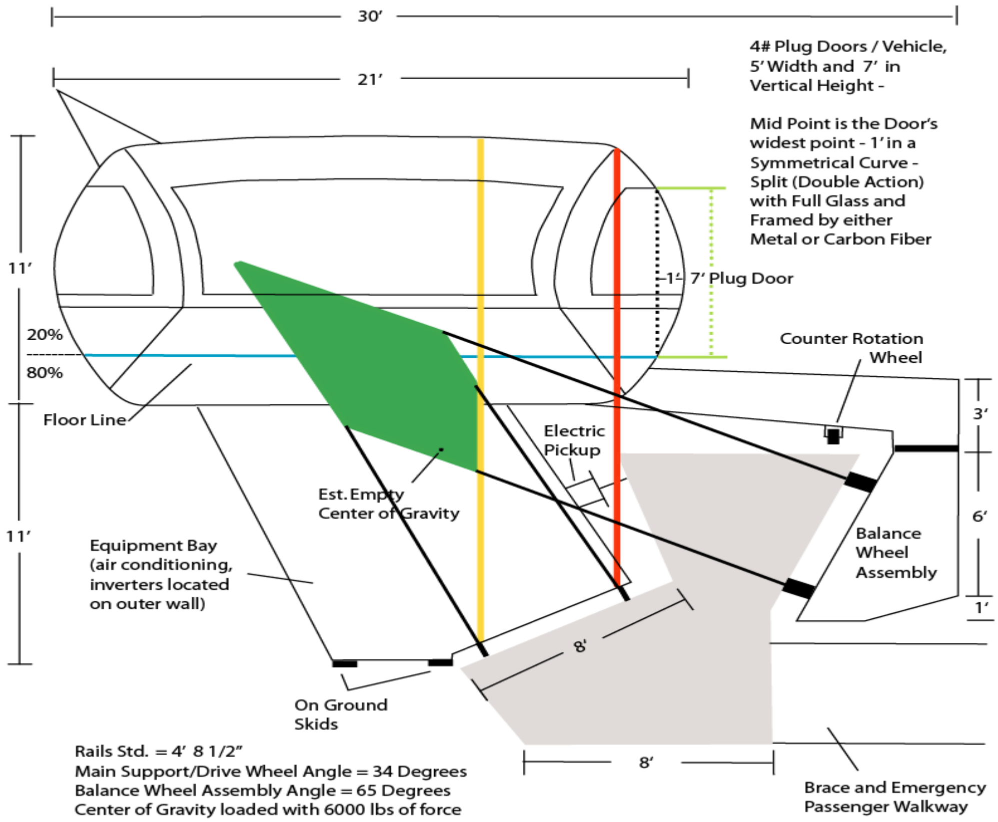


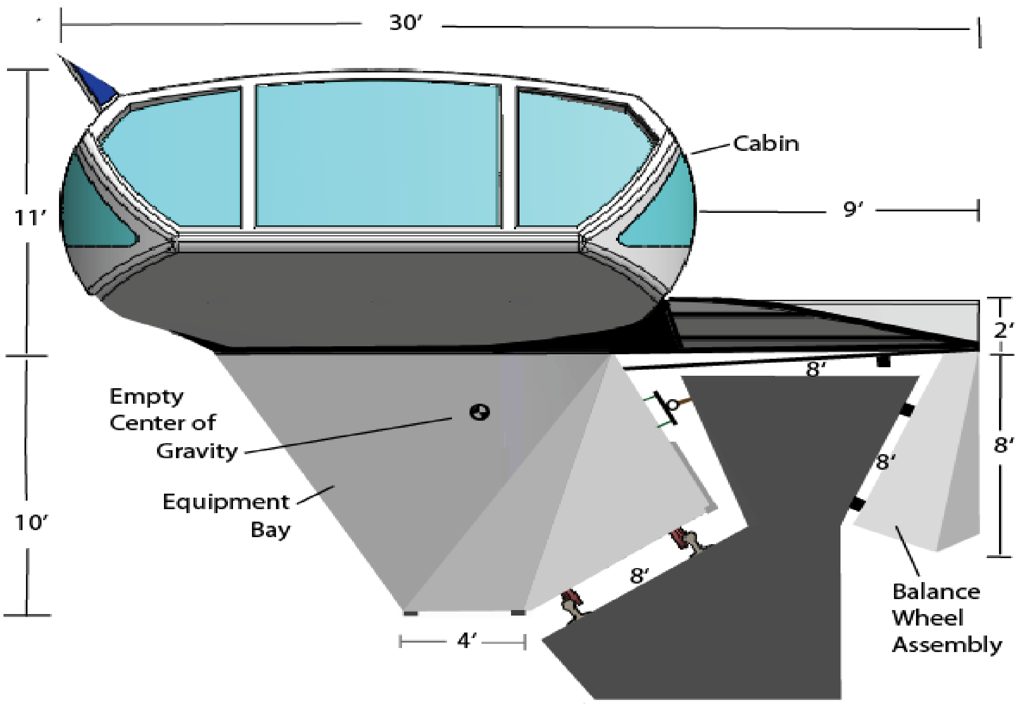
All surface transportation vehicles are designed with the Center of Gravity (CG) located between rectangle support points (wheels or magnetic fields).

FasTran design replaces the rectangle support points with a triangle. Then the design locates the CG outside FasTran's points of contact.

Since the CG is outside the points of contact, to achieve perpendicular rolling surfaces, the rolling surfaces must be designed on an angle (slope). Note, the sloped wheels receive no more side loads than a conventional vehicle sitting on a level, flat surface.

With the triangle replacing the rectangle, the distance from wheel points on the angled surfaces to the intersection of a series of "secondary" perpendicular vectors form the vehicle's Center of Gravity (CG) "Green Band". The "Green Band" is that area that defines the normal load movements or range within the vehicle. Contained within this range are the vehicle's empty CG and all normal movements (force moments) generated from various passenger locations within the cabin. In addition, a torqueing (stabilizing-steadying) force or moment is placed on the guideway that greatly lessens the vehicle's lateral movement.

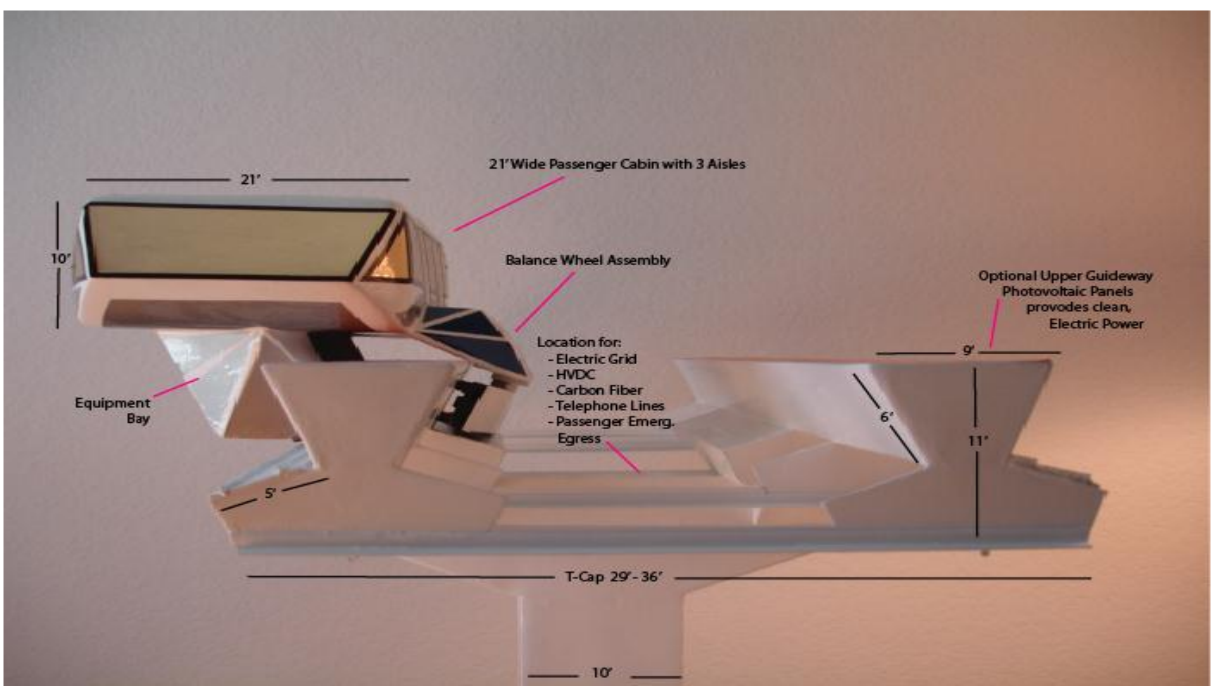




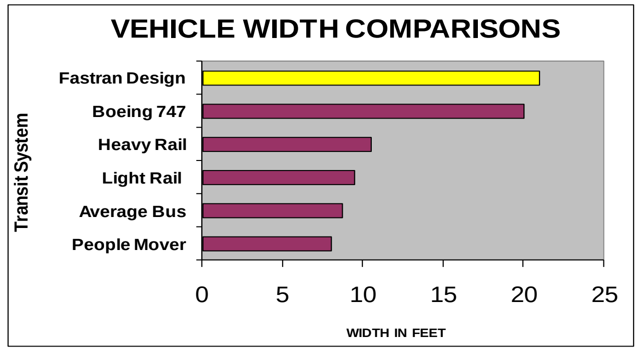
Main Support/Drive Wheel Surface = 34 Degrees
Balance Wheel Surface = 67 Degrees
Estimated Empty Weight = 65,000 lbs
80% of Empty Weight is below the cabin floor line

Why Re-engineer Urban Transit?

First and foremost, the integrated triangle “force/support” design provides the **widest-bodied platform for transit’s highest passenger capacity.** By cantilevering the vehicle’s cabin into the “free air space”, this allows a structure that offers a **133% increase** in the vehicle’s width while using only a small land footprint. The land footprint will be located on publicly-owned freeway right-of-ways (ROWs) – as proposed in the Transportation Research Board’s *Report: Reinventing the Urban Interstate: A New Paradigm for Multimodal Corridors.* This land is owned by the taxpayer and thus lower “build cost” can be achieved. Along these highways and freeways, T-columns, like those used on single lane freeway overpasses are constructed. T-columns are placed every 100’ and require only a nominal 5’ x 10’ footprint. Angular shaped guide-beams are modularly constructed offsite and trucked down the freeways during periods of low traffic. At the construction site, guide-beams are lifted into place on one side of a T-column and extended to the same side of a 2nd column. After construction is completed, the 21’ wide FasTran cabin (greater than the width of 2 city buses placed side-by-side and offering passengers’ direct entry/exit to comfort seats from 3 aisles) travels along an 8’ wide guide-beam at 75 mph, cantilevered into the “free air space”. The FasTran system will play a major role in reducing urban congestion and diminishing carbon emissions.



Reasons for Technology Change



- All transit vehicles have only 3 axes; length, height and width. Designers have made vehicles longer and double decked their designs to increase passenger capacity. But until now, no company has addressed width as an asset to increase payloads. And, characteristically, ALL transit vehicles are limited to a 9' width.
- ALL current transportation vehicles use the "rectangle" as its lateral axis force/support form with the vehicles' Center of Gravity (CG) inside the wheels; contained inside the 9' "box" (rectangle).
- What if "out-of-the-box" thinking was incorporated? What if the vehicle's lateral axis force/support rectangle design was erased and a triangle force/support design was established? And, what if, with the triangle design, the vehicle is cantilevered and the CG is positioned outside the vehicle's (wheels) points of contact?

System Benefits – Value Proposition

1. As stated previously, low or near **zero cost** for taxpayers related to transit-way land acquisition by using highway Public Right-of-Way (ROW). The technology uses these small plots of land on which highway T-Columns (like those on freeway interchanges) will be constructed. Comparing FasTran's near zero land cost to light rail's expensive, wide, continuous, surface strips of land, FasTran wins. Based on total system costs, FasTran's leadership fully believes our <u>cost advantage to be from 20% - 40% and up to 60%</u> of urban light rail's bid price based on publically available transit construction costs.

2. **Fast and low cost installation**. The guideway is prefabricated, modularly manufactured and transported during low drive times. Efficiencies in design and construction allow for the guide-beams to be lifted into place on one side of a T-column and extended to the same side of the next T-column. Results, again, lower capital cost.

3. **FasTran Terminals constructed ½ the length of conventional Terminals and still carry the same number people in "double the width cabins"** (lower capital and maintenance costs).

4. **No high cost capital required for manufacturing plants to build vehicles or guideways.** All vehicle and guideway parts will be subcontracted and shipped modularly to the destination and assembled on site (note, vehicle is 2 times the width of a single lane of highway – conventional shipping would be an extreme challenge). FasTran will use "Go Teams" to assemble the vehicle, much like the process used by Caterpillar Corporation to assemble large earth-moving machines at the excavation sites.

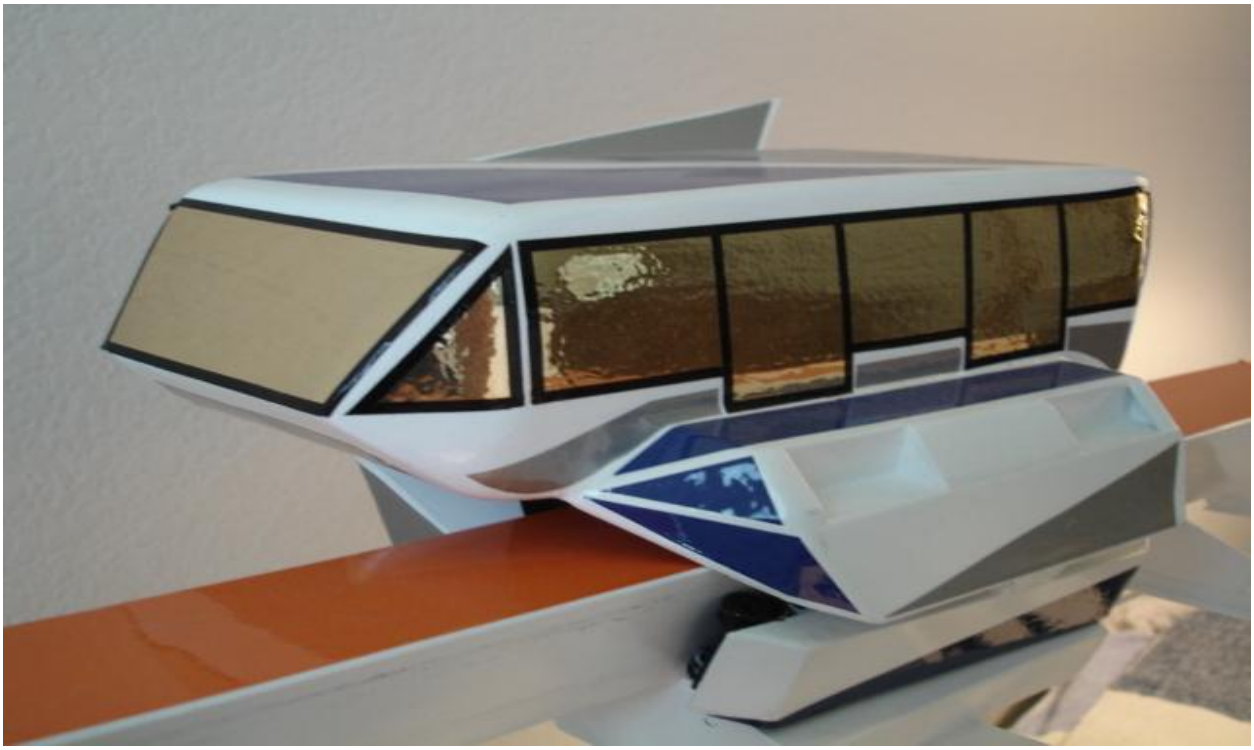
5. **Advanced Technology** allows the wide-bodied vehicle with a 21' wide cabin, which in turn, makes possible the **Highest Vehicle Capacity**. All vehicles have only 3 axes (length, height and width). No other transit system has addressed width as an asset or comes close to FasTran's capacity capabilities. When comparing the 9' width of light rail (or bus) with FasTran's 21', FasTran represents a **133% width increase** in capability. The designed lateral, side-to-side, triangle forces on the wheels and rails are perpendicular forces – no increased side loading. The lateral stability is the same type force/support structure used in the longitudinal axis, "front-to-aft", on commercial jet aircraft to maintain their stability.

6. **Greatest passenger comfort (attracts the discretionary passenger)**; vehicles are wide-bodied, with 3 spacious aisles, roomy comfortable seats and WiFi. These features, in turn, attract the discretionary traveler which produces increased revenue.

7. **Vehicle safety**. The vehicle is **geometrically impossible to derail** from the guideway and will maintain the vehicle upright if derailed (unlike conventional railroad vehicles that can roll over after derailing). The vehicle is also **grade separated** from all other traffic and people.

8. The technology uses **commonality of systems, components and parts**; proven and readily available from today's light rail supply channels.

Additional information may be obtained from our "Technology Brief" at www.fastran.com.



In summary, FasTran combines proven core technologies in innovative ways. FasTran locates and defines the vehicle's Center of Gravity (CG) outside the support wheels. A triangular relationship replaces the rectangular supports of other transit. The by-product of this placement is a wide-bodied vehicle with increase passenger capacity, reduced vehicle side movement or lateral sway which provides superior passenger comfort**. Passengers will enjoy cruising smoothly at 75 mph along the guideway while being protected within the highest safety environment.** All systems and components are readily available and light rail tested.

The head-turning FasTran is a game-changer;

With commercialization, FasTran's opportunities are Huge…

Pathway for FasTran Commercialization

FasTran Goals:

- Primary Goal - System's transit commercialization within 5 years.

- Our second goal extends FasTran's commercialization to powerfully penetrate USA markets by winning 50% of all new urban "light rail" and conventional monorail bid's. Internationally, our goal is to attain 25% of all new urban "light rail" and conventional monorail contracts. These numbers point to winning at least one urban transit bid per year. This commercialization focuses on all rail and guideway forms from mid to high capacity urban systems.

How FasTran will achieve these goals?

The Technology

Leadership will exploit FasTran's super-wide cabin, highest capacity, 3 aisles (not just 1), comfort interior, location flexibility, vehicle speed, unparalleled passenger safety, total cost savings and "head-turning" size and styling in winning stakeholders' support. FasTran will achieve the **"WOW"** factor.

The Process

FasTran leadership has selected the leadership team, outside consultants and the partner companies to: develop, integrate and commercialize the technology.

The Market

FasTran offers outstanding potential to compete economically in, and benefit from, rapidly expanding national and international urban transit markets. 59% of the USA's and 52% of the world's population now live in cities and their suburbs. These numbers are projected to increase exponentially. The United Nations forecast in 38 years (2050), 70% of the world's population will live in cities. Also during these years, the world's population will increase from 7 to 10 billion people. These **massive increases and shifts in population** will result in the remaining sections of inner-city land becoming occupied. Surface immobility and transportation gridlock will become an urban norm. A secondary consideration, by as early as 2020, the United Nations projects world's population will consume 40% more energy.

FasTran will reach its market objectives and achieve its financial success through: (1) an unparalleled "value price point", (2) flexibility of system locations and (3) an overall system quality that exceeds expectations. FasTran will educate the transit stakeholders to demand a higher sophistication from future urban transit and infrastructure. We will continue to develop FasTran's technology to such a superior, prohibitory level that any transit competitors' new cost-of-entry or quantum change of current technology will become an overwhelming and daunting challenge.

The following is a statement of dissatisfaction with available transit:

Hawaii Train Line - <http://mobile.nytimes.com/article?a=889201&single=1&f=21>
Excerpt*: "It is really a lunatic project. There is no other way to describe it," said Panos Prevedouros, a professor of civil engineering at the University of Hawaii and a past candidate for Honolulu mayor. "It's twice as expensive - for only 20 miles of track - as the Washington Metro."* (A $5.3 billion project)

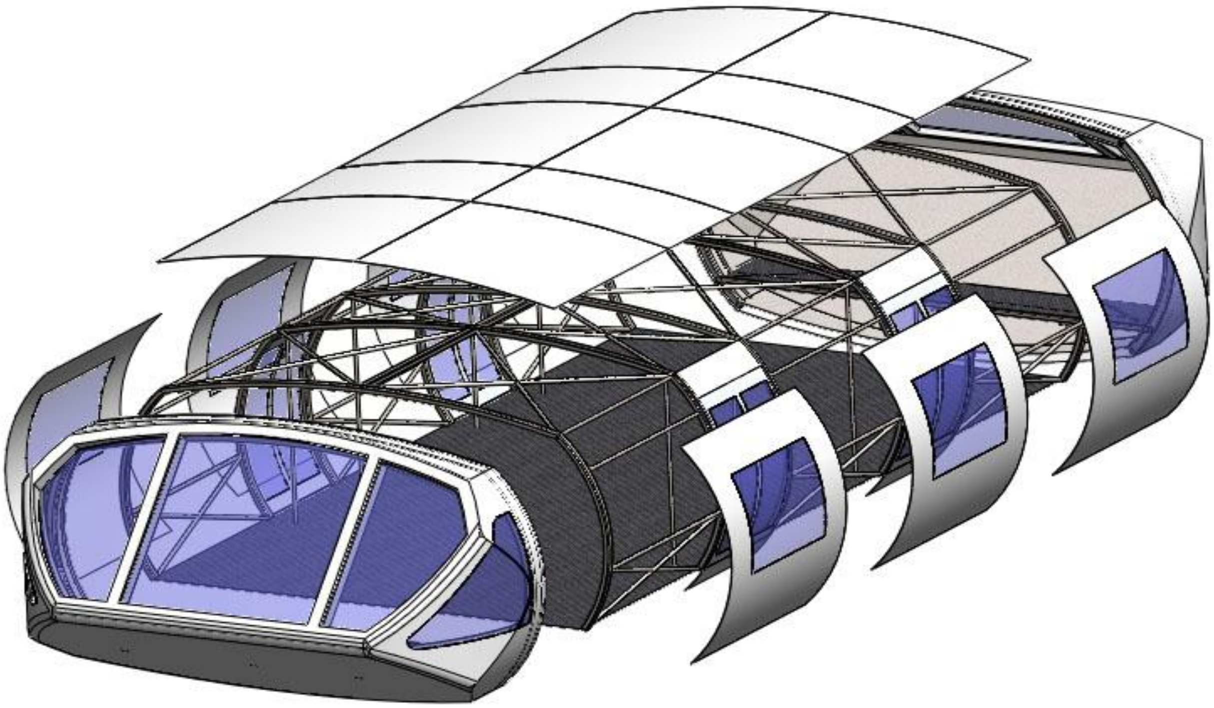
FasTran will be marketed within the USA as, "The American, high capacity, cost efficient, transit value – USA designed, engineered, manufactured."

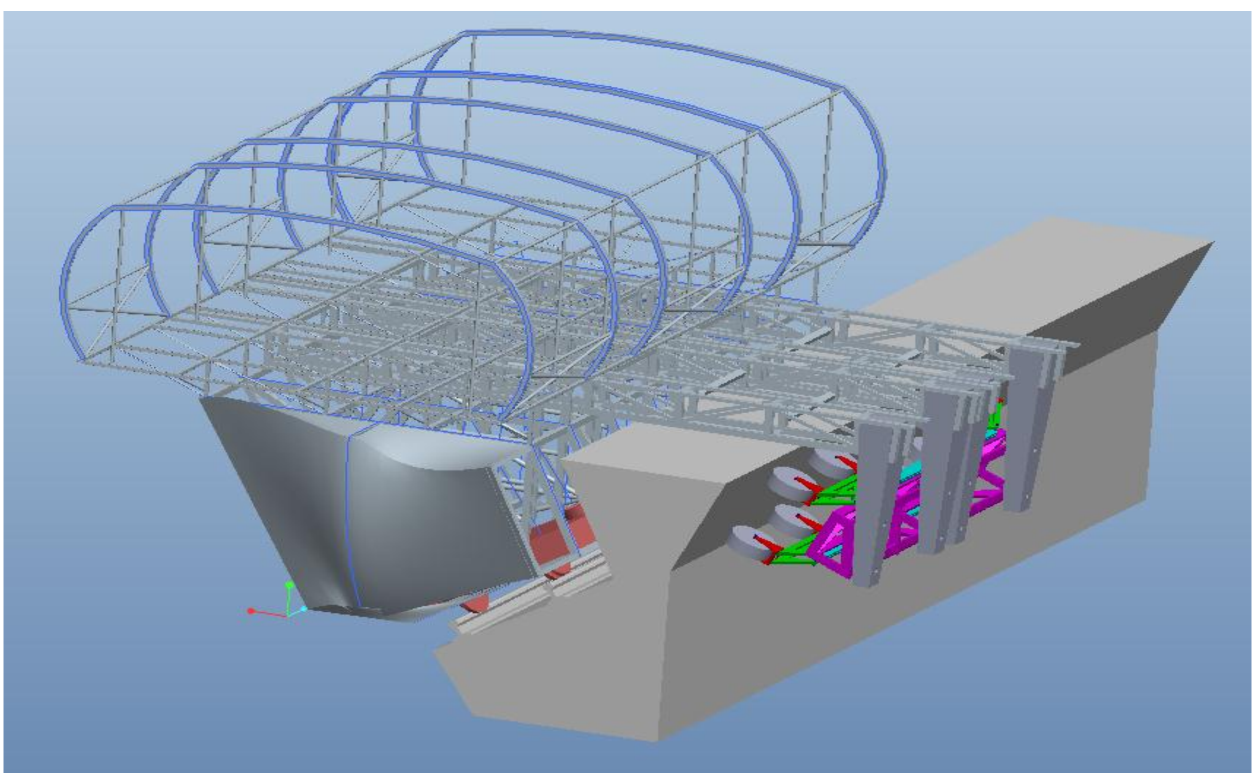
The Risk

- New Technology - While all risk in a new technology cannot be eliminated, FasTran leadership has attempted to mitigate major risk factors. As example, FasTran's vehicle components and systems are light rail compatible. They are in daily use and testing by transit systems worldwide and provide a competitively and readily available resource. The "only change" incorporated in the FasTran design is removing the common vehicle's rectangle support, placing the vehicle's center of gravity outside the vehicle's two support points and designing the a triangle support structure to enhance vehicle width and stability. To aid in the design and engineering, Computer Assisted Design (CAD) was use by engineering departments of 2 universities - City College of New York (CCNY) and the University of Texas at Arlington (UTA).
- Market - As discussed earlier, the market is on our side, growing rapidly and openly seeking new transportation answers as shown by **<u>an unsolicited</u> request that would establish a joint venture with IVRCL to use FasTran Technology on the <u>186 mile Chennai (India) Monorail Project.</u>** IVRCL is a 1.27 billion (USD) construction company headquartered in India.

- Regulatory - Urban transit regulatory restrictions focus mainly on 2 facets: First, Safety (safety is discussed below) and Second, Protection (protection of home-grown products such as the "Buy American" program, which we definitely qualify).
- Safety - FasTran safety will be unequaled in the urban transit industry: The vehicle is **geometrically impossible to derail** from the guideway and the guideway will maintain the vehicle upright if derailed (unlike conventional HSR and light rail cars that can roll over after derailing). Egress from the vehicle, if ever necessary, will be under the direction of the operator and from the left side of the vehicle. The egress will be to a protected guideway in between the guideways. The vehicle is totally **grade separated** and cantilevered into the "free air" - away from the guideway. FasTran vehicles will operate only within an area of defined safety.
- Intellectual Properties - <u>All vehicles have only 3 axes: length, height and width.</u> Our intellectual properties define the vehicle's width. No other transit system can approach our dominance of the width axis. FasTran owns the width axis. We **own the ability to expand a vehicle's width past its current 9' restrictions to our 21' supreme cabin width**. This is **unparalleled**. In addition to the 2 patents awarded and 1 patent pending, we have identified 7 -10 additional patentable areas. These patentable areas are specific to the wide-bodied FasTran design and therefore of minimal value to a standard system. That said, these new patent areas will serve to extend the FasTran system's protected life-cycle.
- Cost of Entry - FasTran has successfully pared its cost of entry by establishing patents, conducting CAD analysis and generating manufacture ready "blueprints". Moving forward, we more closely "fit" a conventional venture capital (VC) model with a 18-30 month development cycle and a 60 month ROI. Rounding out FasTran's positive investment description, we will enjoy a long "shelf life" that will make most VC projects envious. FasTran can exhibit continual cash payouts over many decades and a product life-cycle of 50 -100 years. A final consideration along with **Cost of Entry, the lack of comparable intellectual properties on the part of our competitors will act as massive restrictors.** For those wanting to

enter FasTran's market "space", the challenge will be significant.





Return on Investment – ROI

The ROI advantage over other transit systems is directly related to FasTran's primary system location and its construction methods. FasTran's key competitor, light rail, uses drawn-out stages when establishing a transit line. Example, after the transit board determines the route, the light rail purchasing practice is to use a 4-step method to gain system completion:

1. Purchase the right-of-way
2. Construct the rail line to include new bridges and railway protective structures
3. Build the terminals and ancillary features
4. Purchase light rail vehicles

FasTran method offers a more rapid build requiring months, instead of years. This can be completed in urban areas with the realization that the most advantageous routes are already "transit ways". These "transit ways" are the freeways and toll ways, owned by the taxpayers. Since these routes are owned by the taxpayers and are already transit-routes, rapid approvals are more assured. **FasTran's aspiration is to establish the FasTran system construction as the premier, fast, complete "turn-key" transit build. How?**

Guideway construction is modular and angular shaped guide-beams are trucked down freeways during low drive times. The construction of T-columns require only a small plot (5' X 10' every 100') of public land. Guide-beam construction is exceedingly flexible and can be easily "redirected" to include shopping centers, business districts, urban centers, sport complexes, universities and college campuses, hospitals and medical facilities, apartment and condo developments, military bases and connect to other transportation centers (rail can only dream or pay extreme prices to achieve this flexibility). Also included in "turn-key" pricing, based on projected passenger loads, will be the high capacity vehicles. This system purchase will occur with a single purchase order. Additional revenue may be generated at time of system purchase (or after a warranty time period), if FasTran Transit, Inc. elects to offer the transit authority a long-term maintenance and/or operating contract(s).

The FasTran transit advantage has many of the same characteristics as a real-estate "play". Since the public already "controls" 20% - 40% of the total cost of the system build (the right-of-way land), FasTran has the ability to lower our bid price 10% - 30% below light rail costs. By "controlling" the many facets of the transit build from the land to the technology, FasTran can more accurately control its ROI. To complement that ROI end, the company will also hedge steel and concrete costs during construction (87% of the estimated FasTran system cost is in the T-columns and guide-beams). Our technology will provide the means for FasTran to be extremely competitive against other urban transit technologies. FasTran will establish a new level of excellence much like radial tires achieved over biased tires, or digital electronics did toping analog and how today internet sales is now challenging conventional retail transactions.

Financially, FasTran leadership will focus on a 25% - 28% gross return with a 11% - 15% net return on transit system over 20 miles in length. FasTran will also project an increase in the revenue return amount to 28% - 30% gross and 15% - 17% net return when transit length is less than 20 miles.

FasTran can position its total system bid at 20% - 40% less than light rail. FasTran will return investor capital within 5 years.

Leadership is positioned to build the FasTran prototype with strong support from its subcontractor companies.

Subcontractors

- **Hanson Pipe & Precast, Inc.** (formerly Gifford Hill) Joe Lundy, Structural Products, 1003 N. MacArthur Blvd., Grand Prairie, Texas, 75050, Tel. 817-581-3007 – construct T-columns and precast, pre-stress concrete guideways. Hanson is a major nationwide form concrete and bridge builder. www.hansonpipeandprecast.com
- **Hampson Aerospace** (formerly TexStars, Inc.), Layne Jones, 802 Avenue J East, Grand Prairie, Texas 75053-4036, Tel. 972-647-1366 – manufacture windows, interior wall and ceiling panels. Manufactured Washington Metro transit vehicles' windows and interior paneling. They currently manufacture high performance canopies (windscreens) for aircraft such as the Lockheed F-16, F-22 and F-35. www.**texstars**.com and www.hampsongroup.com

- **Romeo Engineering, Inc.**, Paul Oehler, VP, 4217 Hahn Blvd, Fort Worth, Texas 76117, Tel. 817-656-0048 – Carbon Fiber manufacture for vehicle's outer shell. Currently, Romeo Engineering is a major subcontractor for Bell Helicopter manufacturing helicopter blades and other composite products. www.romeoeng.com
- **Siemens Transportation Systems, Inc. (USA)**, Frank Guzzo, Business Development, 7464 French Road, Sacramento, CA. 95828, Tel. 916-681-3131 – manufacture propulsion, inverters, trucks (bogies). Currently, Siemens manufacturers number transportation components rail transportation systems worldwide. www.mobility.**siemens**.com/usa
- **Sutrak**, Greg Christensen and Scott Imamura, Business Development, 6697 E. 49th Avenue, Commerce City, CO. 80022, Tel. 303-287-2700 – manufacture vehicle's heating and air conditioning system. Sutrak has a long history of manufacturing climate control systems for buses and rail vehicles. http://www.sutrakusa.com
- **Vapor Rail International**, David Griffis and Pascal Choiniere 1010 Johnson Dr., Buffalo Grove, IL. 60089-6918, Tel. 847-777-6400 – manufacture vehicle's wide, plug type doors. Vapor is a leading manufacturer of rail and bus doors. www.wabtec.com

Additional Information

- January 2008, **two patents** were **awarded**, a third application is pending and 7-10 applications are anticipated. Patent 1 addresses the torque forces generated with the CG outside the vehicle's wheels points of contact. Patent 2 protects bi-directional transit on a single guideway. The 3rd patent application describes the vehicle's CG location and its control.
- Not detailed here, FasTran may use either available conventional monorail switches or incorporate FasTran's new switch technology (patent has not been applied for). FasTran's superior switch (1) operates rapidly, (2) accommodates infinite guideway positions and (3) allows vehicle speeds limited only by curves, not by the switch itself (switch technology could be used by conventional monorails).
- **FasTran has letters of agreement for prototype installation** on the UTA campus and in the city of Frisco, Texas.

Competition

- **Transit Buses and Replica Trolley Buses** – Buses' prime advantage is system flexibility. Routes can be established or abandoned rapidly. Their greatest liabilities are that they operate on congested city streets and have a negative or neutral image. Speed, 12 – 60 mph. Passenger seating from 20 to 40.

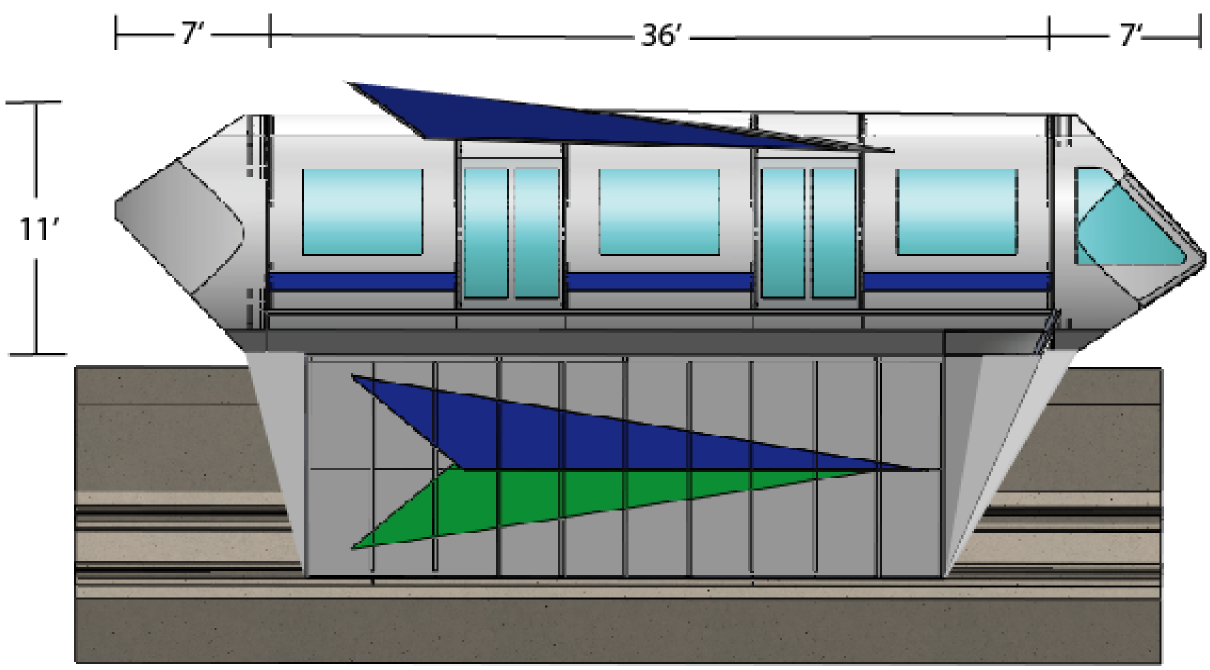
- **Streetcars and Trolley Cars** – All but one manufacturer are foreign-owned. Oregon Iron Works received $4 million in Federal funding to build a streetcar prototype based on an eastern European design. Streetcars and Trolleys are novel. Their greatest disadvantages are (a) they operate on city streets sometimes at the mercy of accidents and congestion, (b) are slow in speed and (c) normally operate only in a high-density downtown environment. Speed, 8 – 25 mph. Passenger seating from 16 to 60.

- **Automated Guideway Transit (AGT), Personal Rapid Transit (PRT), Group Rapid Transit (GRT)** - Technology developed in USA, but all systems is now foreign-owned and controlled. These transit forms are normally found at airports with a closed travel route. Miami, FL and Detroit, MI use an urban version of the GRT technology. High cost, slow speed and bad weather capabilities limit urban acceptance. Speed, 8 – 30 mph. Passenger seating from 3 to 50.

- **Light Rail** – Japanese (Kawasaki, Kinkisharyo, Tokype Car), Canadian (Bombardier), German (Siemens), CAF (Spain) – There are no U.S. manufacturers of light rail. United States law requires foreign companies to assemble cars in the U.S. as a "Buy America" workaround. Light rail represents a compromise between streetcars and commuter/heavy rail. Light rail is relatively easy to deploy if an old rail line is available and if the tracks are not used for commercial freight traffic. However, it is becoming more difficult to find existing rail lines to purchase. Therefore, high-cost structures must be purchased and then destroyed to obtain new rail ROW. The marked resurgence in rail-based freight makes rail ROW even more valuable. Safety issues and crossing slowdowns are concerns when light rail trains operate at grade and share the same space with cars, trucks and people. Adding to the mix, federal regulations require physical and/or time separation between passenger and freight rail. Speed, 15 – 70 mph. Passenger seating from 30 to 90.

- **Monorail** – Japanese (Hitachi), Canadian (Bombardier), Sciomi (Malaysia) – Traditional monorail has a loyal following with its sleek and futuristic appearance. However, it has four major limitations: (a) high maintenance costs, (b) low passenger capacity, (c) the highest operating cost per passenger of any other transit system and (d) it does not operate well in ice and snow conditions. Speed, 30 – 60 mph. Passenger seating from 30 to 40.

- **Heavy Rail and Commuter Rail** – Heavy Rail or High Speed Rail (electric powered) and Commuter Rail (diesel or electric powered) are used for long-distance travel from outlying areas to one or more downtown stations. Speed, 30 – 90 mph. Passenger seating from 60 to 125.



Texas Sized Transit

Cabin offers 3 aisles, not just 1.

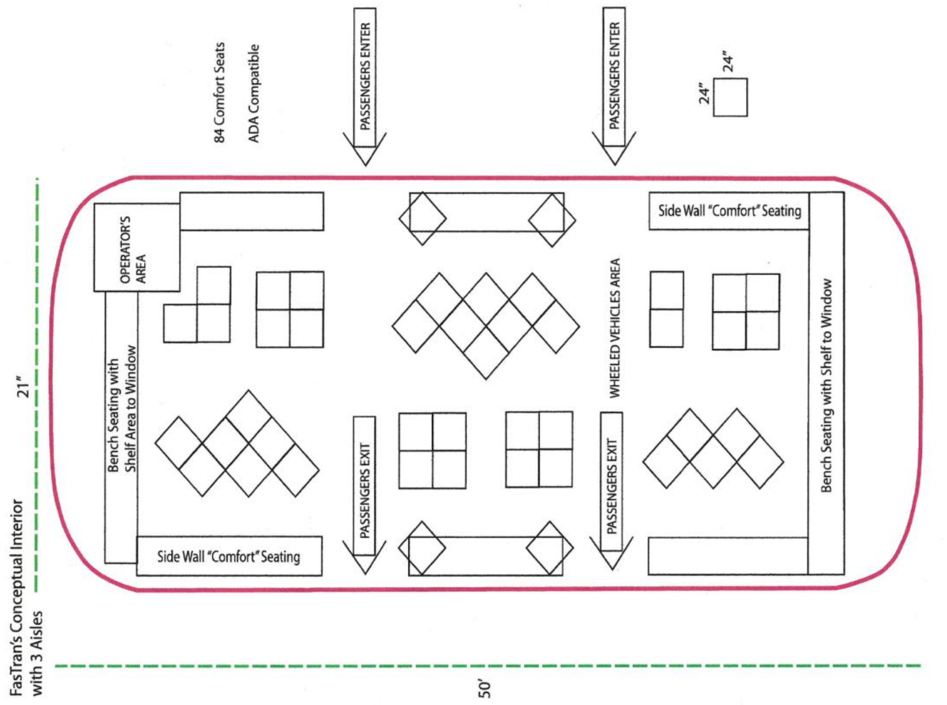
All seats enter/exit directly to an aisle.

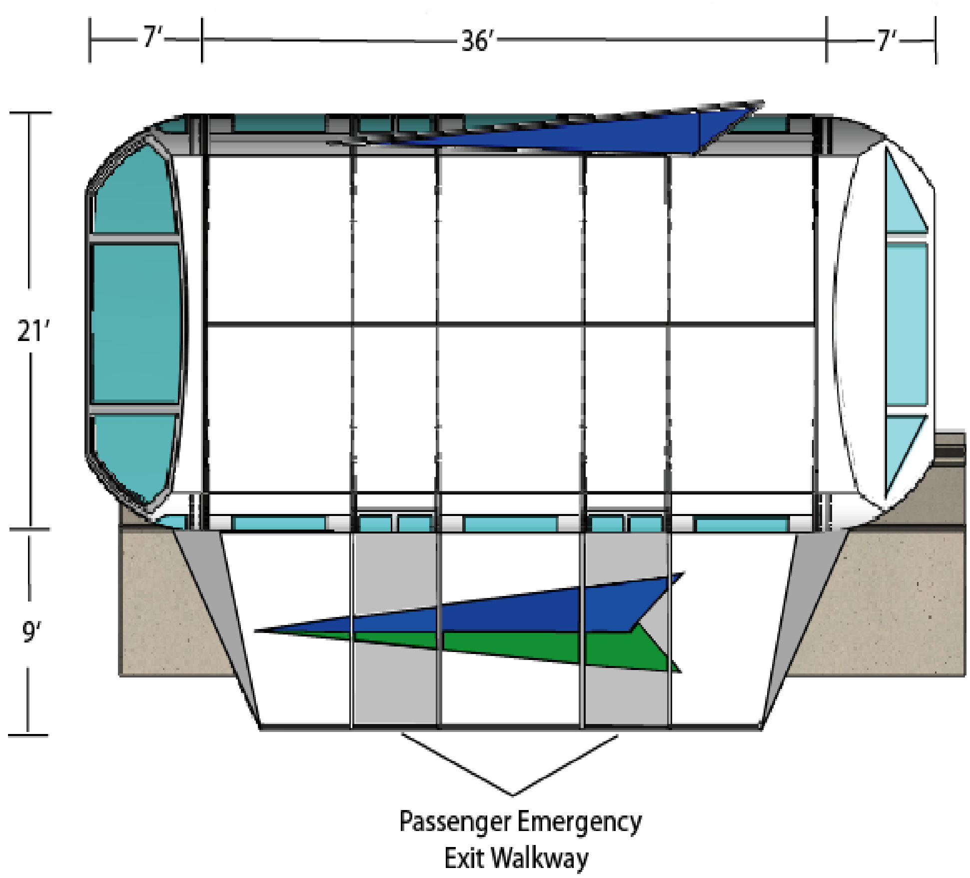
Passengers enter on the right side of the cabin & exit on the left side - Orderly, fast, non-crossover movement.

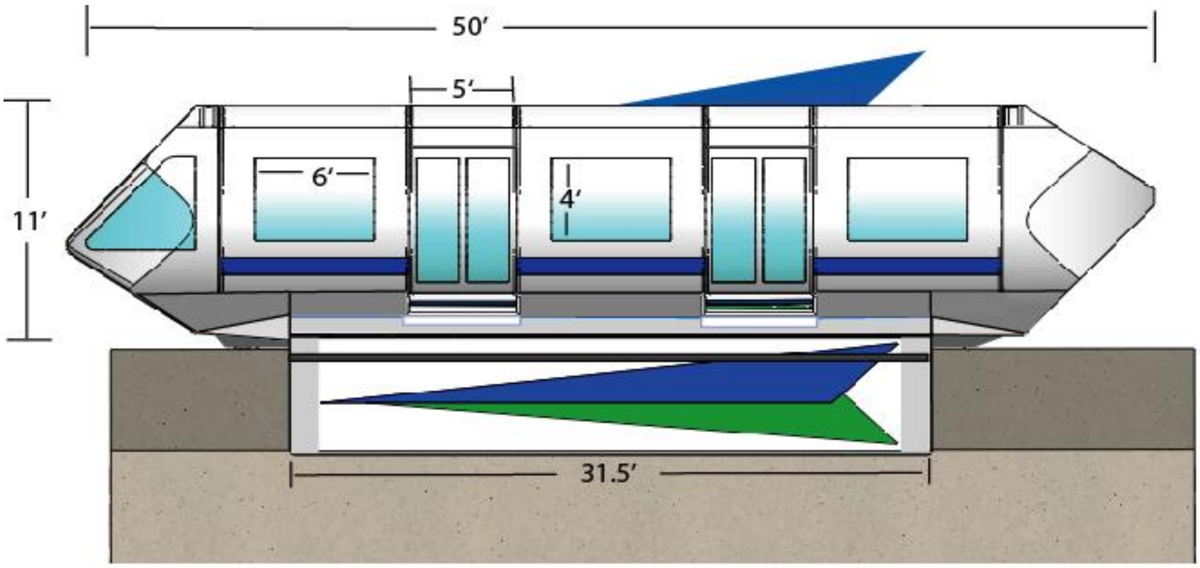
Cabin width greater than 2 city buses placed side-by-side. Vehicle width greater than 3 buses placed side-by-side.

Vehicle height equal to 2 vertically stacked buses.

Vehicle 10’ longer than a city bus







The Team

A flexible, cross-functional team will develop this uniquely bold, wide-bodied, transit system. All team members are seasoned professionals:

- Ennis Sullivan, President. Holds 3 transportation related patents and one patent pending. Headed 4 national product rollouts. Corporate department head for a Fortune 500 and a Fortune 1000 company. FasTran is his second startup company. Former USAF officer and pilot with 17,000 flight hours of which over 1,000 were combat hours.

- Kyle Pertuis, VP Operator. 20 years of operations in multiple industries; charged with overall responsibility for material and personnel to meet production requirements and client expectations. Managed two corporations from start-ups to profitable companies with increasing revenues.

- Terri Adkisson, VP Business Development. 8 years on Dallas Area Rapid Transit (DART) board. Consultant to multiple corporations and government groups. Managed projects from concept through marketing and product implementation while meeting budget, schedule, and business goals.

- Randy Williams, VP Finance. A CPA and former consultant with KPMG Peat Marwick and Deloitte & Touche. Financial Director with multiple corporations. Currently a professor of Entrepreneurship at the University of Denver.

Specifications

Vehicle

Performance	
Cruise Speed	75 mph
Acceleration	2.8 mphps
Service Braking Rate	3.6 mphps
Emergency Braking Rate	7.0 mphps
Regenerative Braking	4 generators per vehicle (1/axle)
Max. Grade	10 degrees
Ambient Temperature	-40 to +140 F
Turning Radius	40’
Propulsion per vehicle	2 electric motors
Minimum Headway	30 seconds
Dimensions	
Length	50’
Width	21’ cabin, 30’ overall
Cab Height	11’
Wide Comfort Seats	24” x 24”
Empty Weight	65,000 lbs.
Std. Max Gross Wt. (84 pass.)	81,800 lbs. (200 lbs./pass.) Max. Gross Wt. (150 passengers) 95,000 lbs.
Capacity	
Std. Capacity (seated)	75 - 84
Max Capacity (seated & standing)	150
System/hr. with single vehicles	9000/12,000
System/hr. with trained vehicles	18,000/24,000
Main Drive Wheels	8-30” steel, single flanged
Balance Wheels	8-20” composite
Body construction	Composite – carbon fiber
Windows	Polycarbonate
Doors, single panel	4, 60” plug doors
Emergency Exits	2
ADA	Compliant
Fire Protection	Detection/Suppression
Emergency Drive	Standby electrical
Additional Features	WiFi and closed caption TV

Guide-beam and T-Column

Guide-beam Segment Length	80’ - 120’ (100’ standard)
Prime Location	Public, freeway right-of-way
Guide-beam Construction	Modular, steel and concrete
Support for Single or Dual Guide-beams	T-Columns, varied heights
Electrical Power	750V DC, dual redundant
Switch	Robotic, steel & carbon fiber
Weather	All weather
System Safety	Elevated, Dedicated
Emergency Safety	Passenger Egress to Protected Walkway
De-rail/Fly-off Protection	Geometrically impossible
Environmental Impact	Benign, earth friendly
Aesthetic	Pleasing
T-column Land Foot Print	5’ x 10’
Single Guide-beam Construction Cost	$18 - $22 Million per mile*
Bi-directional Construction Cost	$28 - $33 Million per mile*
Guideway’s Photovoltaic Panels	Optional Electrical Source

* Total build cost is based on a standard 18’ T-column supporting 100’ bi-directional guide-beams. Elevation changes and variant designs along with construction changes may increase cost.