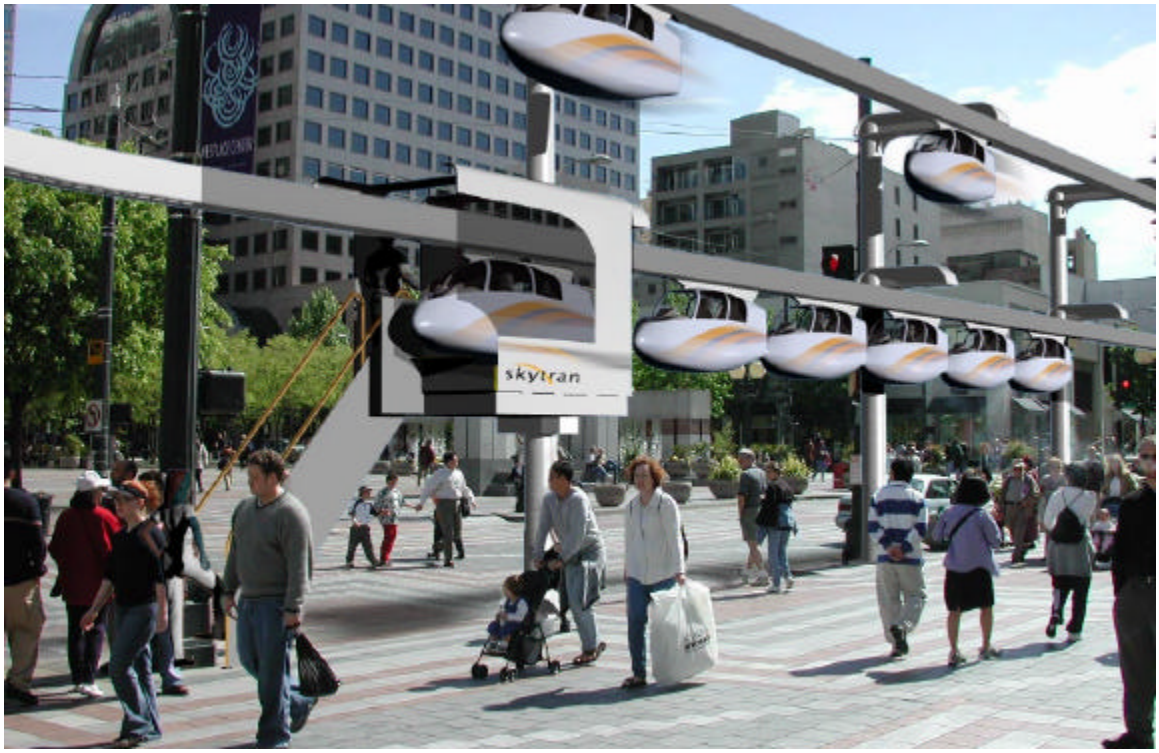


SkyTran

Non-stop, 100 mph Personalized MagLev Transit

Would it be OK if:

1. the vehicle you commuted back and forth to work in obtained 200 mpg energy efficiency?
2. your commuting vehicle only held two people?
3. it traveled non-stop in complete safety at 100 mph while getting that 200 mpg energy efficiency?
4. it (on a single path guideway) had the hourly passenger capacity of three freeway lanes?
5. this system used existing utility right-of-ways?
6. it could be constructed without holding up existing traffic?
7. it had many, many stops so it could drop you off close to or even inside your office building?
8. a user only had to walk an average of an eighth of a mile to get to a station?
9. private enterprise would build it without your tax money?
10. the system could make a profit for its private owners while only charging a dollar a ride or less?
11. a vehicle was always available for you (like a long line of taxi cabs waiting)?
12. a storefront owner could have an in-store station for as low as $5,000?
13. it went directly to your destination & NEVER wasted time stopping at any intermediate stations?
14. two way tracks cost only a million dollars a mile to erect?
15. this per mile costs included everything (all poles, guideway, vehicles, stations & electrification)?
16. each one mile of two way guideway could be erected in a single day?
17. in an emergency the vehicle could stop faster than a Navy carrier plane catching a wire?
18. by inherent system guideway geometry it were impossible to have a crossing collision?
19. by design of the guideway it was impossible to derail?
20. there were no moving parts to wear out?
21. it was frictionless?

Learn the details at: www.SkyTran.net

Going Faster – but where?

Abstract/Introduction

Where do we want to go, and how do we want to get there? Going faster is certainly high on the list of ways we want to travel, yet it is but one of the many challenges we must face if we are to create a better transportation system to meet 21st Century demands.

High-speed transportation for the future must also be safe, convenient, affordable and comfortable. Among the essential design criteria for any new mass, or public transportation system would be environmental impacts (air, noise, light and visual pollution), user friendliness, energy efficiency, land use and cost effectiveness.

For any new system to have a global impact, its infrastructure and vehicles will need to be practical, minimalist, modular and flexible. A far more important feature than high-speed is low cost, particularly for developing nations. By design, any new mode of mass transportation must be a high-tech, fully automated, solid-state, high-capacity system that incorporates and facilitates the high-speed transport of people, cargo and data. The infrastructure should also be able to serve as a conduit for telecommunications, street lighting and security systems.

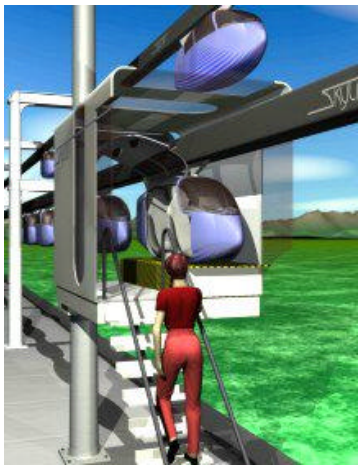
Ideally, such a system would provide all-time, no-wait, non-stop, transfer-free passenger service at speeds up to100 mph in urban areas, and between 100-150 mph for inter-city, suburban and rural regions. The system would feature small, streamlined two-passenger vehicles with tandem seating.

The vehicles would operate suspended from aerial guideways utilizing “passive” magnetic levitation propulsion and computer control systems. The guideways would be supported by standard utility poles above the ground so as not to interfere with existing surface transportation traffic. There would be no intersections or crashes.

Can’t be done, you say? Can’t fly? SkyTran already has designed such a system.

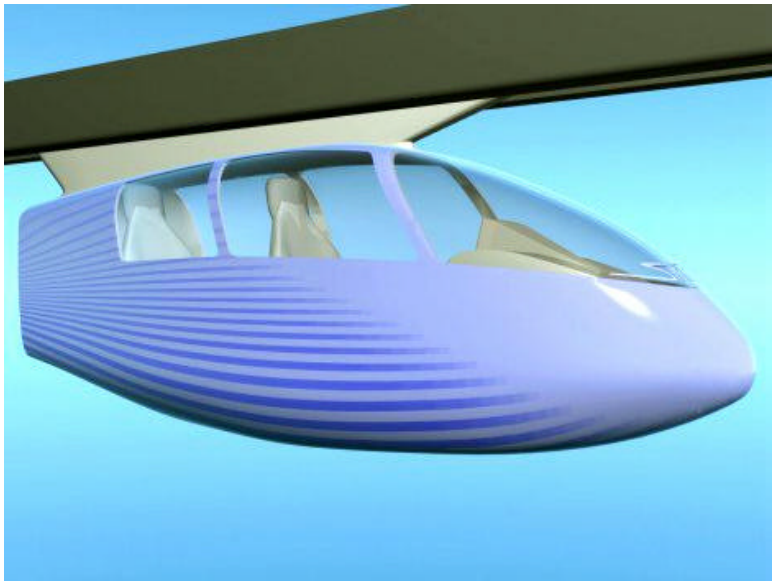
Going Smarter – with SkyTran!

Twenty-first Century SkyTran commuters will be able to zip around town at 50-100 mph and between towns at 100-150 mph in streamlined, space-age personal transit vehicles that don't pollute, and don't waste energy, time or money. SkyTran takes the best features of systems like “passive” magnetic levitation, automation, electronics and robotics and blends them together to provide a transit alternative that is super-fast, convenient, comfortable, safe and affordable. SkyTran is both environmentally and user friendly.



Unique features of SkyTran include automated vehicles available "on-demand," with no waiting, nonstop and no transfer service, and no schedule or drivers. A passenger simply boards the first vehicle in a queue always ready at each transit stop, keys in or simply asks the onboard computer to take them to a specific destination, and is whisked off nonstop to it. SkyTran also features streamlined, lightweight, tandem, two-passenger vehicles, and a minimalist guideway system supported by easy to erect standard utility poles and quick entry/exit portals. SkyTran vehicles run above pedestrian and surface traffic, and never have to stop. There are no intersections with aerial SkyTran where vehicles or pedestrians can collide.

SkyTran's labor, operating and maintenance costs are just a fraction of those required to support public transit systems. SkyTran magnetically levitated vehicles run on clean electricity (equivalent to 200 mpg energy utilization) and the MagLev propulsion system has no moving parts that wear out. SkyTran's guideway also provides a hidden, above ground conduit for telecommunications infrastructure, making it cheaper and faster to build out fiber-optic and other broadband communications systems.



SkyTran's model for success is its low relative costs compared to other transportation and telecommunications systems. Public transportation systems rarely pay for their operating costs, let alone their capital costs. Private telecommunications systems are facing a major problem in providing "broadband" and other high-speed services to consumers for lack of adequate fiber-optic and cable infrastructure in many areas. SkyTran offers 21st Century alternatives for commuters and communicators.

SkyTran's construction, labor and operating costs are but a fraction of current operating systems since SkyTran requires only a fraction of the raw materials, capital, labor and operating funds to provide a superior service. Among concerns of citizens and businesses in quality of life surveys is the need for improved mass transit systems and communications infrastructure -- viewed by many as the cornerstones of the "new economy." Gridlock is hurting everyone. We need solutions that get to the heart of the problem.

Too many people are riding around all by themselves, commuting in vehicles designed to carry a soccer mom and a whole bunch of kids. More societal resources are devoted to parking than getting people where they need to go. Gas-guzzling SUVs and mini-vans are costing their weight in gold as gas prices are $2.00 per gallon or more in many areas.

SkyTran offers a much more practical, affordable and attractive alternative to single-passenger SUV commutes and "massive" public transit – it's called SkyTran "personalized" transportation. SkyTran's wide-spread availability will mean you can still commute where you want, when you want much like you do now in your private automobile, but SkyTran will do the driving and get you within walking distance of your destination much more speedily and safely, and much more affordably, too!

SkyTran's successful implementation will assist communities in their efforts to improve economic development, environmental protection and quality of life. Marketing SkyTran will begin once the first prototype system is developed, tested and successfully operated. SkyTran's target audience is elected officials and the public. SkyTran's alternative "privatized" transit service easily demonstrates that it is far superior to public transit in critical aspects such as cost, convenience and comfort.

More commuters live in and now travel from suburb to suburb than between suburban and central city "employment zones." SkyTran has focused its development efforts on the East Valley "boomburb" area of metropolitan Phoenix, which is the fastest growing area in the US, but also a group of suburban communities without any transit infrastructure. SkyTran's plan is to build a 25-mile prototype system in this area beginning with establishment of a SkyTran/PML (Passive Magnetic Levitation) International Research Institute on the Arizona State University East Campus at Williams Gateway Airport (a former military base). SkyTran has met with leaders of ASU-EAST and officials from the City of Mesa (the leading "boomburb" city in the US) to discuss development of the SkyTran prototype in that region. SkyTran has received a great deal of encouragement from them to keep talking to other community leaders to get them interested in SkyTran's 21st Century vision and alternative.

For example, the proposed City of Phoenix light-rail system will cost in excess of $1.2 billion for a 20-mile line expected to carry just 15-25,000 passengers per day. SkyTran's capable of transporting ten times as many passengers at one-tenth that cost. At over $50 million per mile for the 20-mile Phoenix light-rail system, SkyTran could build and operate a 200-mile privatized system without need for taxpayer subsidies. SkyTran's overall prototype development budget is approximately $200 million compared to the $1.2 billion Phoenix light-rail project budget, yet both will provide approximately the same number of miles of service (20-25 miles). How is this possible? The folly of light-rail is that it is "massive" in construction and capital costs and very "light" on utilization and passenger convenience. At an average speed of 15 mph on light-rail, most folks would be better off to ride a horse, bicycle or roller skate to get where they want or need to go. SkyTran has a better way!

The potential economic importance of the SkyTran integrated transportation concept becomes even more apparent after scrutiny for technical fallacies. All structural, aerodynamic, performance and cost analyses continually reaffirm the conclusion that SkyTran is indeed feasible, both economically and technologically. The SkyTran concept has gained continually increasing support from the scientific community, has appeared in mainstream periodicals, been presented at technical conventions, and thanks to the Internet has received interest from transportation circles all over the world.

The time is ripe for the public to fully comprehend and support the superior commuting and economic advantages of a SkyTran passive magnetic levitation monorail transit system. There are currently more than a dozen monorail systems being considered in the

United States, in spite of the fact they are slow (on the order of 35 to 45 mph) and their track cost per mile is six to ten times that of SkyTran. Since the 1930's several MagLev systems have been developed to technical perfection — but never to economic perfection. All existing MagLev systems use very expensive computer controlled active track and/or superconducting magnets to levitate, propel and brake.

The new “passive” MagLev technology uses a completely passive track in conjunction with non-exotic, readily available electricity supplied to the vehicle itself for levitation, propulsion and stability. The University of California's Lawrence Livermore National Laboratory's famed Fusion and Flywheel researcher, Dr. Richard F. Post, in 1998 applied his flywheel passive magnetic bearing technology to a new form of passive MagLev named "INDUCTRACK" by LLNL. Inductrack has since become the preferred enabling technology for SkyTran’s lightweight, and relatively low speed application.

LLNL's preliminary calculations show that a 700 pound SkyTran vehicle traveling at 100 mph would only have a magnetic drag (same thing as rolling resistance of rubber tires on asphalt used to "levitate" autos) value of 408 watts. For comparison purposes a 3,000 pound car traveling at 65 mph would be consuming between 3,900 and 7,800 watts just in overcoming tire rolling resistance (the equivalent energy penalty for "levitating" the car with pressurized air).

The entire SkyTran system has undergone continual improvements to bring the simplest most reliable, low cost technologies to bear. In typical fashion, costs are prepared for all components/assemblies and after review, the most expensive items are attacked with creativity. Most recently SkyTran made a breakthrough in the design of its portals (on-off boarding stations). The problem of how to maintain an adequate queue of empty vehicles at portal dwell lines for immediate boarding, and still achieve extremely low capital costs, minimum land usage and easy, safe passenger access, was solved.

By situating both an entry portal at the front of the dwell line and an exit portal at the back, and by incorporating the portals directly into the SkyTran support structure, all boarding is now accomplished “off-line.” A SkyTran portal is so simple and practical that it eliminates the need to build enormously costly train stations and waiting rooms. Fact is SkyTran service is "on-demand." There is no waiting for SkyTran vehicles, so there is no need for stations, waiting rooms or rest rooms.

Today, with cost control continuing to guide creativity, the SkyTran/Inductrack concept makes even more economical and practical sense than it did just a few years ago. Basically, SkyTran has huge economic advantages because: (1) Light-weight personal monorail vehicles mean comparatively lighter weight supporting structures and proportionally lower material costs; (2) Extremely low monorail guideway costs per mile in turn means many more miles of guideway can be erected for a given budget; (3) Aerodynamically streamlined, small frontal area personalized vehicles mean high speed capability at minimum energy costs (200 mile per gallon equivalent at a steady 100 mph); (4) Modern computer control systems mean high through-put capacity (one low cost SkyTran monorail guideway lane can carry the equivalent of three freeway lanes of commuter traffic).

Magnetic Levitation and linear drive propulsion systems mean no mechanical contact, or wearing of parts while traveling at 100 - 150 mph. This in turn minimizes maintenance and associated operational expenses. SkyTran has no internal combustion engines (hundreds of parts moving up, down and around in an environment of controlled

explosions and high temperatures), no transmissions (gears in a bath of oil), and no tires (rubber casings containing pressurized air that can be punctured). What doesn't exist can't possibly wear out -ever!

Any city that is currently considering spending huge sums on a new train, bus or light rail mass transportation system (modes that are all slightly improved derivatives of 1800's technologies) needs to carefully assess the economic benefits of SkyTran. The new millennium deserves high speed, low capital cost, low operational cost, useful and smarter transportation for all.

SkyTran Incorporated

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Personalized MagLev Transit

Fast 100 mph Commuting

DESCRIPTION OF COMPANY:

A group of cost conscious, innovative aeronautical engineers, structural engineers, factory automation engineers, electrical engineers and software engineers are working together to create a day when commuters will be able to safely speed around town at 100 mph in streamlined, space-age personal transit vehicles that don't pollute, don't waste energy and cost a fraction of what a light rail and expanded bus systems will cost. This new, revolutionary transit system, called SkyTran, is not your ordinary automated people mover.

It's revolutionary because it takes the best features of state-of-the-art systems like Lawrence Livermore National Laboratories Inductrack passive magnetic levitation, automation, electronics and robotics and blends them together to provide a transit alternative that is not only super fast, but convenient, comfortable, safe and affordable, all at the same time.

Some of the features that make SkyTran such an innovative and remarkable transit concept are its lightweight, streamlined, tandem, two-passenger vehicles, its minimalist guiderail, support structures and stations, and its ability to move passengers in three dimensions.

The SkyTran vehicles hang suspended from overhead guiderails, which allow the vehicles to travel either at ground level or above traffic and to turn or move from ground level to above traffic in a very brief time and short space.

Another feature that makes the SkyTran personal/mass transportation system so useful is that vehicles are available "on-demand," meaning there is no waiting, no schedule to worry about, nor even a driver for that matter. A passenger simply boards the first vehicle in a line of vehicles always ready at each transit stop, keys in a destination on the on-board computer, and is whisked off non-stop to it.

SkyTran vehicles operate in their own safe environment, separate from pedestrian and surface vehicle traffic, and never have to stop for traffic lights, stop signs or railroad crossings because there are no intersections where vehicles and/or pedestrians can collide.

SkyTran will employ fail safe electronic monitoring devices and continuous sensing to keep system vehicles safe distances apart.

The benefits of SkyTran are numerous, especially when compared to other transit modes like light rail and buses. One mile of SkyTran's lightweight, minimalist guiderail, including stations and stops, will cost $2 million to $4 million. (Light rail currently costs $30 million to $64 million

per mile, not even counting right-of-way acquisition costs.) In mass production, SkyTran vehicles will cost approximately $5,000 to $6,000 each (One new 36-passenger transit bus costs $300,000.)

SkyTran labor, operating and maintenance costs will only be a fraction of those required to support a light rail with expanded bus system since there are no drivers. SkyTran magnetically levitated vehicles run on electricity (equivalent to 200 miles-per-gallon energy utilization) and the MagLev propulsion system has no moving parts that wear out (there is no mechanical contact nor friction).

Also, consider the savings not only in terms of the tax burden current transit systems put on the public but in other areas such as no land purchases or neighborhood destruction to provide rights-of-way. No air or noise pollution, no parking lots or garages needed, no traffic jams or accidents or road rage, and all the extra time and money you'll have from not having to work so hard to own and support two or three vehicles per family.

Compare SkyTran to the proposed plans for light rail and expanded bus service, which would cost about $3 billion for a 35-mile system and take 10 years to construct, operate and maintain. If we spent the same amount developing a SkyTran system, we could have 1,200 miles of SkyTran guideway and 200,000 SkyTran vehicles rather than 35 miles of light rail and 500 more buses on our crowded streets.

Line Capacity:

Line Capacity varies greatly upon the type of implementation employed by the SkyTran system. The following sample is given for a 35-mile bi-directional system:

SkyTran™ passengers per hour capacity for a 35 mile bi-directional system		
Average commute distance	**Maximum SkyTran Passenger Capacity (per hour)** Average of 1.2 passengers per vehicle	**Travel time**
10 miles	60,480	6 minutes
15 miles	45,360	9 minutes
20 miles	30,240	12 minutes

Technology Features of Each Product:

Despite the system's obvious speed and convenience advantages, SkyTran's capital costs are surprisingly 1/19th that of conventional light rail. The low cost of the SkyTran system is a result of the following technical features:

- **Innovative integration** of proven "off the shelf" automation and sensing technologies.
- **Low-cost vehicles** (minimum weight means less energy and capital to produce and operate).
- **Low-cost tracks** (lightweight vehicles can be safely supported with lighter weight monorail track and support structures).
- **Low or non-existent real estate right-of-way costs** (small, lightweight SkyTran can be erected on existing highway medians, ordinary sidewalks or even attached directly to existing buildings).
- **Lower maintenance costs** due to the "solid state" (no moving parts) nature of the system.
- **Magnetic Levitation** (MagLev) to support the vehicles without any mechanical contact to the track (we are currently finalizing negotiations with Lawrence Livermore National Laboratories for use of their non-superconducting, efficient, "Inductrack" passive magnetic levitation technology).
- **Linear Propulsion**, rather than tires, gears and motors to propel the vehicles down the track. (SkyTran research has shown that it is possible to use a traditional Linear Induction Motor built into the Inductrack system to provide propulsion. Lawrence Livermore Labs has already demonstrated integration of linear motor propulsion with Inductrack passive MagLev).
- **Automation** software and links for routing and control of the vehicles (several other industries use the same technologies that SkyTran will use to accomplish the automation of the system).