

Revised 2012

Sky Train Corporation

New Technologie

Originally Suncoast Engineering and Manufacturing Inc. after 9 years doing Medical and Military type Work, was renamed Sky Train Corp. in 1995





**This Group Consists of
Disney Designers & Others
to Qualify Your Projects**

www.entenginc.com

www.tig-m.com



**Arrowhead CA &
MGM to Bally's LV,
NV - Monorails**



**NEW ELECTRIC TROLLEY AT
FARMERS MARKET, LA, CA**

Our vehicles are designed and built in accordance with the APTA standard for vintage/heritage trolley vehicle equipment APTA-SS-HT-001-05. This incorporates many other standards such as UL, IEEE, LEED, etc. Also, ASCE standards for transportation vehicles are followed where applicable.

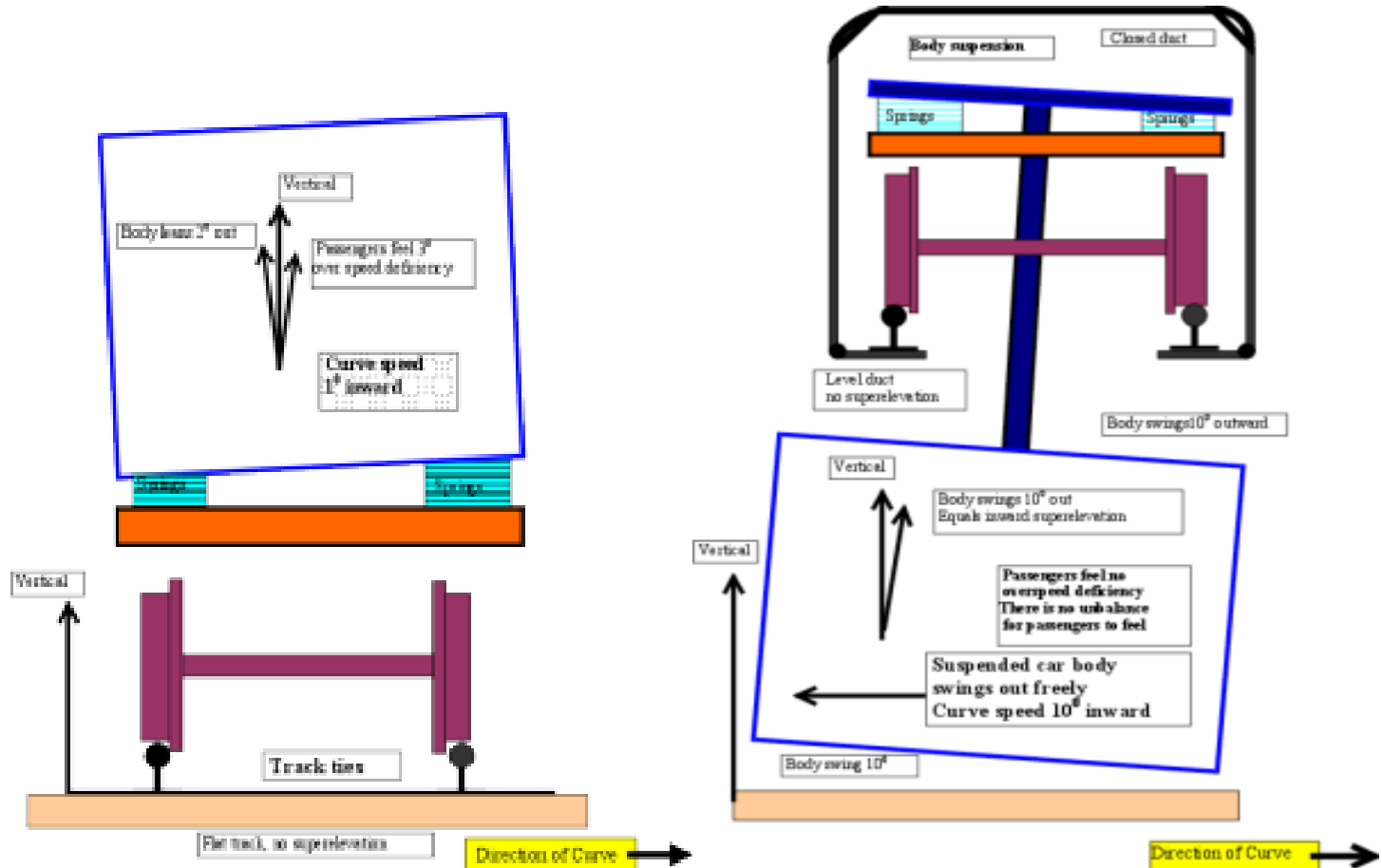
The Sky Train patented concepts?

- The unique feature is the overhead duct
 - rails, power supply, signals and automation controls of the structure, protected from invasion
 - trucks and chassis constrained by the duct move on the rails
 - lower, accessible car bodies suspended in the open air beneath them
 - allowing the patent pending suspension to operate; providing increased comfort and speed

Sky Train can have many variables, suspended on an open lattice structure; here it is shown covered with Solar Arrays

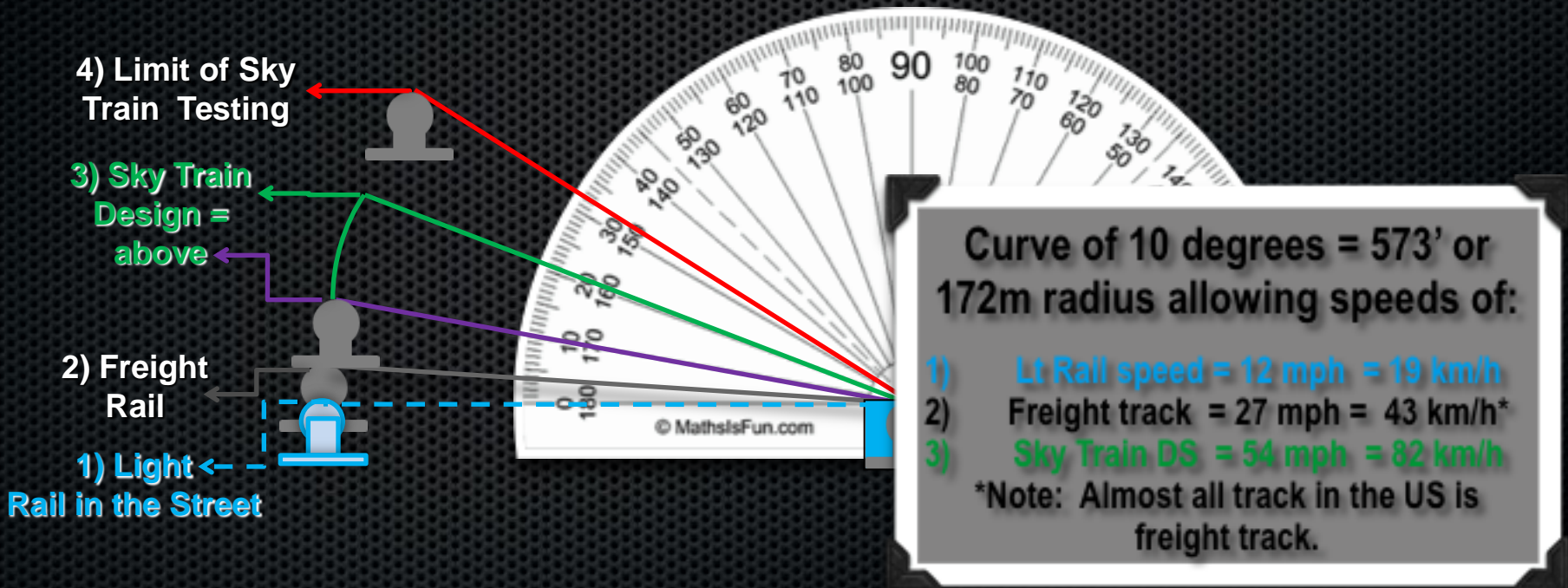


Speed on Curves Reduces Fleet Size & Trip Time! Three (3) Times Faster than Competing Systems!



FASTER CURVING SPEEDS

Sky Train has patented **Doubled Superelevation (DS)** consisting of the **Elevation of surface** and the **Addition Of Swing out**.



Vehicle speeds on curves: comparisons of performance: on flat track OSLR is 3 times faster, up to 1/3 faster than Tilt Trains on superelevated track

Speeds; bottom-supported, tilting body and Overhead-Suspended Vehicle

Degrees of curvature Radius of curve (feet)*	Effective degrees of superelevation	Calculated speed performance on curves				
		5	10	15	20	57
		1146	573	382	287	100
Track with zero superelevation (Sky Train body swings out 10 degrees)						
Bottom-supported non-tilting speed mph	1	17	12	10	9	5
Sky Train Corp. overhead suspended speed mph	10	55	39	32	27	16
Track with 6 degrees superelevation (Sky Train swings out 10 degrees + 10 degrees superelevation)						
Bottom-supported non-tilting speed mph	7	46	32	26	23	14
Bottom-supported tilting body speed mph	15	67	47	39	Not Likely	Not Likely
Sky Train Corp. overhead suspended speed mph	20	77	54	44	38	23

Speed on curves 050623 FOR type of VEHICLE DESIGN

Vertical data in column labels "A"	B	C	D	E	F	G	H	I
VEHICLE TYPES	DISCOMFORT DEGREES	TRACK TILT "SUPER ELEVATION"	BODY TILT ALLOWED SWING	EFFECTIVE TOTAL DEGREES	FELT BY PASSENGER DEGREES	SIDE FORCE DISCOMFORT	VERTICAL FORCE IN "G"	SPEED ON 10 Deg curve(1)
STREETCAR / LT RAIL FIG 14A of disclosure for patent	3 per FRA	0	0	1	3	.052g	1g	12 mph
Rypinski Cable connectors	3	0	0	3	3	.052g	1g	21
Light Rail on FREIGHT track(2)	3	4	0	5	3	.052g	1.002g	27
Rubber Tired Suspended(3)	0	0	6	6	0	0	1.005g	29
Rail on PASSENGER track(4) FIG 15A	3	6	0	7	3	.052g	1.005g	32
High Speed Tilt Trains(5) FIG 16A	3	6	6	15	3	.052g	1.021g	47
Sky Train, at tilt train speed(5)	0	10	5	15	0	0	1.033g	47
Sky Train model design	0	10	10	20	0	0	1.111g	54
Sky Train limits	0	16	16	32	0	0	1.138g	64

Notes:

(1) A 10 degree curve has a radius of 573 feet or 172 metres

(2) In the North Americas almost all track is shared with freight. This limits the allowed Superelevation of track to 4 degrees.

This example for rounding a curve the springing allows the body to lean out 2 degrees, only a 1 degree tilt is allowed for effective speed increase.

(3) Due to the chance of blowout on the outboard tire side and other issues, they have applied limiting stops at 6 degrees into their design

(4) The allowed Superelevation for {Passenger trains are 6 degrees)

(5) Comparing columns G discomfort with H vertical force change you can see the vertical component which is hardly felt when sitting is much smaller then the discomfort column G. Physiologically our sense of balance is not as sensitive to vertical changes compared to side forces.

COMPARISON FOR FEATURES OF ELEVATED MONORAILS, LIGHT RAIL & GUIDED BUS

FEATURES: <u>HIGH IS BEST VALUE</u> Y=Yes, N=No 5 is greatest benefit	***** Steel Wheels *****				***** Rubber Tired *****		***** Kuala Lumpur *****			
	SKY TRAIN Rating	(OSLR) Comment	LIGHT RAIL Rating	(At grade) Comment	Suspended (F) Rating	(Rubber Tired) Comment	(Rubber Tired) Rating	Guided Bus	(Rubber Tired) Rating	
Mode perceived value by riders										
Novelty elevated - best view - maximize ridership	4	3	1	2	4	3	3	3	1	3
Intermodal Connectivity distance & cost	5		2		5		4		2	
Voter appeal as new icon - tourism	5		3		4		4		2	
Scheduling on time transport	5		3		5		4		2	
Comfort (Curve speed & superelevation)	5	20 degree.	2	6 degree.	3	6 degree.	2	4 degree.	3	6 degree.
Accessibility and ease of use										
At grade vs elevated stops	3		5		3		2		5	
Separate boarding, walk in saves time	5		3		5		5		3	
Climate control, snow or rain	5		5		5		5		3	
Environmental Considerations										
Visual objection versus dedicated way	1		3		1		1		3	
Competing using limited right of way	5		1		5		4		2	
Use existing boarding structures & height	3		1		3		2		1	
Negotiate terrain, climb % = direct approach	3	13%	3	13%	2	6%	2	6%	2	6%
Generates redevelopment	5		4		5		5		2	
Pollution due to power consumed	5		4		2		2		1	
Safety										
Fear of fatal crashes with the system	5		1		5		5		2	
Safety to derail, wind, return to station	4		3		2		2		1	
Safety of riders, ground proximity cost	5	5	4		5	5	3		3	
Automated safety system collisions	5		3		5		3		2	
Cost factors										
Energy Cost	5	1	5	1	2		2		1	
Mechanical Complexity	2	1a	2	1a	2	1a	2	1a	2	
Automation / Driver Savings	5	Y - 4	1	Y - 4	1	N	1	N	1	
Savings from non-automation cost	1		1		1		1	Y	1	
Length of service life	5		5		3		3	N	2	
Trained Maintenance Personnel	4		5		1		1		1	
Spare Parts Inventory	3		4		1		1		1	
Maintenance reliability / wear	5		5		3		2		1	
Carry passengers and freight	3		2		1		1		1	
Av Speed due to curves = fleet size	5		3		4		3		2	
Insurance cost, liability	3		1		3		2		2	
Regional system	4		4		3		2		2	
Available funding sources	2	2	2		2	2a	2	2a	2	
Add cars for higher passenger capacity	4		4		2		1		1	
Advertisement revenue, naming rights	3		1		3		3		2	
Mark Up / profit -by manufacturer	5	30%	3	100-120%	2	80-100%	4	60-80%	4	60-80%
Added revenue due to local profit and taxes	5		4		2		2		2	
Shipping Cost - assemble locally	2		2		1		1		1	
TOTALS or Rating:	144		105		106		92		69	

Notes clarifications:

In order to create a regional value the columns could have a multiplier added to each line item as well as the values changed to suit group consensus

1 Energy required by steel wheel vehicles is less than 20% of rubber tired. Also conservation technology to even save more is available

1a Efficiency & no of components; motor wheel 96-98%, motor & transmission 91-93%, linear motor 86%

2 Defined technology already funded by government grants has added avenues for funding, see www.trda.org

2a Foreign technology w/o local labor has impediments to local acceptance including buy National votes

3 Klages study, Pinellas FL; Shows 40% more ridership over elevated light rail equaling greater revenue, removing more autos creating less pollution

4 Can operate automatically, increases safety, equipment is time proven and lowers operating cost if "Y=Yes" "N=No"

5 A suspended system improves mode transfer time, structure costs, guiding viewing out and down enhancing safety and commercial marketing. See (Study "Speed on Curves")

Demonstration & Performance Models



Sky Train Corp



Sky Trains 2003 operating model on display in Orlando next to the full size 8' x 8' x 30' composite vehicle & its production tooling



Compare this Steel structure to Aluminum on the next slide



Participating in the Flavors of Hillsborough at the Senate Portico in Tallahassee 2006

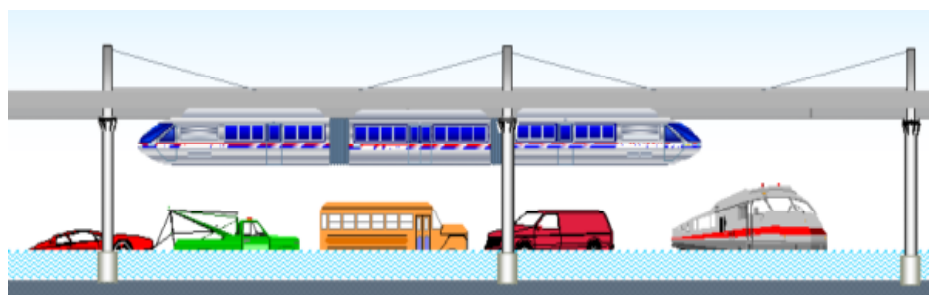


Community Budget Request \$2,000,000: Senate track 3041:
Sponsor Senators Mike Fasano, co-sponsor Victor Crist shown.
House track 104: Sponsor Rep Ed Homan and co-sponsors;
Berfield, Farkas. www.stc-in.com/Testimonials.htm



Superior Transit Concepts : Features low Cost, Weight, and Electronic Regeneration

**STC provides: A NEW LEVEL OF UNINTERRUPTED
TRANSPORTATION USING ONLY 4% OF GROUND SPACE**



**STC100 designed for high speed
& high capacity transportation –
A % increase in average speed
allows reducing the same % of
the Fleet saving million\$!**



**STC150 Designed for Safety to
scan cargo, automating our
port operations – Reducing
client work in process reducing
overall port costs**

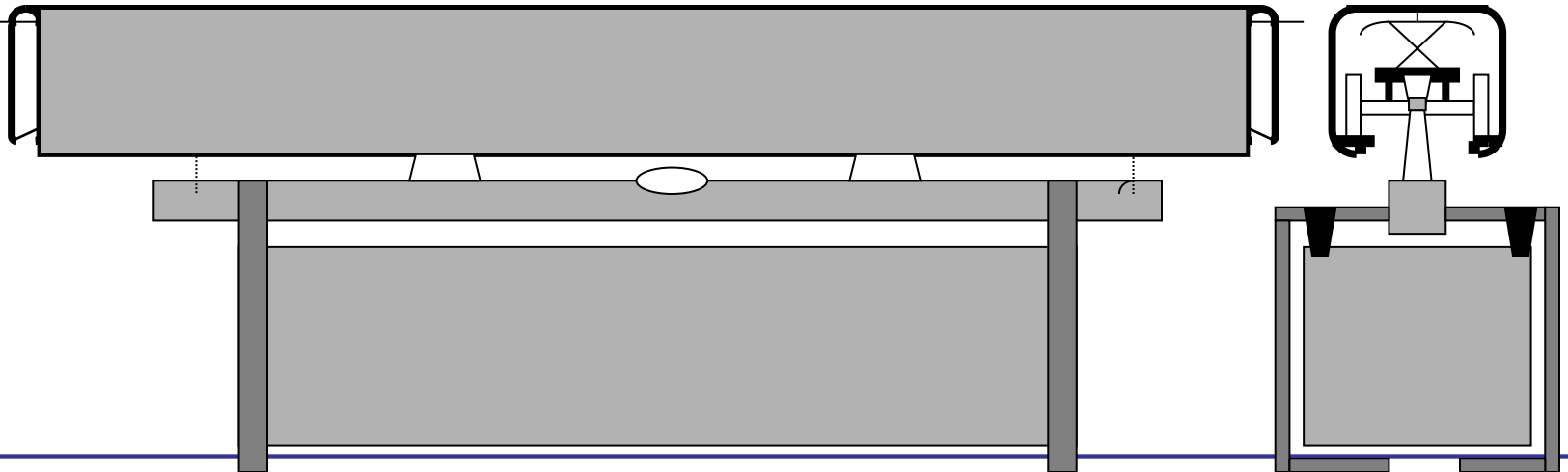


Overhead-Suspended Light Rail (OSLR)

Combination car adapted for container handling



Major Components: freight container



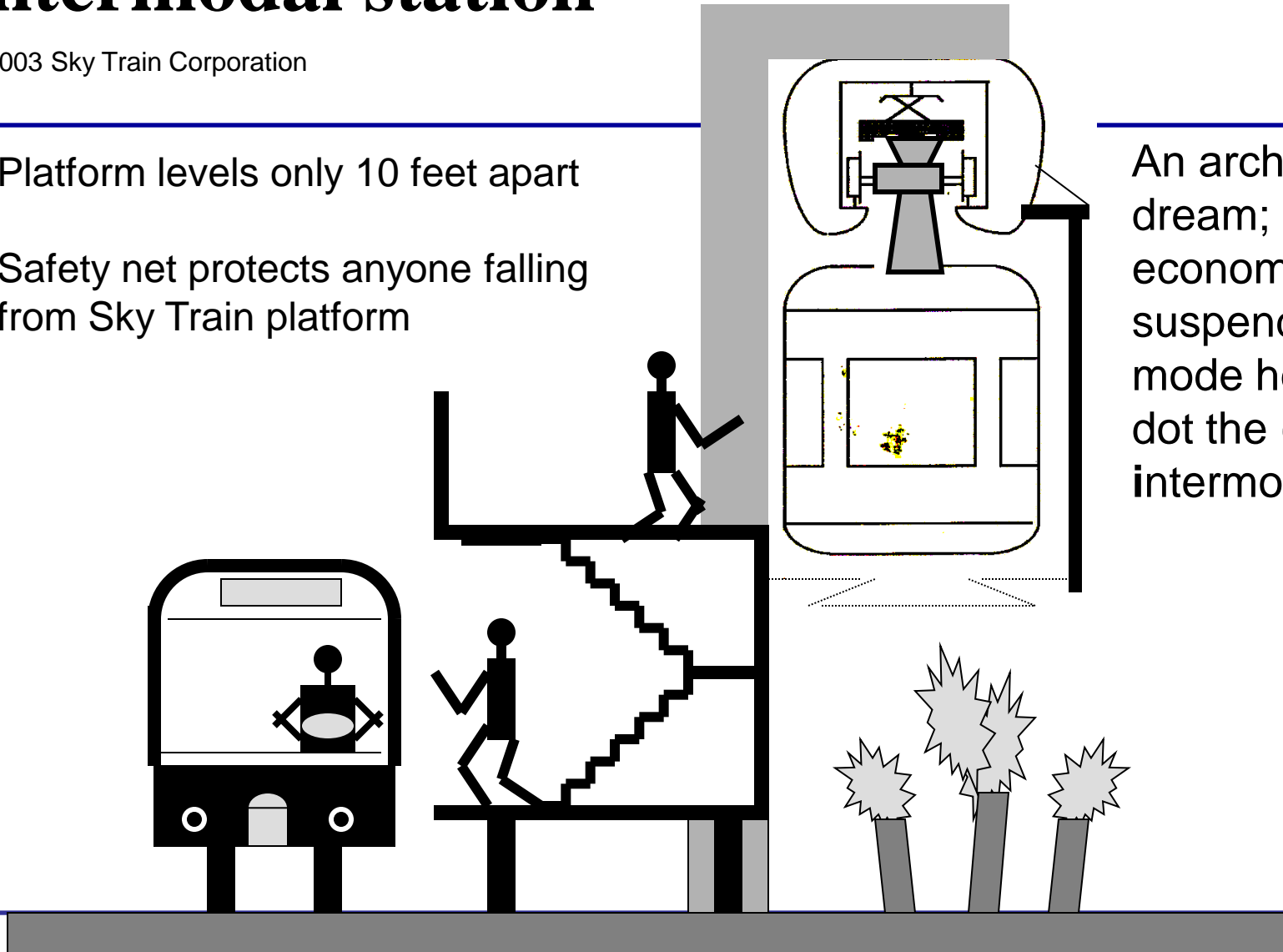
Intermodal station

© 2003 Sky Train Corporation

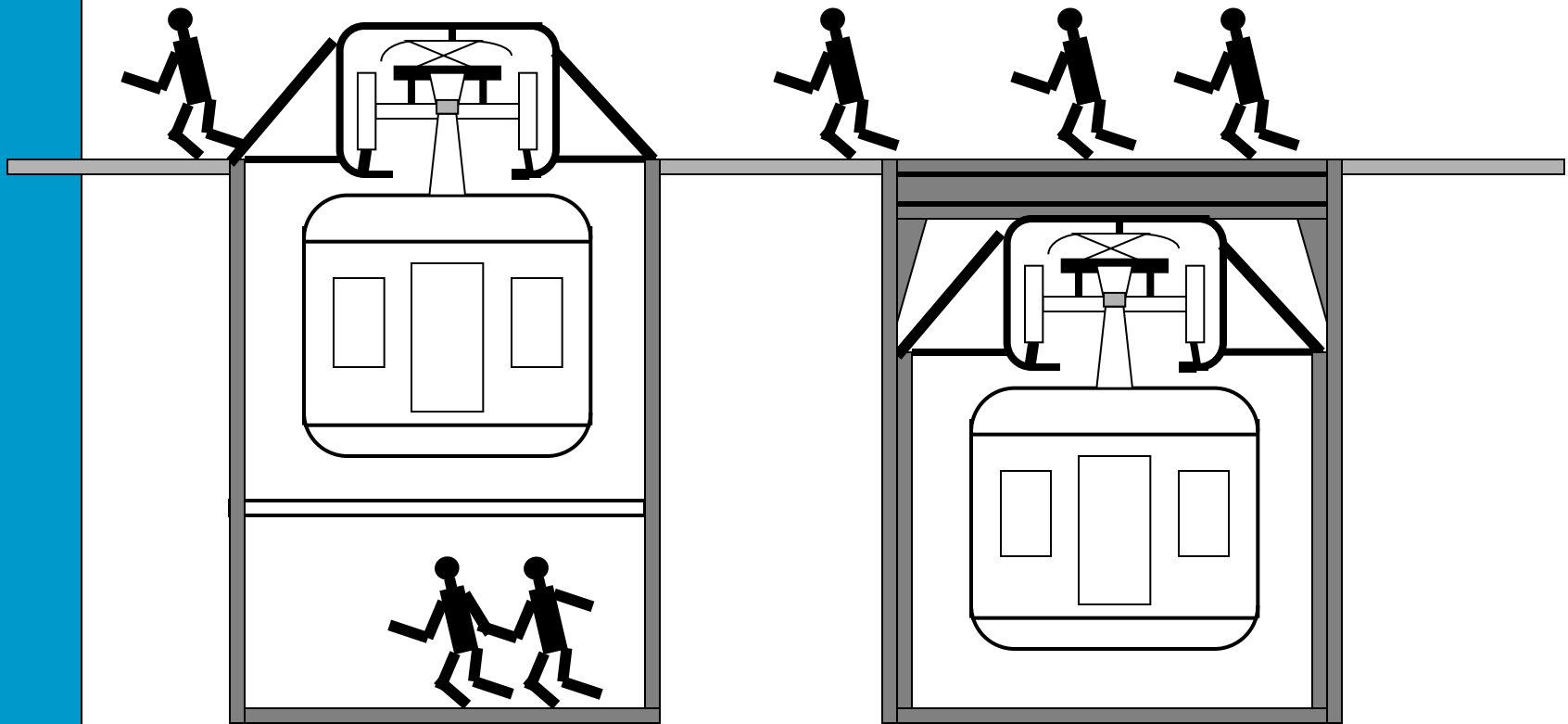
Platform levels only 10 feet apart

Safety net protects anyone falling from Sky Train platform

An architect's dream; an economical suspended mode helping dot the (i) in intermodal

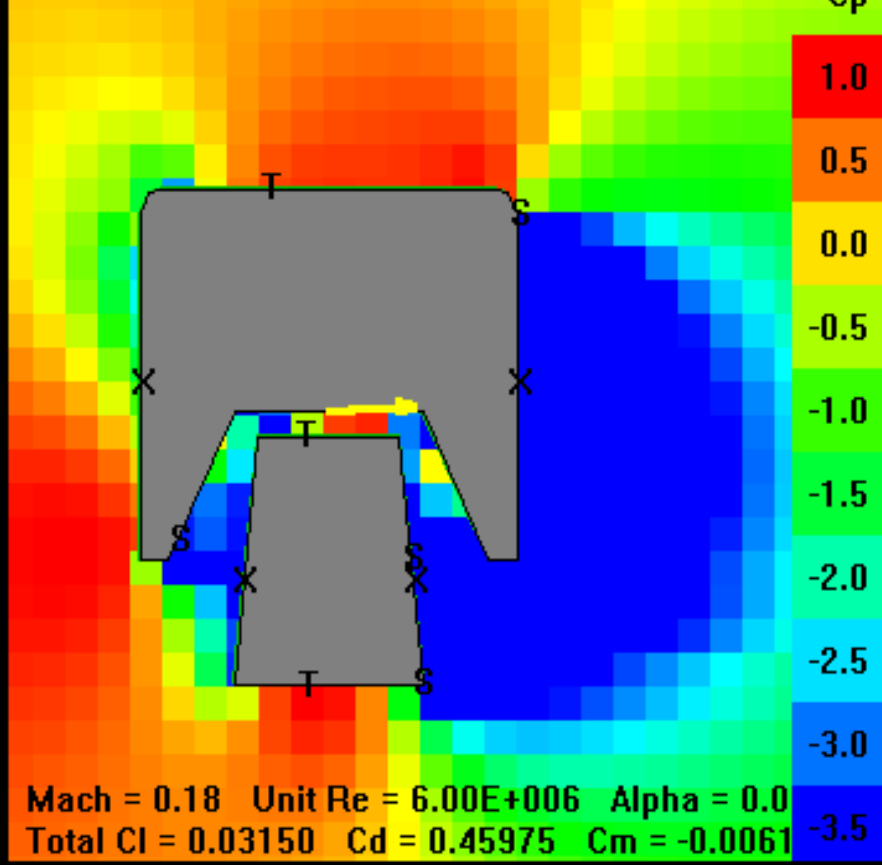


For Malls, Ports and Parks using Corridors, Cuts or Tunnels

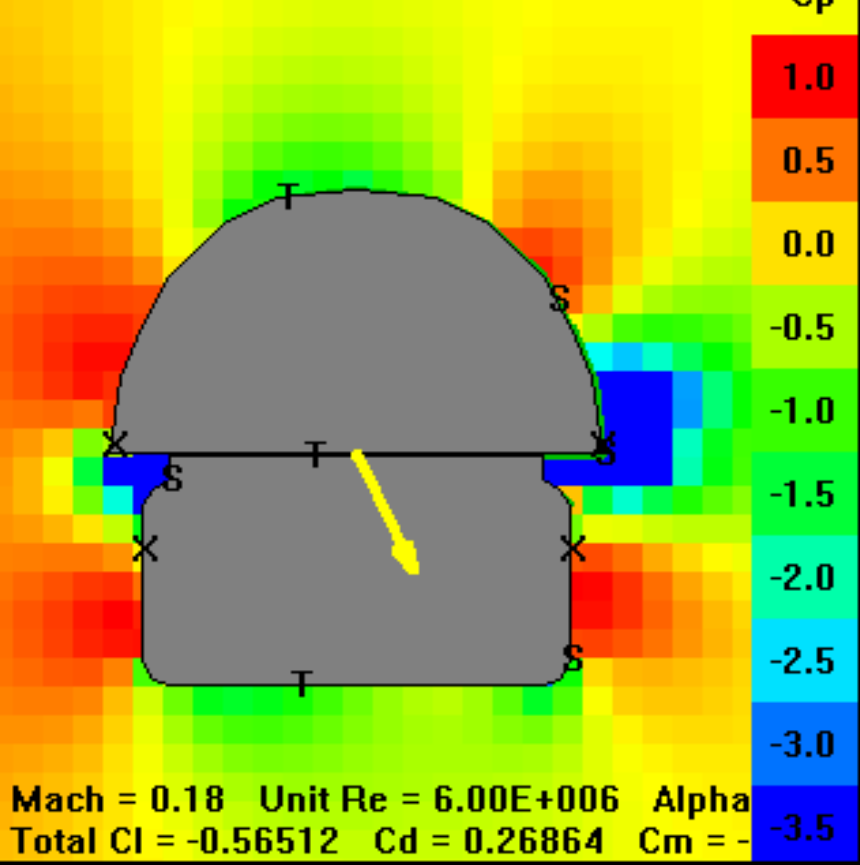


Computer Tested for Hurricane Winds *

Monorail or MagLev Cross Wind Test XMC.TXT REV: c 6/95



Vac-Lev Cross Wind Test XVC1.TXT Rev: c 6/95



Standard Monorail

Sky Train

*Computer generated for 118 MPH winds.

Monorail Transportation & Land Use

Safety – Grade separated, cannot derail - no traffic accidents

Reliability – Proven “track” record - high capacity

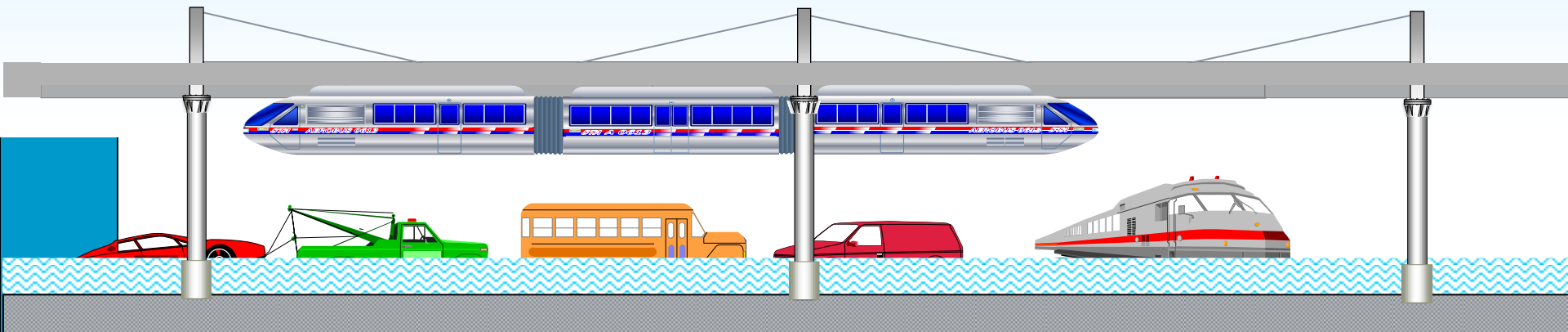
Natures Fury – Reliable evacuation service over floods and high winds, monorail does not require drainage features

Speed – Designed for any required speed no traffic congestion

Environment – No fences separating lands no rights of way at grade, no children & animals on tracks, minimal pollution

Cost – Minimal land occupancy & utility relocation at grade, capacity more than 9 lanes of roadway, competitive fares

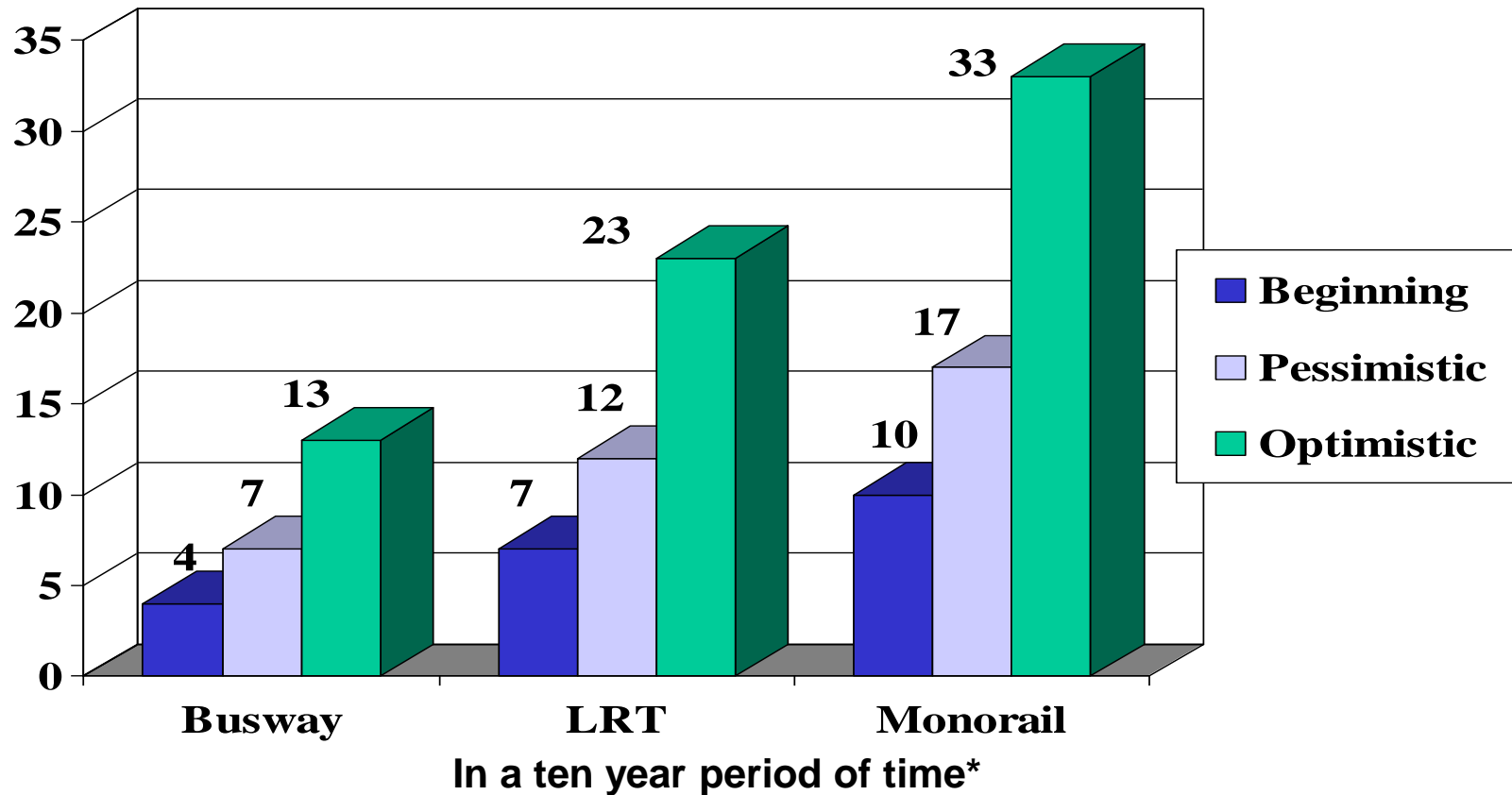
Modular Construction Allows Rapid Erection For Future Emergency Evacuation, Rescue & Supply!



Minimal disruption of busines and utilities!

Uses Efficient Standard Components - Providing Best Modal Connectivity!

Monorail Popularity with the Public



*Klages Pinellas Florida study

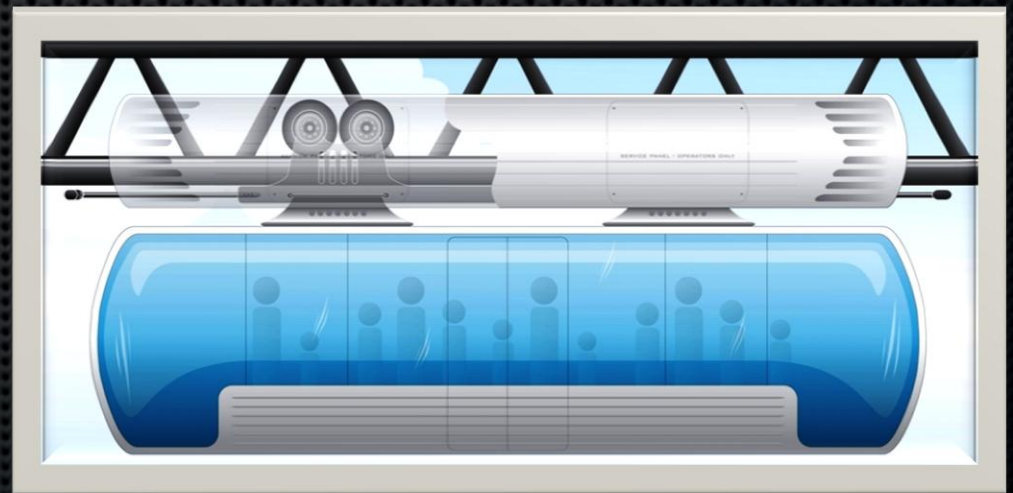
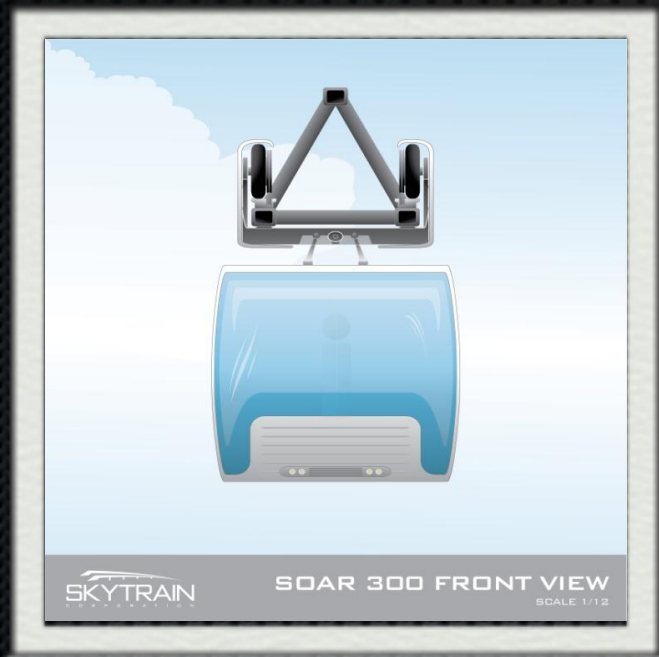
Sky Train Corp

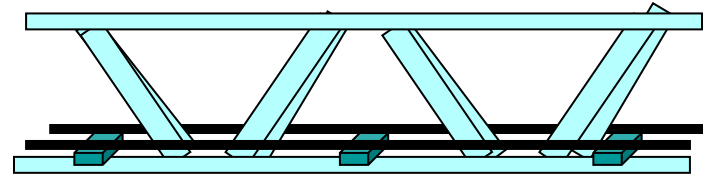
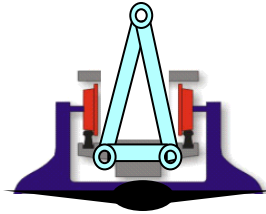
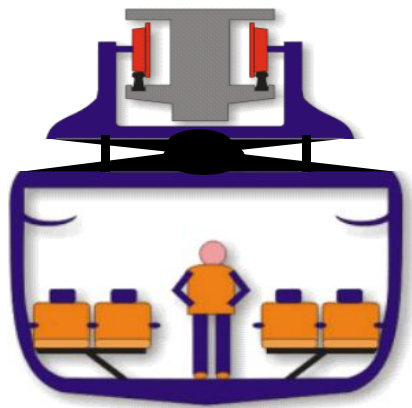
SOAR300 running on Sky Train's Universal Structure using Rubber or Steel Hub-Motor-Wheels & Maglev in the Future



Announcing the Release of the Suspended Overhead Automated Runway! (SOAR300)

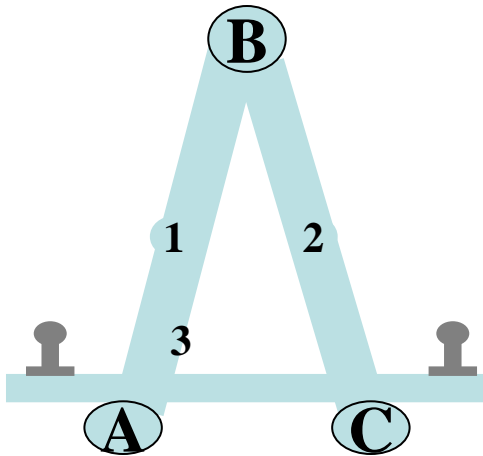
It Serves as a Micro-Grid for Regenerative Transfer and Storage of Electricity , Transmission of Gases and Fluids, Transportation of Passengers and to Mount Solar and Wind Equipment



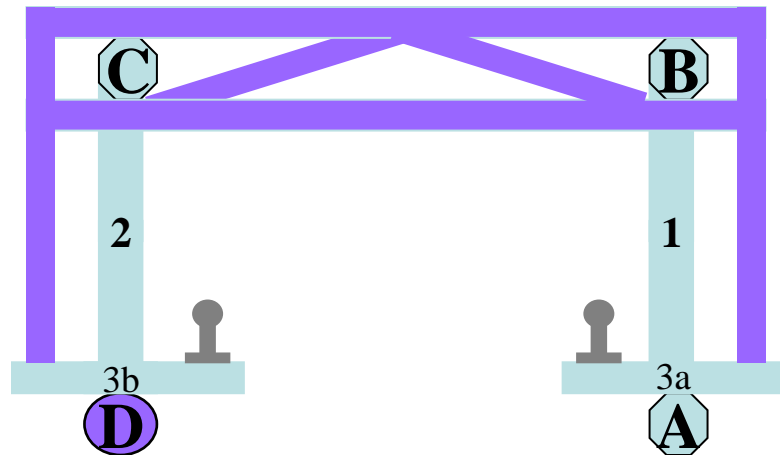


**OUR Superior Transit Concept
SOAR300[®] is DESIGNED FOR
LOW COST; STRUCTURE &
ENERGY CONSUMPTION**

For STC300 System



For STC100; STC150 & STC200 Systems below



LEFT NEW DESIGN IN GREEN; SAVES EXTRA MATERIAL



STC Utilizes Standard Automotive & Rail Parts

There are 2 types of MOTOR-WHEELS our systems are designed to use running on our aluminum or steel track to conserve energy and save on costs.

Patented Steerable “Wheel-Motors” for Trams and Light Rail Applications



STEEL WHEELED –

- * Carrying capacity on 4 wheels is up to 20 U.S. tons; equal to 20,000 pounds.
- * Speeds up to 50 mph exceeds light rail.
- * Saves 80% of the energy of buses of equal weight



RUBBER TIRED –

Continental Motor-Wheel Hybrid Systems:
The Next Generation Rubber & Rail



- * Quicker acceleration and deceleration.
- * High speeds up to 85 mph or higher.
- * This is a low cost automotive product.

Selecting the Intermodal Connector

“Form Follows function” [The Architects Mantra]

Investment is wasted if it does not achieve the function

Stakeholders define function - assuring requirements

Function determines site, needs determine technology

Define the technology, design and cost the application

Dangers: buying lowest cost or visual images

Emphasize “function as primary” in design & costing

Sky Train in the News



Assessment Study
Short listed by BWR for the National Science & Technology Council



Support by a TRDA Grant



On local TV and in the News



November 2003

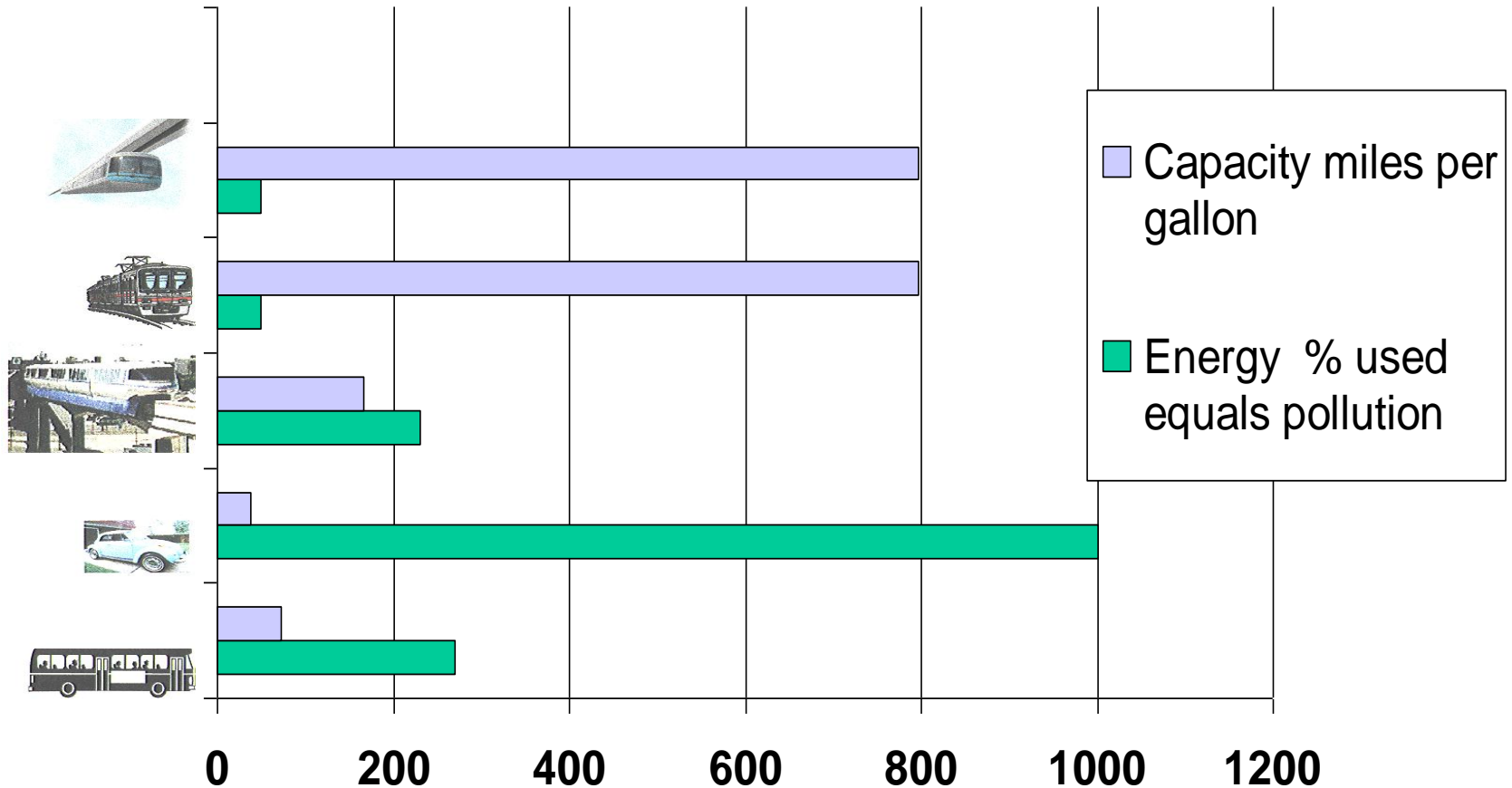
Transportation: a New Industry



- **What is Your Vision, for your Future?**
- We recommend environmentally sound startup and extension corridors
- Premium transportation guides and creates growth
- A Sky Train installation for future extensions
- FUTURE - you gain premium transportation, a tourist attracting icon, a new industry, eco-friendly development, employment, and more revenue to government
- **Value the view from the train - not of the train!**

Mode Efficiency; Consumption & Pollution

Shown as 100% capacity, passenger-miles per gallon



The Rewards and Benefits of Sky Train

The Sky Train System:

- * **High speed, high capacity** transit service, no imposed speed limits
- * **Swings on curves for passenger comfort allowing greater speed**
- * Suspended overhead passes **above all traffic and land uses**
- * Operates **above congestion** allowing **fast unimpeded service**
- * Designed to **continue operating in high winds**
- * **Safety:** Vehicles are **locked in the supporting structure**
- * **Descends to ground level** if necessary
- * **Can climb twice the rate** of the maximum suggested for highways
- * Uses **light rail components performance-tested** in existing services
- * Preferred **electric** operation ensures **good Air Quality**
- * Components **mostly standard off the shelf = low cost** due to competitive bidding
- * One **(1) Sky Train OSLR transports the equivalent of nine (9) or more Bus lanes**
- * **Uses less power** than rubber tired systems
- * Can be **totally automated at low cost**, the same as any subway
- * Can also be used **for heavy freight**

The Sky Train Car designs:

- * Cars 10ft to 13 1/3ft (3.0m to 4m) wide, 40ft (12.2) long **for high capacity and comfort**
- * From single cars up to full length trains offer **transportation capacities** equaling **modern subways**
- * Cars and stations can be air conditioned for **comfort in hot climates**
- * Level walk-in offers **double passenger loading rates** compared with up and down steps
- * Wide-door, level entry for **handicapped, wheelchairs and bicycles**
- * Wide-door, level walk-in for **accessing baggage trolleys and containers**

A suspended Monoduct provides:

- * A modular constructed duct **offering low overall cost and assembly time**
- * The **track, signaling and power supply** are installed safely **inside** the duct
- * Traction components inside are **protected against adverse environmental and climatic conditions**
- * Operation **continues** despite **high winds, snow, freezing rain, flooding, fallen trees etc.**
- * Powered trucks move inside the ducts, as a **sound barrier affording acoustic isolation**
- * Ducts are **inaccessible to trespassers or saboteurs, ensuring safe operation**
- * Does **not occupy right of way** on the ground, no children playing on tracks
- * Supporting columns **occupy minimal land**, minimizing property condemnation
- * **No tracks in the streets diminishing highway capacity**, nor trains causing accidents, injuries and deaths
- * **Does not require right of way fences, nor crash and isolation barriers**
- * **Has no grade crossings** - no delaying road traffic, accident risks, pollution from automobiles idling
- * **Ecologically friendly**, no weeds needing chemical spraying
- * **Has no place for trash** to accumulate on tracks, ditches, gutters or fenced areas
- * **Does not need drainage systems** or retention ponds
- * **Minimal environmental impact**, e.g. sight, noise, lubricants, dust and dirt, wild life, plant life, wet lands, lakes and rivers
- * Simplicity insures **easier Regulatory and Legal Approvals**

STC resumes at www.STC-IN.com

