Monorail History & Technology Of Successful Technology

First Monorail at Cheshunt England in 1825

The one Horsepower Monorail shows the efficiency of steel wheels on steel rails!

1821 patent of Henry Palmer and put into service in 1825 in a brick yard. Designed to carry bricks. For the grand opening they attached a carriage making monorail history by also carrying people.

Pictures, unless noted, used with permission of the Monorail Society, recolor work by Karl W. Guenther Jr. & Wilfred Sergeant.

Palmers Electrified version 1887

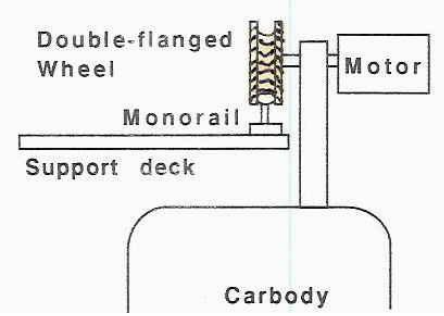
Built on the grounds of the Enos Electric Company in Greenville New Jersey, called the Enos Electric Railway. Build out of light steel construction.

Wuppertal 1901 to Present – Car 1971
New cars again slated for 2023

Technology of Wuppertal

A single rail – Truly a monorail (4 wheels / vehicle)

Steel wheels-Double flanged



Car body hangs from trucks

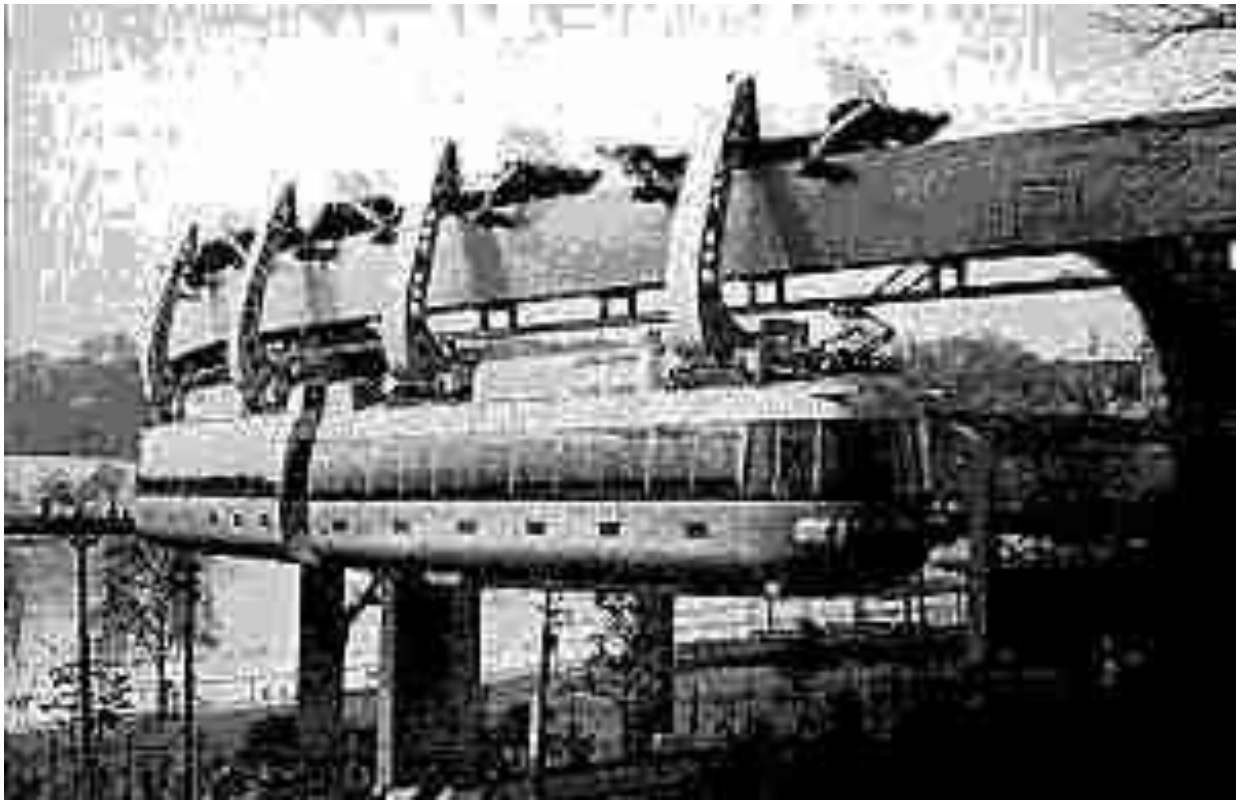
Double car bodies articulated with walk through

Almost level walk-in, cars swing slightly

Station platform elevation lower than Alweg

Elementary signal system-driver controlled

The Ueno Zoo in Tokyo in 1957



Japan in an all-out effort to improve its transportation infrastructure - presented their first monorail. It is a modernized version of Wuppertal's System. Feeling they could cut costs, they used rubber tire components.

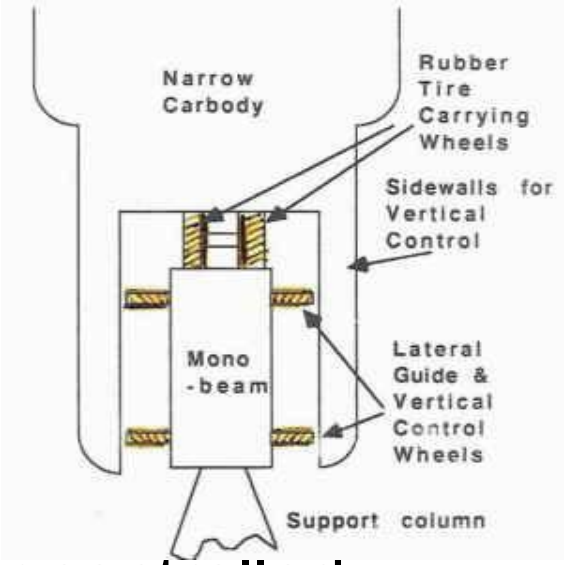
Pre 1953 Alweg System

Seattle, Designed for the Worlds Fair moving 8 million passengers in ½ year is a beloved Icon. This Alweg technology purchased by Bombardier is now the US's most prolific design. Besides Seattle, Las Vegas, Disney - US & France, Japan has the most, Kuala Lumpur & Russia now build.

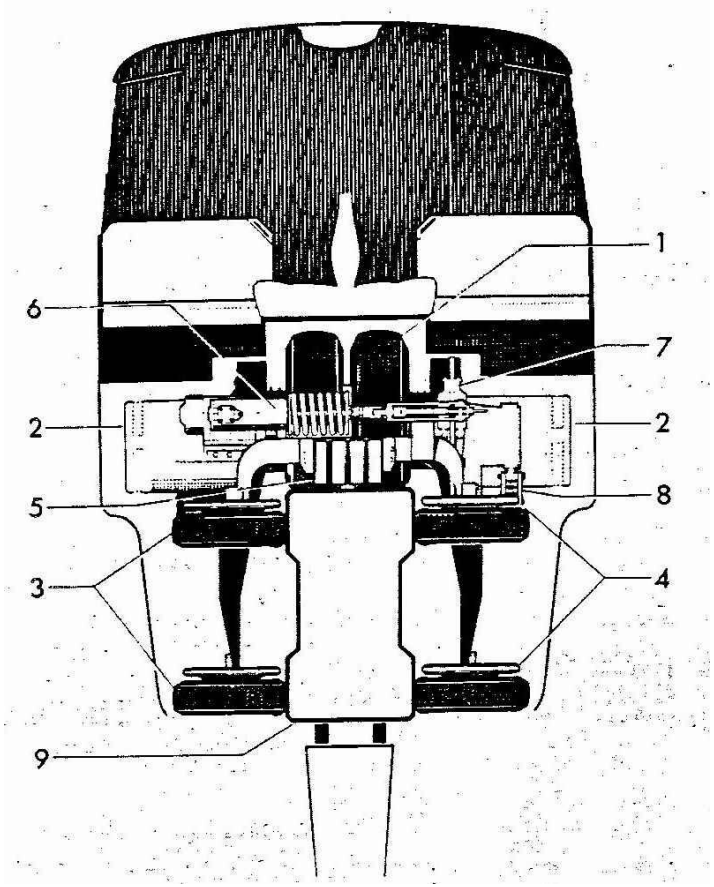
Jacksonville, one of the US's largest cities as to land mass, has quietly built a smaller version of the above and is constantly examining ways to improve mobility for their residents and visitors.

Technology of Alweg System

Rubber tires run on single beam – 5 track surfaces
Each truck has 4 carrying wheels, 4 guide wheels & 2 stabilizing wheels
Sharp curves require short cars
Trains have many short cars
Some trains are walk through
Car body rides on articulated trucks
Car floors above trucks cause high elevation of platforms
One system automated others driver controlled



Alweg Design - 10 wheels per truck = 20 Per car and 5 running surfaces



1 - Supporting wheels

2 – Nose – suspended motors

3 – Guide and stabilizing wheels

4 – Safety wheels

5 – Solid rubber roller

6 – Spring-powered brake cylinder

7 – Disc brake

8 – Rocker suspension

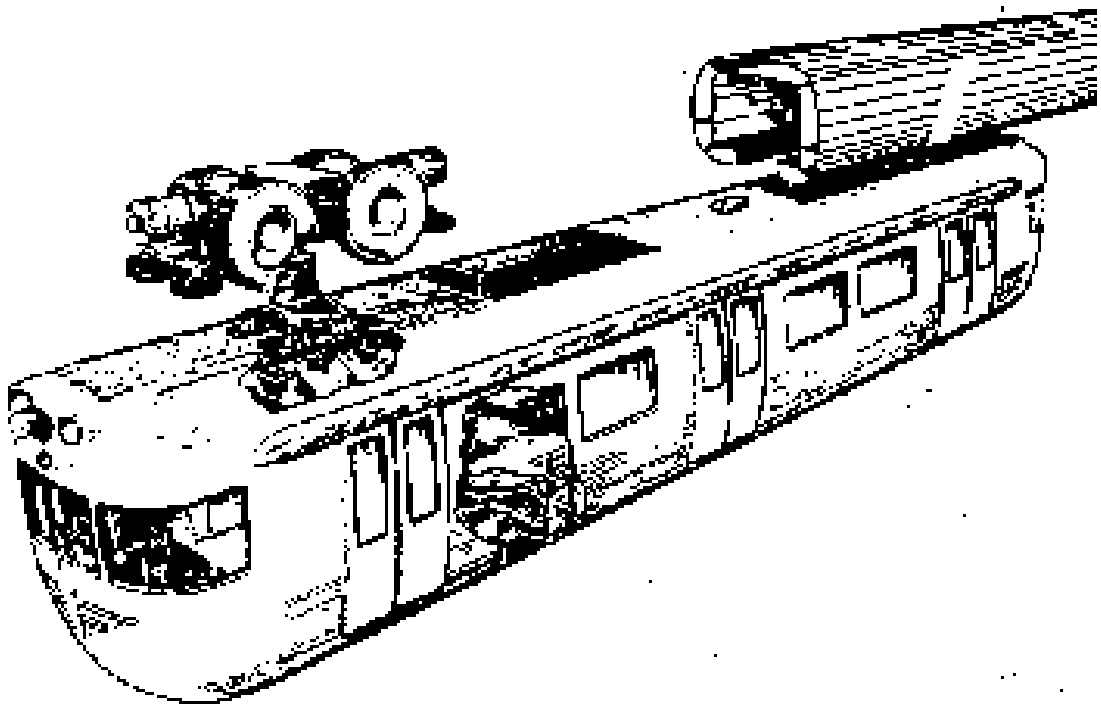
9 – Track beam

Comparison of Monorails: Las Vegas Alweg (Truck Like) Side Support Wheels, Versus Self Steering Rail Trucks

5 track surfaces to 2 tracks:

Alweg has 2 to 4 carrying, 4 guide & 2 stabilizing wheels to rail's 4 wheels

1958 First four-track vehicle

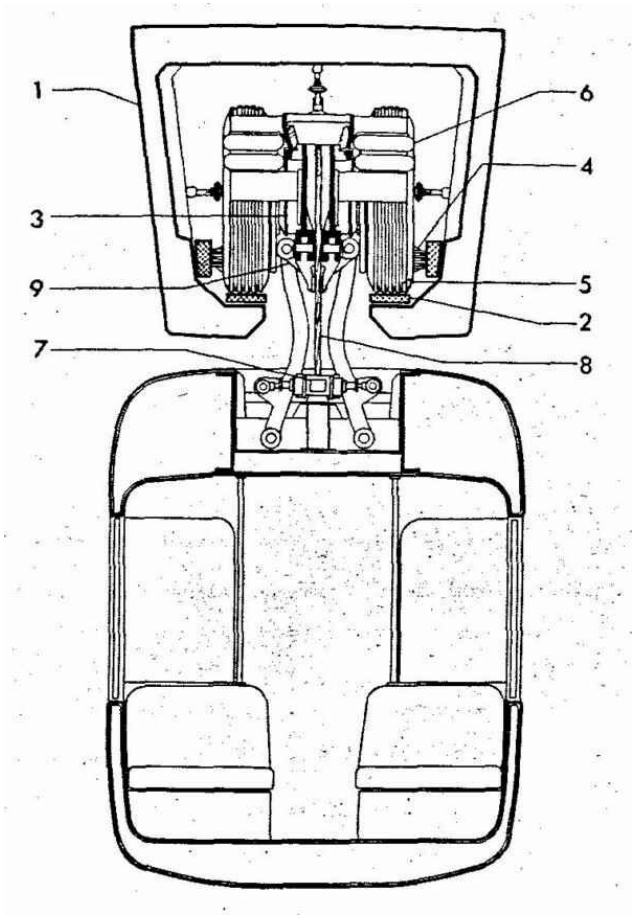


Monorail SAFEGE 1958

Funded by Michelin Tire of France, the above prototype system was built.

This technology was purchased and has been used in both Japan & Germany.

SAFEGE Using 8 Wheels Per Truck With Four Running Surfaces



1 – Beamway (Duct) concrete or metal

2 – Running Surface vertical & horizontal

3 – Traction motor, reduction gear, differential

4 – Guide wheels 4 wheels side

5 – Running wheels 4 top

6 – Pneumatic dampers and automatic leveling

7 – Roll Damper

8 – Safety cable

9 - Brakes

Technology of SAFEGE

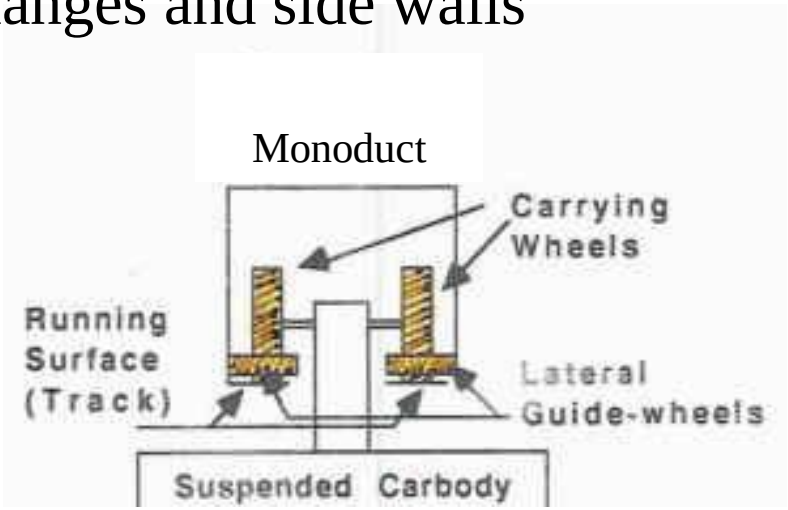
Duct in form of Inverted U with open space beneath

Four running surfaces on inner flanges and side walls

Two trucks per car, rubber tires

Four carrying wheels and four guide wheels

Car body hangs from trucks



Car body floor well below level of duct

Station platform elevation lower than Alweg

SAFEGE modified Shonan Japan 1970

Since the train runs in the air, visibility out of the car windows is spectacular.

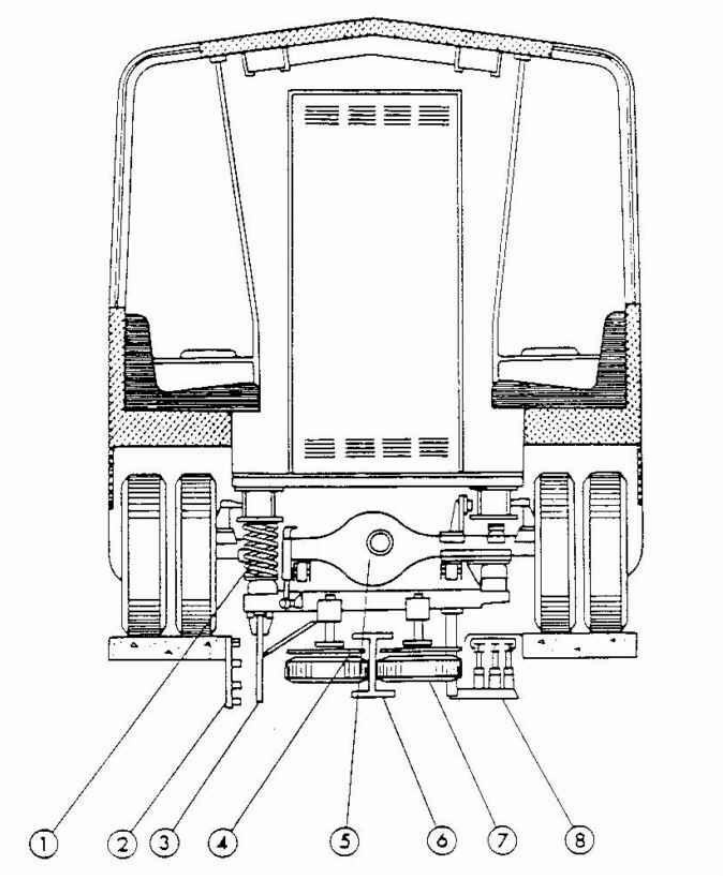
The view is directed downward: showing scenery, pedestrians, shopping displays and traffic congestion that is avoided by this trip.

Permission; the Japanese Railway Society (JRS) founded in 1991 in London, England.

SAFEGE modified Dortmund H–Bahn 1973

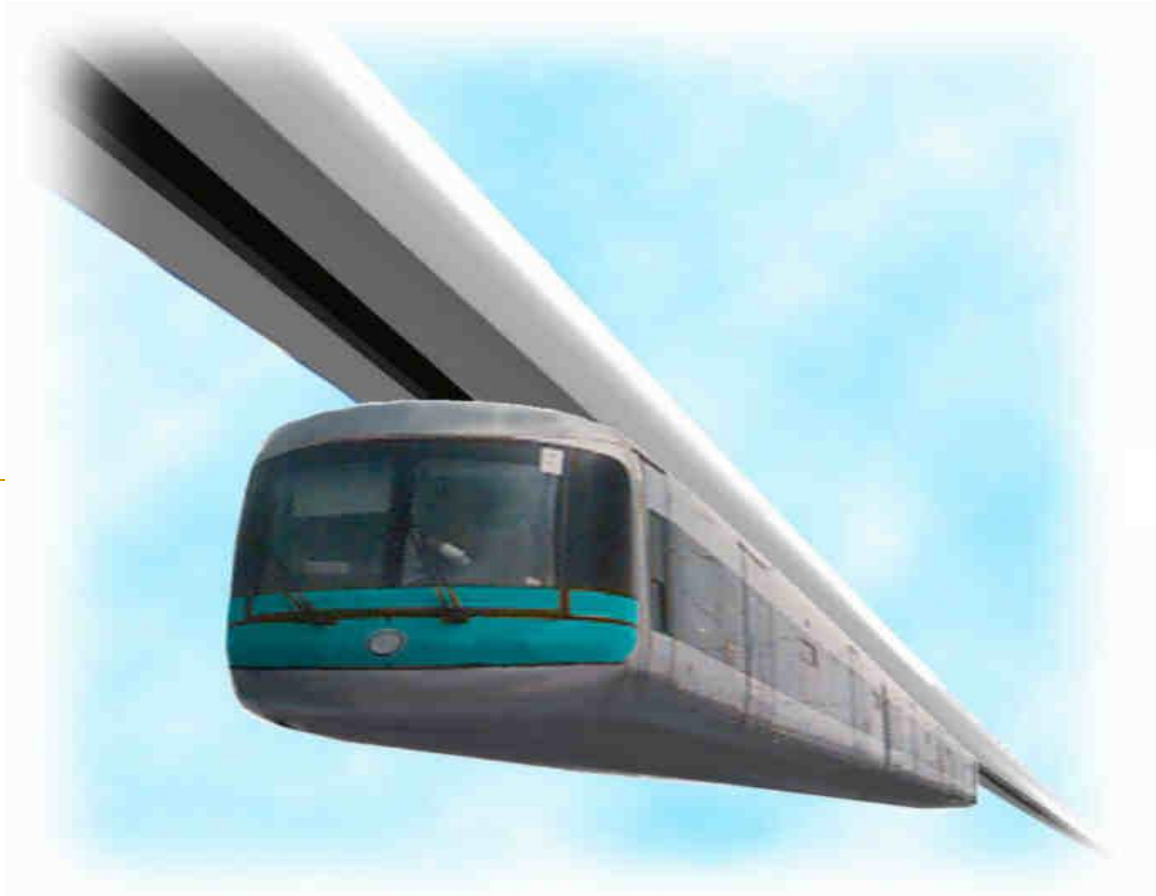
An old carrier from 1982 and
← wheel information from our associates and webmaster from
www.swedetrack.com
SAFEGE modified by Siemens now some 20 years on the open market

Westinghouse Airport System - No Monorail (Serving 50+% of Market)



1 – Spring, height leveler system
2 – Vehicle position indicator receivers
3 – Transmitter for position of car
4 – Metal disc in case any of the 4 guide tires loses air - to keep vehicle from hitting side wall
5 – Universal gear case connected to reduction gear and traction motor
6 – Center I beam to force position of vehicle
7 – Rubber tire to guide vehicle
8 – Power collectors

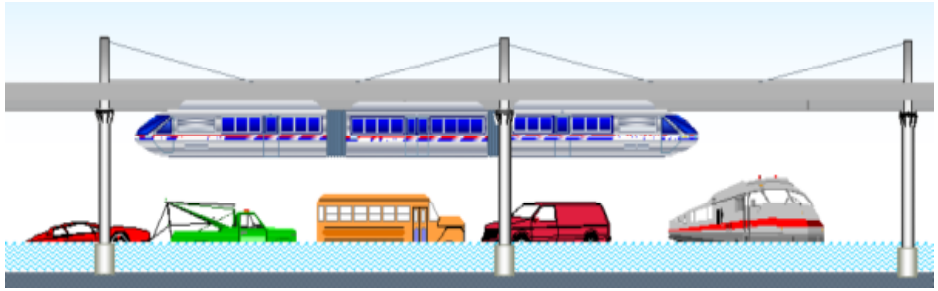
Sky Train - STC100 & 150
Urban High Speed Monorail



www.skytraincorp.com

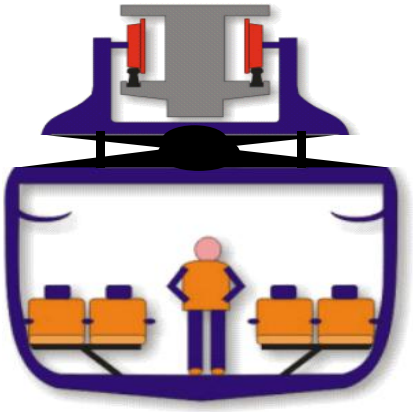
Superior Transit Concepts : Features low Cost, Weight, and Electronic Regeneration

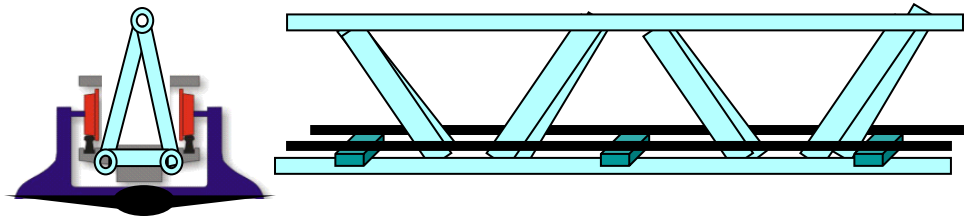
STC provides: A NEW LEVEL OF UNINTERRUPTED TRANSPORTATION USING ONLY 4% OF GROUND SPACE



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

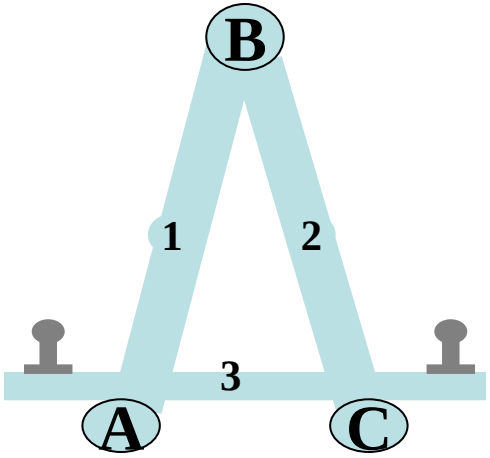
STC150 Designed for Safety to scan cargo, automating our port operations – Reducing client work in process reducing overall port costs



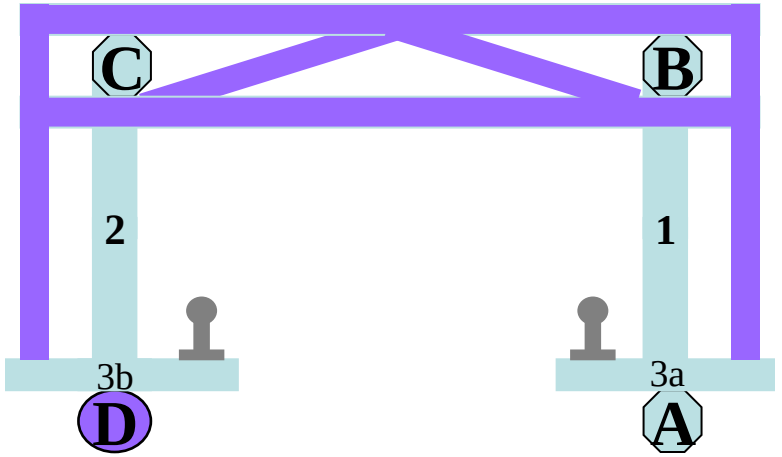


OUR Superior Transit Concept SOAR300© is DESIGNED FOR LOW COST; STRUCTURE & ENERGY CONSUMPTION

For SOAR300 System



For STC100; STC150 & Systems below



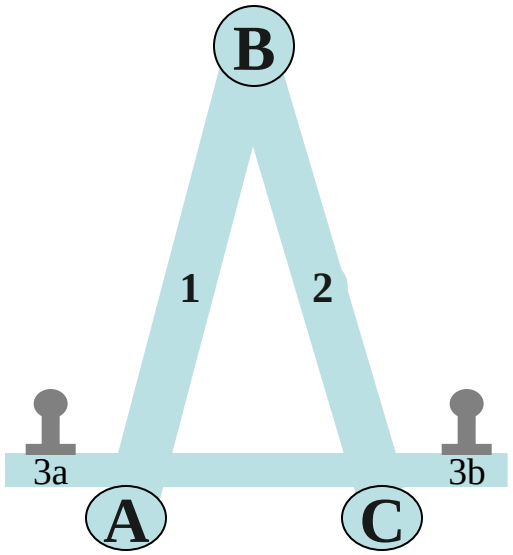
LEFT NEW DESIGN IN GREEN; SAVES EXTRA MATERIAL

Cost of Structures*

The left structure uses about 60% less material and labor.

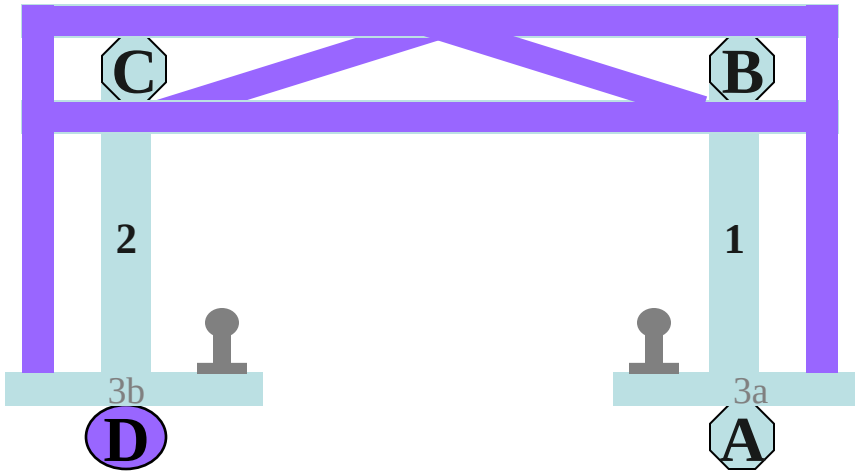
Structure for:

SOAR300



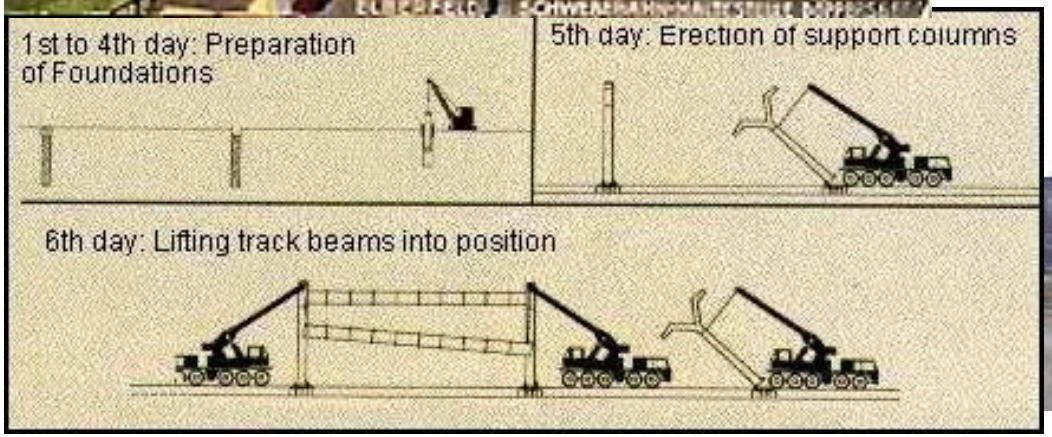
Structure for:

STC100; STC150



*** SIMPLIFIED FOR CLARITY**

Construction Top is Wuppertal circa 1900
Below is Siemens expansion circa 2000



S.E.T. Patented Steerable 'Wheel-Motors' For Trams and Light Rail Applications

•The permanent magnet synchronous motor is part of the wheel and provides a high efficiency (97+%), light weight, compact assembly.

*As the drive is direct to the rim of the wheel, eliminating the need for gearboxes and transmissions, the above efficiency is for tractive effort at the wheel against electrical output.

•Since the 'Wheel-Motor' is a permanent magnet, synchronous motor, the speed/rotation can be precisely controlled down to zero rpm. This enables the 'Wheel-Motor' to act as a service brake and to regenerate energy when braking and reducing speed. (Programmed speed increases savings)

*The 'Wheel-Motor' may be used in conjunction with the S.E.T. steering system in which the speed of each independent 'Wheel-Motor' can be controlled to enable the inside wheels to travel at a proportionately slower speed, thus considerably reducing track wear and wheel noise.

Hybrid Systems: The next Generation

Hybrid Systems: The next Generation
Continental is also working on a future hybrid concept which is more compact and delivers higher efficiency due to the use of integrated electronics. In this advanced concept the electronics are directly arranged on the circumference of the electric machine to be mounted as single component. Main advantages of these constructions are:
Optimized for packaging
Costs savings due to simpler integration and assembly
Better output due to higher efficiency
Performance of the shown machine: 480 Nm at 1200 rpm this equals 85 miles per hour

Technology of Sky Train STC100/150: 4 Steel wheels per truck - two tracks

Whole system uses modern light rail technology – shares spare parts supply, maintenance skills and shop facilities

Duct in form of inverted "U" with inner flanges

Two rails – one on each flange with open space between

Tapered wheels self steering – no other guidance necessary

Bodies can be detached and replaced, "patents are pending"

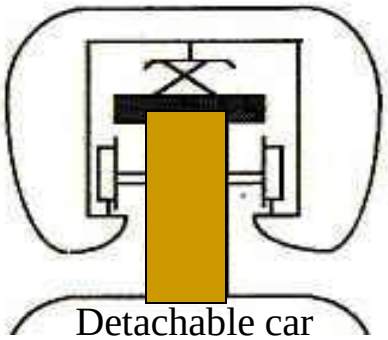
Vehicle can operate on standard shop tracks

Any size cars according to required service

Capacity from single cars up to full subway

Car body floor well below level of duct

Station platform elevation lower then Alweg

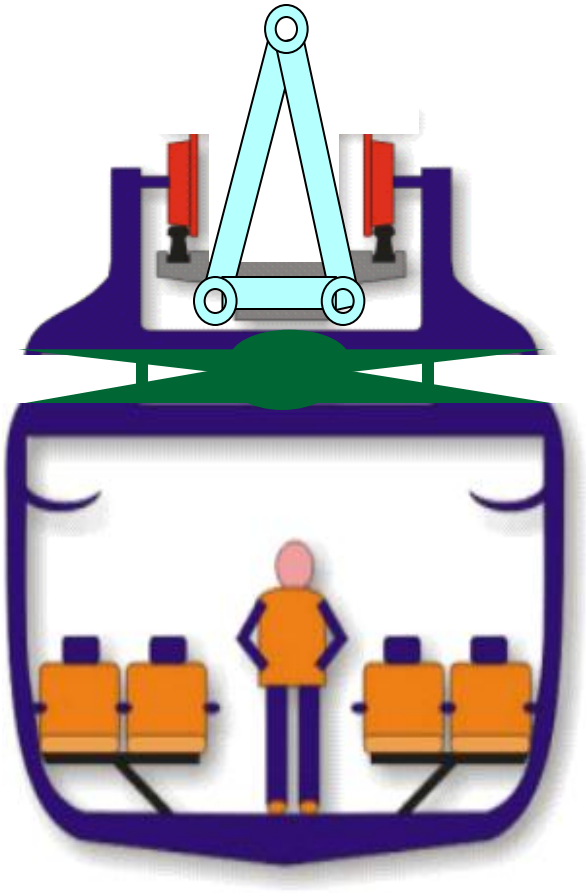


Detachable car

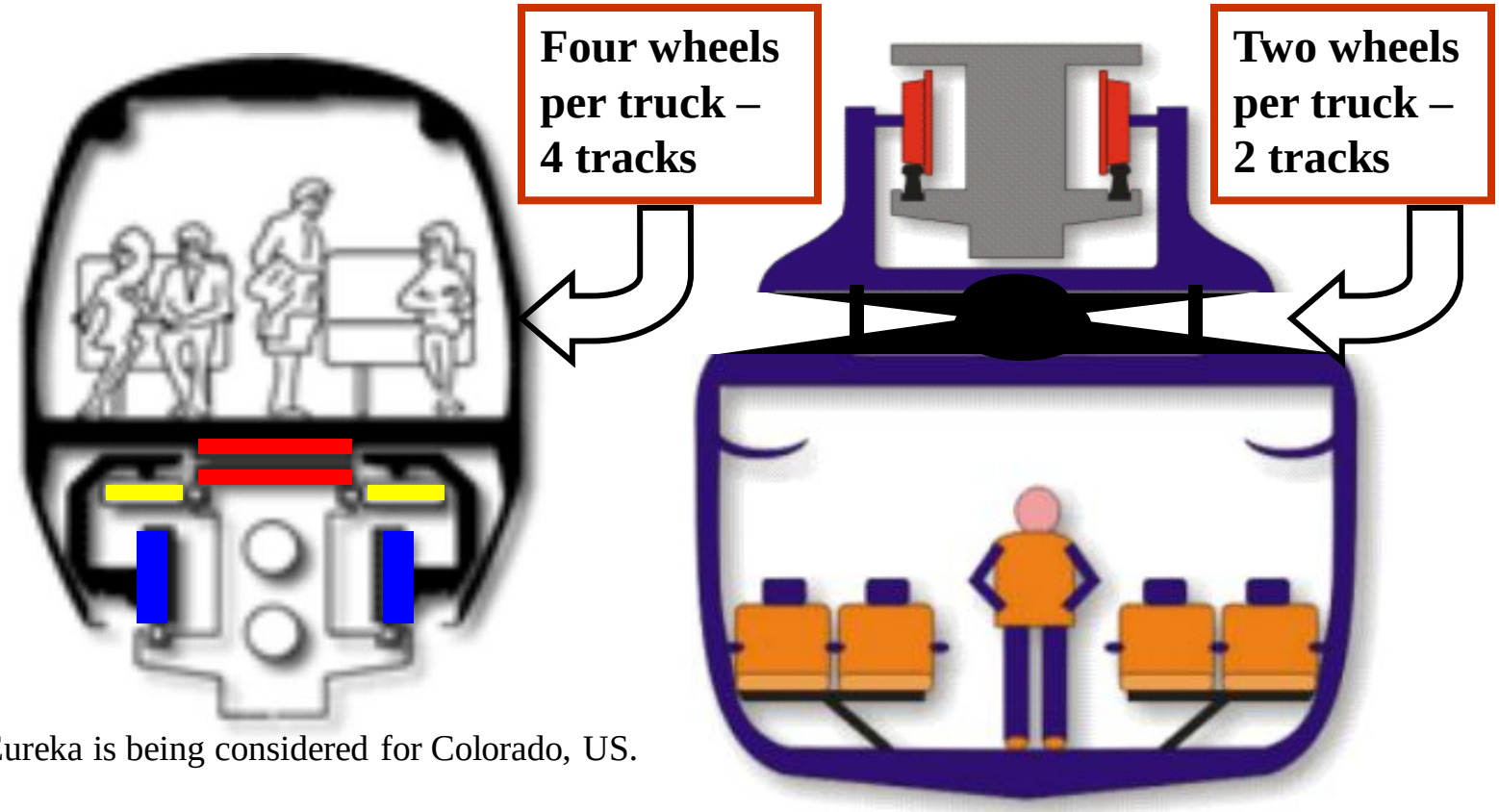
SOAR300 also CREATES a Corridor to move electricity, water, hydrogen or ammonia for fuel, secure fiber optic cables for communication, education, TV, & cell phones

Again: Since generally the structure is the greatest cost of any system (60% to 80%) our design is low cost & faster to erect due to horizontals being hung on the steel verticals as shown in the simulation. There is low pollution or disturbance of the existing environment during construction.

Remember: America was transformed and prospered by the construction of the Railroads, this model still works; connecting population centers and work sites causes a peaceful migration of residents to work centers, increasing access to goods & services, while increasing living standards and harmony.



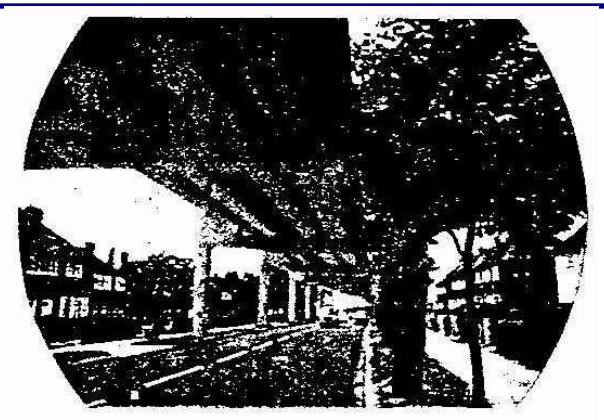
The SOAR300: New System Technology Profile; Left Europe's "Eureka" & Right is our Future "Utopia"



The Eureka is being considered for Colorado, US.

We are patented in the US and have internationally patent pending designs, are pursuing a stock sale and grants for further accomplishment.

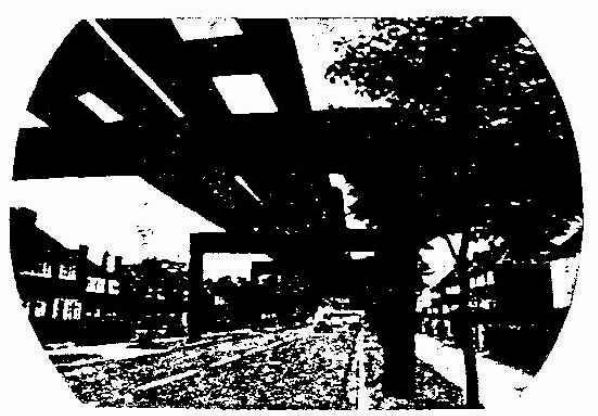
Visual Appearance of Technology



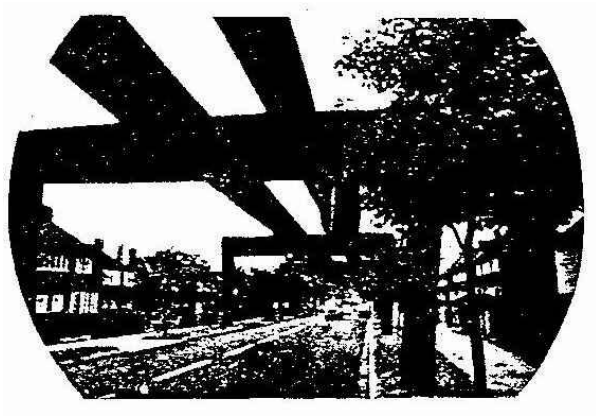
Elevated Rail

NOT

MONORAILS



Westinghouse – Airport



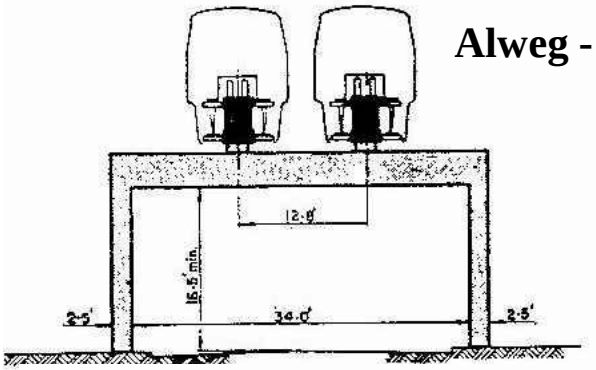
Alweg - Disney

MONORAILS

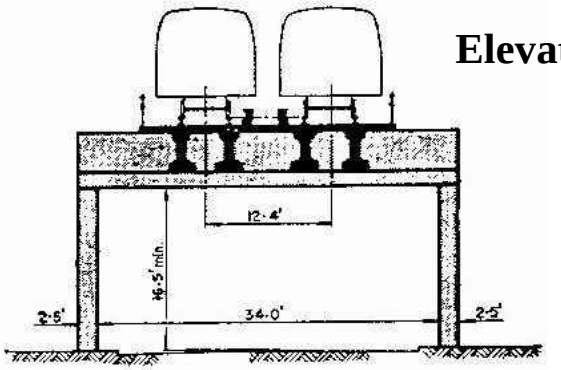
SAFEGE or Sky Train

System Cross Sections

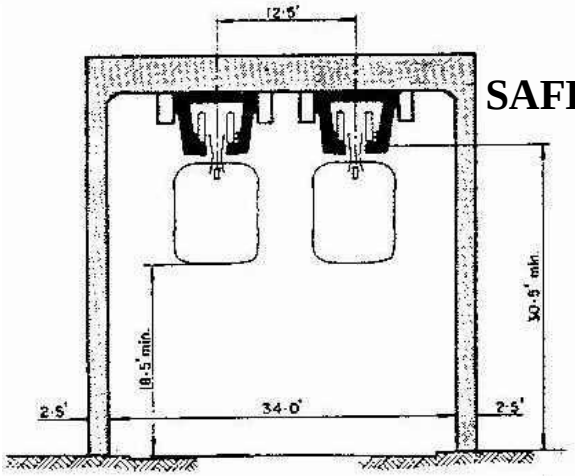
Alweg - Disney



Elevated Rail



SAFEGE & Sky Train



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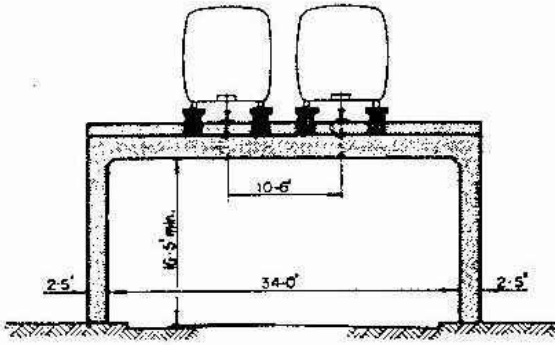
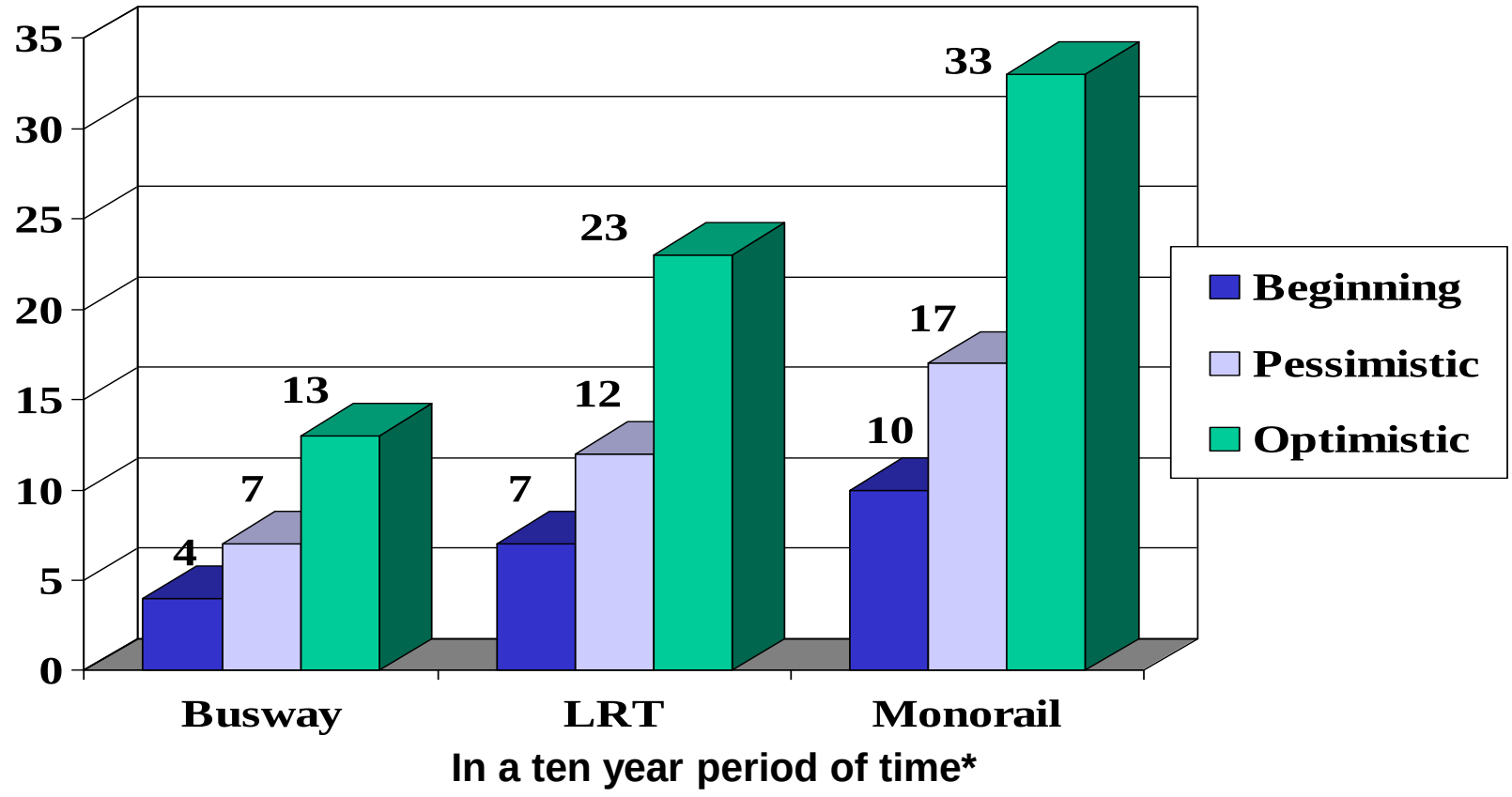


Monorail Popularity with the Public



*Klages Pinellas Florida study

Sky Train Corp

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 l**ocked 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